



HSNC University, Mumbai
Bombay Teachers' Training College
Recognized by NCTE
Re-Accredited 'A' Grade by NAAC (3rd Cycle)



of

AI TOOLS FOR DIGITAL PEDAGOGY

A practical toolkit for transforming the learning environment

Institutionalising BTTC's Progressive Digital Footprints and Pedagogies
SCAFFOLDING DIGITAL COMPETENCIES (SDC)
(An Institutional Best Practice since 2020)

Presents

**A COLLABORATIVE COMPILATION BY TEACHER EDUCATORS
AND PRE-SERVICE TEACHERS**

Chief Editor
Dr. Bhagwan Balani

Associate Editors

Prof. (Dr.) Rajeev Indramani Jha Prof. (Dr.) M. A. Ansari
Prof. (Dr.) Priya Pillai Dr. Manisha Tyagi Ms. Farrah Kerawalla



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**Message from the President,
Hyderabad (Sind) National Collegiate Board
Dr. Niranjan Hiranandani**

It gives me immense pleasure to extend my heartfelt congratulations to **Bombay Teachers' Training College (BTTC)** for its remarkable initiative and commitment toward transforming the landscape of teacher education in India. BTTC has consistently upheld the highest standards of academic excellence, innovation, and integrity, and its recent efforts to integrate cutting-edge Artificial Intelligence (AI) tools into the teaching-learning process stand as a shining example of progressive educational leadership.



In an age where technology is redefining every sphere of human life, the role of teachers is evolving rapidly. Their responsibility extends beyond imparting knowledge—to inspiring inquiry, nurturing creativity, and preparing learners for a future shaped by digital fluency and intelligent systems. BTTC has demonstrated exemplary foresight in embracing this change. By curating an extensive compilation of AI tools, developing AI-embedded pedagogical practices, and empowering both faculty and student teachers with emerging digital competencies, the institution has positioned itself at the forefront of educational innovation.

The collaborative spirit displayed by the Principal, faculty, and student teachers of BTTC is truly commendable. Their collective endeavour reflects a deep commitment to elevating teacher preparation through research, creativity,

and meaningful adoption of new-age technologies. Such work does not merely enhance academic processes; it strengthens the foundation of schooling and higher education, ensuring that future educators are well-equipped to navigate and lead in the dynamic world of learning.

I firmly believe that initiatives like these will catalyse a larger transformation across the HSNC Board institutions. As BTTC continues to advance its vision of AI-driven pedagogies, digital content creation, and innovative teacher education practices—including its future plans for establishing a Tech Club, producing podcasts and edcasts, and organising hackathons and bootcamps—it will undoubtedly serve as a model for others to follow.

I congratulate the entire BTTC family for this extraordinary achievement and applaud their dedication to reimagining teacher education for a technologically empowered tomorrow. May your efforts continue to inspire excellence, foster innovation, and uplift the noble profession of teaching.

Warm regards,

Dr. Niranjan Hiranandani

President

Hyderabad (Sind) National Collegiate Board

**Message from the Provost,
HSNC University, Mumbai
Adv. Anil Harish**

It gives me great pleasure to convey my warm congratulations to **Bombay Teachers' Training College (BTTC)** for its visionary and pioneering efforts in transforming the landscape of teacher education. BTTC has always been a beacon of academic excellence under the aegis of the HSNC University, Mumbai, and its continuous pursuit of innovation, especially through the integration of **Artificial Intelligence (AI)** in teacher preparation, exemplifies the institution's commitment to future-oriented education.



The successful compilation of over a hundred AI tools, highlighting their pedagogical applications, utilitarian value, and educational implications, represents a milestone in the evolution of teacher education. By exploring how technology can empower both educators and learners, BTTC has positioned itself as a leader in reimagining how teachers are trained to meet the needs of 21st-century classrooms. This initiative not only aligns with the larger mission of HSNC University to promote innovation and interdisciplinary learning but also reinforces the importance of digital literacy, reflective practice, and ethical use of AI in education.

I am particularly heartened to see how this endeavour reflects **collaborative academic engagement**—bringing together the Principal, faculty, and student teachers in a shared vision of institutional growth. Their enthusiasm and

commitment to research-driven practice, digital transformation, and inclusive education mirror the values that HSNC University, Mumbai, upholds.

BTTC's future vision—to institutionalise AI-embedded pedagogies, establish a **Tech Club**, and launch podcasts, edcasts, hackathons, and bootcamps—is truly inspiring. Such initiatives will undoubtedly empower student teachers and faculty to create innovative learning content, design curriculum-aligned digital courses, and contribute meaningfully to the global discourse on technology-enabled education.

I commend the leadership of **Dr. Bhagwan Balani**, Principal of BTTC, and the dedication of his team for their relentless pursuit of excellence. Their work embodies the spirit of transformation that HSNC University stands for—a spirit that bridges tradition with innovation and pedagogy with technology.

My best wishes to the entire BTTC fraternity for their continued success and for setting a benchmark in redefining teacher education for the digital age.

Warm regards,

Adv. Anil Harish

Provost

HSNC University, Mumbai

**Message from the Vice Chancellor,
HSNC University, Mumbai
Col. Prof. Hemlata Bagla**

HSNC University, Mumbai, is committed to building a future-ready education ecosystem that thoughtfully integrates emerging technologies while remaining firmly rooted in academic integrity, inclusivity, and human values. Our vision is to prepare institutions, educators, and learners to engage meaningfully with Artificial Intelligence (AI) as a transformative force shaping pedagogy, research, governance, and leadership in higher education.



In pursuit of this vision, the University has adopted a structured and progressive approach—beginning with an International Conference on AI Horizons , followed by strategic initiatives focused on embedding AI within each academic discipline across faculty , and subsequently advancing to AI in institutional leadership, aimed at sensitising and equipping senior academic and administrative leaders for responsible AI adoption across HSNC colleges and University Schools. The present compilation, *A-Z of AI Tools for Digital Pedagogy*, stands as a powerful testimony to this ongoing journey, translating institutional vision into tangible academic practice.

It gives me immense pride and pleasure to congratulate Bombay Teachers' Training College (BTTC) for its outstanding contribution to transforming the landscape of teacher education through the meaningful integration of AI in pedagogy, assessment, and professional practice. BTTC's commitment to embracing innovation while maintaining academic excellence truly reflects

the spirit of HSNC University—an institution that believes in blending tradition with technology and vision with values.

The initiative to compile and contextualise over one hundred AI tools for educational application marks a significant stride in reimagining how teachers are prepared for the classrooms of tomorrow. By examining the utilitarian value, features, and pedagogical implications of these tools, BTTC has created a valuable resource not only for its own teacher education community but also for educators and institutions across the nation.

In a world where AI is redefining how we teach, learn, and interact, educators must evolve as architects of change. I am delighted to see BTTC leading this transformation by cultivating AI-driven, research-informed, and learner-centred pedagogies. The collaborative engagement of the Principal, faculty, and student teachers in this endeavour exemplifies the culture of teamwork, scholarship, and creativity that HSNC University proudly fosters.

The vision to institutionalise AI-embedded pedagogical practices and to establish a Tech Club dedicated to podcasts, edcasts, hackathons, and bootcamps for digital content development is both forward-thinking and impactful. Such initiatives will empower future educators to become confident innovators capable of designing curriculum-aligned, technology-enhanced learning experiences across all levels—from Kindergarten to Postgraduate education (KG to PG).

I extend my heartfelt congratulations to Dr. Bhagwan Bslani, Principal of BTTC, and his dynamic team of faculty and student teachers for their work stands as a shining example of how education can evolve responsibly, inclusively, and ethically in the age of AI.

Col. Prof. Hemlata K. Bagla

Vice-Chancellor

HSNC University, Mumbai

**Message from the Trustee and Former President,
Hyderabad (Sind) National Collegiate Board
Dr. Kishu Mansukhani**

It gives me immense pleasure to extend my heartfelt congratulations to **Bombay Teachers' Training College (BTTC)** for its commendable initiative in transforming the landscape of teacher education through innovation, collaboration, and purposeful integration of emerging technologies. BTTC has consistently upheld the rich legacy of the HSNC Board by nurturing academic excellence, values-based education, and progressive thinking, and this initiative is a shining reflection of that tradition.



In an era marked by rapid technological advancement, the role of teacher education institutions has become increasingly significant. The efforts undertaken by BTTC to embrace **Artificial Intelligence (AI)** and embed it meaningfully into teacher preparation programmes demonstrate foresight, academic leadership, and a deep commitment to preparing future-ready educators. By fostering AI-driven pedagogies, encouraging digital content creation, and cultivating a culture of research and innovation, BTTC has positioned itself as a leader in reimagining teacher education for contemporary and future learning environments.

I am particularly impressed by the collaborative spirit reflected in this endeavour, wherein the Principal, faculty members, and student teachers have worked together as a vibrant academic community. Such collective engagement not only strengthens institutional capacity but also instils in future teachers the values of teamwork, creativity, and lifelong learning—qualities essential for effective educators in the 21st century.

BTTC's vision to institutionalise AI-embedded pedagogies, establish platforms such as Tech Clubs, and promote initiatives including podcasts,

educasts, hackathons, and bootcamps for curriculum-aligned digital course development is both timely and inspiring. These initiatives will undoubtedly empower teacher educators and student teachers to contribute meaningfully to the evolving educational ecosystem, from Kindergarten to Postgraduate levels (KG to PG).

I congratulate **Dr. Bhagwan Balani**, Principal of BTTC, and the entire BTTC fraternity for their dedication, innovation, and commitment to excellence. I am confident that BTTC will continue to set benchmarks in teacher education and remain a source of inspiration for institutions across the country.

With my best wishes for continued success and impactful educational leadership.

Warm regards,

Dr. Kishu Mansukhani
Trustee and Former President
HSNC Board

**Message from the Trustee,
Hyderabad (Sind) National Collegiate Board
Dr. Maya Shahani
to BTTC Faculty**

It gives me great pleasure to extend my heartfelt congratulations to **Bombay Teachers' Training College (BTTC)** for its commendable and forward-looking initiative aimed at transforming the landscape of teacher education. BTTC has consistently demonstrated its commitment to academic excellence, innovation, and values-based education, and this endeavour stands as a proud reflection of its progressive vision.



In today's rapidly evolving educational ecosystem, the role of teacher education institutions is pivotal in shaping educators who are reflective, adaptable, and technologically empowered. I am delighted to note BTTC's focused efforts to integrate **Artificial Intelligence (AI)** meaningfully into teacher preparation programmes. By embedding AI-driven pedagogies, promoting digital content creation, and encouraging research-informed teaching practices, BTTC is preparing future educators to meet the dynamic demands of 21st-century classrooms with confidence and competence.

As a Trustee of the HSNB Board and a mentor to the BTTC faculty, I have closely observed the dedication, enthusiasm, and collaborative spirit with which the Principal, faculty members, and student teachers have undertaken this initiative. This collective academic engagement not only strengthens institutional capacity but also nurtures a culture of continuous professional growth, innovation, and reflective practice among teacher educators.

The vision articulated by BTTC—to institutionalise AI-embedded pedagogies, establish a **Tech Club**, and promote initiatives such as podcasts, educasts, hackathons, and bootcamps for curriculum-aligned digital course

development—is both timely and inspiring. These initiatives will empower faculty and student teachers to become creators of knowledge and contributors to the broader educational community, supporting teacher preparation from Kindergarten to Postgraduate levels (KG to PG).

I congratulate **Dr. Bhagwan Balani**, Principal of BTTC, and the entire BTTC fraternity for their unwavering commitment to excellence and innovation. I am confident that BTTC will continue to serve as a model institution, inspiring transformative practices in teacher education and contributing meaningfully to the future of learning.

With warm regards and best wishes for continued success,

Dr. Maya Shahani
Trustee, HSNB Board
Mentor to BTTC Faculty

Message from the Principal

Bombay Teachers' Training College (BTTC), Mumbai

Dr. Bhagwan Balani

It gives me immense pleasure to present this comprehensive compilation of more than one hundred Artificial Intelligence (AI) tools, each meticulously curated for their utilitarian value, pedagogical relevance, and transformative potential in the field of teacher education. This volume stands as a testament to the collective intellectual commitment of the BTTC community—our faculty members, student teachers, and the



academic leadership—who have collaboratively contributed to the identification, analysis, and evaluation of AI tools that are now reshaping global educational practices.

In an era defined by technological acceleration, teachers are expected not only to transmit knowledge but to design immersive learning experiences that are responsive, adaptive, creative, and inclusive. AI serves as a powerful enabler in this regard, offering unprecedented opportunities to enhance instructional design, personalise learning, streamline assessment practices, and foster meaningful human-machine collaboration. The integration of AI into teacher preparation is no longer aspirational—it is essential. BTTC, with its long-standing legacy of excellence in teacher education, embraces this transformative shift with conviction and clarity.

Vision for Institutionalising AI-Driven Pedagogies

At BTTC, our vision is to nurture future-ready educators who can thoughtfully, ethically, and innovatively integrate AI into teaching-learning environments spanning from Kindergarten (KG) to Postgraduate (PG) education. We firmly believe that the teachers of tomorrow must be empowered to move beyond conventional instructional frameworks and develop the competency to design AI-embedded pedagogies that promote higher-order thinking, creativity, inquiry, collaboration, and personalised learning.

Our vision is anchored in the belief that AI can:

- Act as a catalyst for reflective and research-informed teaching practices.
- Support educators in designing evidence-based, outcome-aligned instructional frameworks.
- Democratised access to quality educational materials.
- Promote continuous professional development.
- Enable learner-centered, adaptive, and data-supported pathways.

Mission of the AI Integration Initiative

Our mission is to institutionalise the systematic integration of AI tools into all dimensions of teacher preparation, including curriculum design, pedagogy, assessment, educational research, and professional practice.

We aim to:

- Build digital literacy and AI readiness among faculty and student teachers.

- Strengthen capacity for AI-driven content creation, evaluation, and reflective practice.
- Promote ethical, responsible, and inclusive use of AI in education.
- Provide continuous training, research opportunities, and exposure to global EdTech innovations.
- Ensure that BTTC becomes a hub for AI-enabled teacher education within India and beyond.

Objectives of the AI-Driven Pedagogical Framework

1. To **upskill faculty and student teachers** in the use of AI tools for lesson planning, curriculum development, digital content creation, evaluation, and research.
2. To **embed AI-based strategies** across all teacher education courses from KG to PG programmes.
3. To **foster a culture of innovation** by enabling the creation of AI-supported micro-teaching practices, virtual simulations, and interactive learning experiences.
4. To **enhance assessment literacy** through AI-assisted question generation, rubric design, and constructive feedback mechanisms.
5. To **promote collaboration and research** on the pedagogical and ethical implications of AI in education.
6. To **institutionalise academic resources**, including AI toolkits, guides, model lesson plans, and digital portfolios for faculty and student teachers.

This compilation of AI tools reflect these objectives by offering a ready reference for educators seeking to integrate AI meaningfully into their academic practices. Each tool has been evaluated not merely for its technological features but for its alignment with educational values, classroom applicability, and potential to augment the work of teacher educators.

Future Vision: Establishment of the BTTC Tech Club

To sustain our momentum and expand our institutional capabilities, BTTC envisions the formation of a dynamic and future-focused **Tech Club**. This club will serve as an incubator of innovation and creativity, providing faculty and student teachers with structured platforms to explore, experiment, and excel in digital and AI-enhanced pedagogies.

The Tech Club will be dedicated to:

1. Podcast and Educast Production

Creating high-quality teacher education podcasts (Educasts) to support concept explanation, pedagogical enrichment, micro-teaching demonstrations, reflective practices, and professional development.

These audio-visual resources will serve as open educational assets accessible to student teachers across India and internationally.

2. Hackathons (Hackathon) for Educational Solutions

Organising biannual hackathons where faculty and student teachers collaboratively develop:

- AI-driven teaching tools
- Digital learning resources
- Interactive simulations
- Solutions for classroom challenges
- Innovative online course components

Hackathons will encourage creative problem-solving, interdisciplinary engagement, and entrepreneurial thinking.

3. Bootcamps for Capacity Building

Hosting hands-on bootcamps designed to strengthen digital competencies, including:

- AI in lesson planning
- Digital storytelling
- Instructional design for online courses
- Multimedia creation (video, graphics, interactive modules)
- Course authoring for MOOCs and blended learning programmes

These bootcamps will empower participants to become confident digital content creators capable of developing institution-ready online courses for teacher preparation curricula from KG to PG.

4. Creation of Online Curriculum-Aligned Courses

Under the Tech Club, faculty and student teachers will collaboratively design micro-courses, modular learning units, and complete online programmes aligned with the curriculum of teacher education. These courses will support blended learning, flipped classrooms, and self-paced learning initiatives.

A Collaborative Achievement

This publication on AI tools is a reflection of BITC's commitment to fostering a vibrant learning community where ideas grow, innovations flourish, and collaboration becomes a cornerstone of academic excellence. I extend heartfelt appreciation to our dedicated faculty members and enthusiastic student teachers whose contributions have enriched this compilation. Their collaborative spirit embodies our institution's ethos of teamwork, inquiry, and continuous improvement.

We express our profound gratitude to the visionary leadership of the HSNC Board and HSNC University, Mumbai, whose constant guidance has shaped

BTTC's academic direction. We are deeply indebted to Dr. Niranjan Hiranandani, President, HSNC Board, for his unwavering commitment to educational excellence and his forward-looking vision in championing technological transformation. Our sincere appreciation extends to Adv. Anil Harish, Provost, HSNC University, whose strategic foresight and encouragement have consistently inspired us to embrace innovation in teacher preparation. We also acknowledge the dynamic leadership of Vice Chancellor, Col. Prof. Hemlata Bagla, whose mentorship, academic support, and belief in the potential of AI-driven pedagogies have empowered BTTC faculty to integrate and institutionalise AI tools and processes into regular teaching-learning practices. Their collective leadership continues to energise our mission of nurturing technologically empowered, future-ready educators.

As we step forward into the evolving landscape of AI-enabled education, let us reaffirm our commitment to excellence, innovation, and ethical practice. Together, we will continue to shape educators who not only adapt to the future but lead it with insight, creativity, and purpose.

Dr. Bhagwan Balani

Principal

Bombay Teachers' Training College (BTTC),

Mumbai

Preface

"We are entering a world where we will learn to coexist with AI, not as its masters, but as its collaborators."

– Mark Zuckerberg

Bombay Teachers' Training College has a long-standing commitment to educational innovation. As early as the 1990s, it was one of the few institutions to introduce computer education, creating a solid base for technology-enabled teacher preparation. In continuation of this legacy, the College celebrates five years of its pioneering initiative, ***Scaffolding Digital Competencies (SDC)***, introduced in 2020 as an institutional best practice. SDC has strengthened peer learning, digital citizenship, and ethical engagement with technology among future educators.

The rapid expansion of Artificial Intelligence (AI) has brought significant changes to education, prompting new possibilities for teaching, learning, and academic support. This book has emerged as a collaborative compilation, created by the students and faculty of Bombay Teachers' Training College. It brings together contributions from multiple academic levels, and serves as a consolidated resource that introduces a wide range of AI tools relevant to contemporary educational practice. The intent is to make AI approachable, understandable, and meaningfully connected to classroom realities, while reinforcing the College's mission to prepare digitally competent and future-ready educators.

As a compilation, the book integrates diverse voices, perspectives, and experiences of seventy-nine contributors. Nine teacher educators, one Ph.D. in Education scholar, two M.A. in Education (Educational Management and Technology) students, fifty-eight B.Ed. student teachers, and nine D.El.Ed. student teachers have collectively contributed 106 AI Tools as chapters. Their combined efforts in researching, documenting, and presenting various AI tools have shaped this volume into a practical reference that reflects both academic rigour and hands-on exploration.

The book is designed as a user-friendly toolkit. Each chapter presents an AI tool in clear, concise language, supported by examples, illustrations, and classroom applications. To make navigation easy, the chapters are arranged alphabetically by tool name. This structure allows readers to consult specific tools directly or read the book sequentially, depending on their needs and interests.

The motivation behind this project arose from the shared curiosity of both educators and learners. Their experiences with emerging technologies—ranging from initial excitement to the challenges of adoption—have shaped the distinctive character of this compilation. The book reflects the collective commitment of the College community to remain at the forefront of educational change, and to share knowledge in a way that is accessible and relevant.

We express our heartfelt appreciation to HSNC University, Bombay Teachers' Training College, and the Knowledge Resource Centre (KRC) of HSNC University for their support throughout the development of this work. We also acknowledge the guidance of teacher educators, the Editorial Board, and all contributors whose dedication made this collaborative compilation possible.

We invite readers to engage with this book in a spirit of curiosity and exploration. May it serve not only as a reference, but also as an encouragement to continue experimenting with and reflecting on the evolving landscape of Artificial Intelligence in education.

"Artificial intelligence is the future, and the future is here."

– Fei-Fei Li

The Editorial Board

December 16, 2025

Advisory:

AI tools and technologies evolve rapidly. Features, functions, or services may change, improve, or become unavailable over time. While every effort has been made to compile accurate and up-to-date information, some details may not remain current. Readers are encouraged to verify critical information through reliable and authoritative sources.

PLEDGE

We, the faculty members and student teachers of Bombay Teachers' Training College, solemnly pledge that:

- We shall use artificial intelligence and digital tools responsibly, ethically, and transparently in our academic and professional practices.
- We shall uphold academic honesty, originality, and critical thinking, and shall not misuse AI in teaching, learning, assessment, or research.
- We recognize that AI supports—but never replaces—human values, professional judgment, empathy, and the dignity of the teaching profession.
- We shall protect the privacy, safety, and well-being of all learners, especially the younger generation.
- We commit ourselves to the noble values of teaching—truth, integrity, respect, inclusion, and social responsibility.
- We shall be mindful creators of knowledge and work together as a responsible knowledge-creating community.

With this pledge, we dedicate ourselves to the ethical integration of artificial intelligence in education, in service of learners, society, and humanity.

We solemnly affirm this pledge.

As teachers and future teachers, we pledge to act as nation builders—shaping enlightened minds, ethical citizens, and a just, inclusive, and knowledge-driven society through education.

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Introductory Chapter

Human-Centered AI Integration: Pedagogical Frameworks for Digital Pedagogy in Teacher Education

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'New pedagogies emerge when teachers and students learn in partnership with technology.'

– Fullan & Langworthy, 2014

1.1. Introduction

Artificial Intelligence has moved from being a specialised innovation to becoming part of routine classroom practice. Teachers now use a variety of AI-enabled tools – for transcription, visualisation, audio generation, summarisation, academic search, and meeting support – to plan lessons, document interactions, create materials, support diverse learners, and analyse learning patterns. These tools can ease everyday teaching and help personalise learning in ways that were previously difficult.

However, AI on its own does not improve teaching. What matters is how thoughtfully and responsibly teachers use it, and how clearly its use is linked to sound pedagogy. This places new demands on teacher education programmes, which must now prepare future teachers to work in partnership with AI, rather than simply 'add' it to existing methods.

'AI has the potential to support teachers, reduce their workload, and increase the personalisation of learning – when guided by sound pedagogy.'

– UNESCO, 2021, AI and Education: Guidance for Policy-makers

Digital pedagogy has so far been guided by established frameworks such as TPACK, SAMR, Universal Design for Learning (UDL), the ISTE Standards, and UNESCO's Artificial Intelligence Competency Framework. These models have shaped thinking about technology integration by highlighting the relationships between pedagogy, content, technology, inclusion, and learner

needs. Yet they were developed before the rapid growth of generative AI, conversational agents, adaptive algorithms, and real-time personalised feedback systems, and therefore do not fully address the forms of interaction now emerging among teachers, students, and intelligent tools.

AI is no longer just an add-on to instruction; it participates in the learning process. It can generate examples, provide alternate explanations, simulate phenomena, offer immediate formative feedback, and support language learning through dialogue. These capabilities shift the teacher's role from being the main source of content to becoming a designer of learning experiences in which human and machine intelligence work together.

In response, this chapter introduces six pedagogical frameworks: FRAME, CO-LAB, EPISTEMIC-AI, AAIP, EARP, and CRAC. They are designed to help teacher educators and trainees develop reflective judgment, ethical awareness, and culturally grounded strategies for integrating AI into teaching and learning.

1.2. Rationale

AI adoption in education needs strong pedagogical grounding. Existing models offer useful guidance on technology integration but do not fully address human-AI collaboration, algorithmic literacy, ethical risks, or culturally responsive engagement in AI-rich environments.

Indian education experts have also stressed human-centred practice.

'Digital pedagogy is not about tools – it is about reimagining learning with the teacher at the centre.'

– Dr. Anurag Batra, BW Education Summit (2021)

This captures the central idea of this chapter: AI can strengthen instructional design, but teachers remain the key decision-makers who give direction, purpose, and ethical grounding to technology.

Teacher education therefore needs to move beyond traditional technology integration toward frameworks that recognise AI's cognitive, social, and ethical implications. The rationale for this chapter is threefold:

a. Pedagogical preparedness: Teacher trainees need clarity on using AI for planning, assessment, simulation, modelling, feedback, and resource creation. They require structured, domain-specific pedagogical guidance rather than ad hoc tool use.

b. Ethical and responsible use: Generative AI calls for competencies in bias awareness, digital responsibility, authorship, privacy, and academic integrity – areas only partially covered by traditional frameworks.

c. Relevance to diverse learning contexts: Teacher education in India needs frameworks that support inclusivity, cultural responsiveness, and contextual relevance, especially when AI tools influence classroom interactions.

By bringing together established and new frameworks, this chapter aims to prepare teacher educators who can help future teachers become reflective, ethical, innovative, and confident in AI-mediated environments.

1.3. Review of Established Pedagogical Frameworks

1. TPACK – Technological Pedagogical Content Knowledge

Focus: how teachers integrate content knowledge, pedagogical strategies, and technology. It is useful for deciding which AI tools fit a particular subject and why.

2. SAMR – Substitution, Augmentation, Modification, Redefinition

Focus: a simple way to classify how technology changes learning tasks, from replacement to transformation. It helps teachers judge whether AI is merely substituting existing tasks or enabling new forms of learning.

3. UDL – Universal Design for Learning (CAST)

Focus: designing instruction so that all learners can access, engage with, and express learning. In AI-rich settings, UDL supports the use of adaptive tools to provide multiple means of representation, engagement, and expression.

4. ISTE Standards (including AI resources for educators)

Focus: competencies for educators and learners to use technology ethically and effectively. ISTE offers practical resources for classroom use of AI and for teacher professional development.

5. UNESCO – AI and Education: Guidance for Policy-makers (and related guidance on generative AI)

Focus: a roadmap for governments and institutions adopting AI responsibly in education. It emphasises ethical use, equitable access, and teacher capacity building, and helps programmes align curricula with national and global expectations.

6. Transformative Pedagogy for AI Integration

Focus: a broad approach for bringing AI meaningfully into teaching and learning so that it strengthens inquiry, creativity, and personalised support. It encourages teachers to rethink their instructional choices so that technology enhances rather than complicates practice.

7. UNESCO AI Competency Framework for Teachers

Focus: outlining knowledge, skills, and values teachers need when working with AI across understanding, pedagogical use, and ethical modelling. Teacher education programmes can use it to plan AI-related training.

8. AI in Education: Pedagogically Grounded Approaches

Focus: keeping pedagogy, ethics, and governance at the centre when using AI. It stresses that teachers must validate AI outputs and retain control over core instructional decisions.

9. AI Education Competency Framework (Systematic Review)

Focus: synthesising global research on AI-related competencies for teachers and students. It offers a consolidated view of what schools and teacher education programmes should cover.

10. Students as AI Literate Designers (SAILD)

Focus: introducing AI literacy at the elementary level through design-based learning. Students explore how AI works by engaging in simple design tasks that promote inquiry and creativity.

11. Integrated AI-Oriented Pedagogical Model

Focus: understanding generative AI as part of a broader shift in how teaching and learning are organised. It views AI as part of a relational approach that emphasises collaboration, guidance, and active learner participation.

1.4. Need for New AI-Pedagogical Frameworks

‘Much of the current work on AI in education lacks theoretical grounding, which underscores the need for new pedagogical models.’

– Zawacki-Richter et al., 2019

1.4.1. Limitations of Existing Frameworks

Widely used frameworks such as TPACK, SAMR, UDL, ISTE Standards, and UNESCO’s AI Competency Guidelines were developed when digital tools mainly supported delivery, organisation, or alternative formats. Today’s AI tools, by contrast, can generate explanations, create learning materials, give instant feedback, simulate scientific ideas, and hold conversations with learners.

Because earlier frameworks were not designed with these capabilities in mind, teachers often find it difficult to apply them to AI-rich environments. This can lead to confusion about lesson planning, evaluating AI outputs, or integrating AI responsibly. Teacher education programmes therefore need frameworks that directly address generative and interactive AI in everyday teaching.

1.4.2. Emerging AI-Oriented Teaching Demands

AI is changing how teachers plan, teach, and assess. Teachers must help students make sense of AI-generated responses, check accuracy, and use them thoughtfully in inquiry and problem-solving. New practices are emerging around learning analytics, AI-supported task design, classroom dialogue with AI, and guidance on misleading or incorrect outputs. These demands go beyond basic digital skills and require a clearer understanding of how AI can extend learning while preserving academic integrity and good judgement.

1.4.3. Teacher Readiness, Ethics, and Cultural Context

Teachers differ widely in their confidence with AI. Many are curious but lack clear guidelines or professional training. Ethical concerns around data privacy, authorship, and dependence on automated feedback have become central to teachers’ decision-making.

Cultural and linguistic context also matters. AI systems trained largely on global datasets may not reflect local examples, languages, or community knowledge. New frameworks must therefore support teachers in adapting AI

tools to local realities, addressing ethical questions, and keeping AI use culturally grounded, context-sensitive, and educationally sound.

1.5. Description of the Proposed Pedagogical Frameworks

FRAME: Feedback-centred, Responsible, Augmented, Meta-cognitive, Evidence-based

Core idea:

Use AI mainly as a formative feedback and metacognitive scaffold, while keeping responsibility and evidence central. AI acts as an 'adaptive feedback coach' for students and an analytics support for teachers.

Principles

- Feedback-first: AI outputs should be specific, actionable, and linked to clear learning targets.
- Responsible use: transparency about AI use, paired with attention to data privacy and fairness.
- Augmentation, not replacement: AI supports, but does not replace, teacher judgement and student reflection.
- Metacognitive prompts: AI generates questions that prompt learners to explain their thinking.
- Evidence: interventions are tracked and evaluated to make informed teaching decisions.

Science example (upper primary):

Students design an experiment on plant growth. An AI tool configured with a rubric gives line-by-line feedback on missing controls, unclear variables, or unsafe materials, while the teacher reviews flagged issues and adds metacognitive prompts.

ESL example (secondary):

Students draft a persuasive email. AI gives focused feedback on register, cohesion, and clarity and suggests a short speaking prompt, after which the teacher and peers build on the AI feedback.

Implementation tip:

Short professional development modules can help teachers calibrate AI feedback against rubrics and refine prompt templates.

CO-LAB: Contextualised, Open, Learner-centred, Algorithm-aware, Bridging Practice

Core idea:

Position the classroom as a lab where teachers and learners jointly interrogate AI – its suggestions, biases, and reasoning – while working on subject content. This builds both disciplinary understanding and algorithmic literacy.

Principles

- Contextualisation: AI outputs are checked against disciplinary evidence and local context.
- Openness: teachers and students question how AI arrived at an answer.
- Learner-centred: students set sub-goals and use AI as a partner in learning.
- Algorithm awareness: basic understanding of how models work and where they can fail.
- Bridging practice: AI suggestions are connected to regular classroom procedures and assessment.

Science example (middle school):

Students ask AI why a bulb in a circuit is dim, then design tests to confirm or reject each AI-suggested explanation.

ESL example (beginners):

Learners use AI for an interview role-play and later critique the cultural appropriateness of the AI's questions and feedback.

Implementation tip:

Simple classroom routines such as always asking 'How did you get that?' and 'What could be wrong?' help build critical engagement with AI.

EPISTEMIC-AI: Engaged, Problem-based, Inquiry, Simulation, Tool-aware, Ethical, Modeling, Instrumental, Collaborative

Core idea:

Use AI as a modelling and simulation instrument within inquiry-based learning, with emphasis on how knowledge is generated and tested.

Principles

- Engagement through real problems, with AI used to generate hypotheses and simulate scenarios.
- Tool-awareness, so learners know what AI can and cannot model.
- Iterative modelling, where students refine models based on AI outputs and evidence.
- Ethics and provenance, including attention to data sources and failures.

- Collaborative sense-making, with groups interpreting and presenting AI-driven simulations.

Science example (secondary):

Students use AI-supported simulations to explore predator-prey dynamics, compare outputs with textbook models, and explain differences.

ESL example (intermediate):

Students create short dialogues for different social contexts, ask AI to generate variations in register, and then test these through role-play and peer feedback.

Implementation tip:

Begin with small, constrained simulation tasks and require brief written rationales that explain assumptions, prompts, and identified AI errors.

AI-Augmented Inquiry Pedagogy (AAIP)

Core idea:

Blend inquiry-based learning with AI tools that support simulations, adaptive questioning, and exploration, while the teacher remains a central facilitator.

Principles

- Inquiry-first: learning is driven by authentic questions and problems.
- Adaptive support: AI offers prompts, simulations, or tailored questions.
- Teacher facilitation: human guidance ensures conceptual depth.
- Critical reflection: learners are encouraged to examine AI outputs critically.
- Iterative learning: cycles of hypothesis, AI-supported exploration, reflection, and refinement.

Examples across subjects include climate change modelling in science, AI-supported role-play in ESL, exploring geometric proofs in mathematics, AI-mediated debates in history, and AI-assisted design variations in visual arts.

Ethical-AI Reflective Praxis (EARP)

Core idea:

Integrate ethical reflection on AI into teacher education so that teachers routinely evaluate AI outputs, biases, and implications for pedagogy.

Principles

- Transparency about when and how AI is used.
- Bias awareness and critical review of AI outputs.
- Reflective practice that keeps AI use under regular scrutiny.

- Ethical responsibility aligned with equity and inclusion.
- Dialogic engagement where AI outputs are compared with human knowledge and experience.

Examples span science (critiquing AI explanations of photosynthesis), ESL (evaluating AI translations and register), biology (examining AI explanations of inheritance), philosophy (questioning AI summaries of ethical theories), and drama (reviewing AI-suggested scripts for representation).

Culturally Responsive AI Co-Design (CRAC)

Core idea:

Teachers and students co-create AI-enhanced materials that reflect local culture, language, and values.

Principles

- Co-creation of AI-enhanced learning materials.
- Cultural grounding so that outputs reflect local traditions and identities.
- Inclusivity by embedding diverse voices.
- Empowerment through active learner participation in shaping AI content.
- Contextual relevance that connects global knowledge with local realities.

Examples include adapting AI-generated case studies on water purification to local contexts, co-designing stories on festivals in ESL, integrating regional data into environmental science projects, weaving local idioms into AI-generated literature tasks, and blending traditional musical elements with AI-generated compositions.

1.6. Why These Frameworks Matter

Each framework addresses a specific need in AI-mediated pedagogy:

1. FRAME strengthens evidence-based, reflective teaching using AI-supported feedback and metacognition.
2. CO-LAB prepares teachers for human-AI collaborative environments through shared inquiry and algorithmic awareness.
3. EPISTEMIC-AI supports the use of AI for inquiry, modelling, and simulation, deepening disciplinary reasoning.
4. AAIP enhances inquiry and critical thinking by integrating AI scaffolds into problem-based learning.

5. EARP embeds ethical reflection and digital citizenship into everyday AI use.
6. CRAC connects AI to local culture and identities, supporting inclusive pedagogy in India and beyond.

1.7. Educational Implications

‘The future of education depends on our ability to prepare teachers who can use digital tools with sound pedagogical judgement.’

– OECD, 2020

For Teacher Education Programmes:

1. **Strengthening professional competencies:** Trainees gain a clearer understanding of how AI can support planning, teaching, assessment, and reflection, in line with NEP 2020’s emphasis on digital and competency-based approaches.
2. **Enhancing pedagogical decision-making:** Frameworks such as FRAME and CO-LAB help future teachers interpret AI feedback, question accuracy, and balance automation with professional judgement.
3. **Advancing inquiry and modelling skills:** EPISTEMIC-AI and AAIP encourage AI-supported simulations and data-based inquiry in science and language education.
4. **Embedding ethics and digital citizenship:** EARP helps teachers address bias, data privacy, and responsible behaviour in AI-mediated contexts.
5. **Promoting culturally responsive AI use:** CRAC supports teachers in ensuring that AI-generated content reflects local language, examples, and culture.
6. **Improving classroom efficiency and innovation:** AI tools can reduce workload, increase productivity, and enrich classrooms with multimodal resources when used within these frameworks.

For Teacher Educators:

Teacher educators can:

- Use FRAME to provide AI-assisted feedback on lesson plans, combined with reflective prompts.

- Apply CO-LAB to introduce AI-based visualisation and analysis tools for collaborative data work.
- Use EPISTEMIC-AI to structure AI-supported research and simulation tasks.
- Apply AAIP to guide inquiry through AI-driven questioning in science and ESL.
- Use EARP to frame activities where trainees critique AI explanations or translations.
- Draw on CRAC to co-develop culturally meaningful stories, songs, or narratives with AI support.

For Learners:

Learners can:

- Design projects and creative tasks with AI support for inquiry and problem-solving.
- Use AI-generated visuals and representations to grasp complex ideas.
- Participate in dialogues and role-plays supported by AI across subjects.
- Build critical thinking by critiquing AI-generated texts, explanations, or solutions.
- Co-create culturally grounded stories, models, or performances that link subject content with personal and community identity.
- Use AI to support collaborative sense-making and evidence-based conclusions.

For Institutions:

Institutions may:

- Align with global and national policies (UNESCO, ISTE) through these frameworks.
- Integrate AI into curriculum planning and instructional design in scalable ways.
- Promote inclusive teaching by combining UDL principles with culturally responsive AI practices.



Fig. 1 A conceptual map generated using an AI tool visually connects the key concepts and frameworks presented in this chapter.

1.8. Practical Checklist for Teacher Educators

1. **Begin with a clear rubric:** Define learning goals and success criteria before introducing AI tools so that pedagogy, not technology, remains central.
2. **Develop prompt templates:** Create and store prompts that align with rubrics and intended learning outcomes.
3. **Run calibration sessions:** Ask teachers to compare AI-generated and human feedback on sample work to build judgement.
4. **Address ethics and consent:** Share clear AI-use policies covering data collection, storage, and access, drawing on UNESCO and ISTE guidelines.
5. **Conduct low-stakes pilot trials:** Start small, evaluate what works, and refine the approach before scaling up.
6. **Encourage reflective practice:** Ask teachers to write brief reflections on how AI affected learning outcomes, processes, or engagement, especially when applying FRAME.

1.9. Challenges and Ethical Considerations

‘AI brings risks related to privacy, safety, transparency and bias. These must be addressed through responsible use.’

– UNESCO, 2021

1. **Data privacy:** Many AI tools process sensitive student information. Teachers need to know where data is stored, who can access it, and how long it is retained, and must inform students and parents accordingly.
2. **Algorithmic bias:** AI systems often reflect biases in their training data, which may appear in language, translation, or analytics. Teacher education must prepare future educators to identify and question such biases.
3. **Over-reliance on AI tools:** There is a risk of outsourcing key decisions about teaching and assessment to AI. Teacher education must emphasise that AI should support, not replace, human judgement.
4. **Digital divide and access:** Unequal access to devices, connectivity, and digital skills can deepen existing inequalities. Teacher education needs to address these realities and promote flexible, context-sensitive approaches.

1.10. Conclusion

AI is reshaping teacher education by influencing how teachers plan, support, and assess learning, but responsible integration requires clear pedagogical purpose and ethical awareness. Established global frameworks, when combined with the new AI-responsive models introduced in this chapter, offer teacher education programmes a coherent basis for preparing AI-ready educators.

The six proposed frameworks – FRAME, CO-LAB, EPISTEMIC-AI, AAIP, EARP, and CRAC – provide structured ways for teachers to integrate AI with human judgement, cultural knowledge, and reflective practice. As teacher education programmes evolve, these models can guide the design of AI-enriched curricula, practicum experiences, and professional development.

Future work needs to include AI literacy, ethical digital citizenship, prompt design, data interpretation, and critical evaluation of AI outputs within teacher education curricula. Systematic research – including action research, classroom pilots, mixed-method studies, and institutional collaborations – will be essential to understand AI's impact on teaching beliefs, relationships, assessment, and learning outcomes.

‘Teachers who understand AI will play a key role in helping students navigate a world increasingly shaped by algorithms.’

– Rouhiainen, 2018.

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Adobe Firefly

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1. Introduction and Tool Overview

1.1. AI Tool Name and Core Functionality

Adobe Firefly is an Artificial Intelligence tool which is developed by Adobe that helps people create images, videos, sound effects, text effects, and



Fig. 1 Adobe Firefly Logo

designs just by describing them in words. It uses AI technology called 'generative AI', which means it can generate new, original artwork based on the prompts or descriptions we give. You don't need graphic skills or deep knowledge of design to use Adobe Firefly. You just type what you imagine, and Firefly turns it into a picture, design, or creative element automatically.

1.2. Brief History and Development:

Adobe Firefly is a set of smart tools that help create pictures, videos, sounds, and text. It was first shown in 2022 and officially started in 2023. It is trained on safe content, so its creations can be used for work. Adobe added Firefly features to apps like Photoshop, Illustrator, Premiere Pro, and Adobe Express. It keeps improving with new versions and can now create and edit many types of media. Adobe also uses Content Credentials to show when AI was involved. Firefly can be used on its website and inside Creative Cloud apps.

1.3. Target Audience and Scope

The primary target audience for Adobe Firefly includes:

- **Students and Teachers:** It can help to quickly create interesting subject-related visuals and project artwork.
- **Designers and Artists:** It can help to quickly try out ideas, make different versions, and use tools like Generative Fill to edit images.

- **Content Creators and Marketers:** It can help create unique visuals and social media posts that match a brand's style.

The scope of this chapter is to explore Adobe Firefly's various features, its practical application in educational settings, its current limitations, and its implications for the future of creativity and learning.

2. Characteristics and Features

2.1. Core AI Capabilities

Adobe Firefly is built upon several core AI capabilities:

1. **Text-to-Image Generation:** Creates original images from a simple prompt.
2. **Generative Fill:** Intelligently adds, removes, or expands content within an existing image based on a prompt.
3. **Text Effects:** Applies unique textures and styles to text and makes it look integrated into a creative design.
4. **Generative Recolour:** Quickly changes the colour palette of vector art using text prompts.
5. (Future/Developing) Text to Vector, Text to Brush, Text to Video, and Generate Sound Effects.

2.2. Key Features and User Interface

The platform is very easy to use, so even beginners can use it easily:

1. **Web-Based Interface:** You can use it directly in a web browser, so you don't need to install anything complicated.
2. **Simple Prompt Entry:** A clear text box for entering natural language prompts.
3. **Prompt Enhancement Tool:** It takes short or simple text and automatically turns it into a more detailed and clearer prompt, helping users create better images and videos.
4. **Intuitive Controls:** Dedicated panels for adjusting parameters like Aspect Ratio, Content Type (e.g., Photo, Art, Graphic), Style/Effect, Color, and Tone, allowing for precise creative control over the output.
5. **Generation History:** A feature that saves past creations for easy recall and modification.

2.3. Differentiating Characteristics

Adobe Firefly is an easy AI tool that helps people create images safely. It is trained on legal and safe content, so whatever it creates can be used without worry. It works well with Adobe apps like Photoshop and Illustrator. Because it is simple to use, both designers and students can use it for projects, learning, and creativity.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

1. **Device:** It can be used on both desktop and mobile devices through any web browser.
2. **Account:** You need an Adobe ID or a Google account to sign in.
3. **Subscription:** Firefly gives some free credits for basic use, but advanced tools and heavy usage may require an Adobe Creative Cloud subscription.

3.2. Step-by-Step Usage Guide

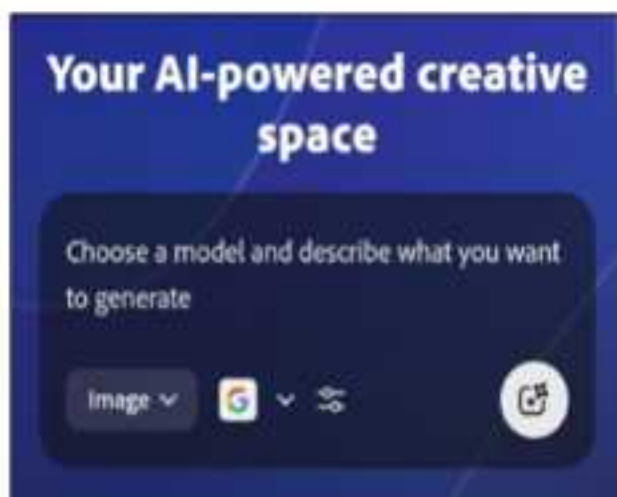


Fig. 2 User Interface

Scenario: Generating a Visual Aid for a Presentation on Marine Life

- **Open Adobe Firefly:** Navigate to the official website (<https://www.google.com/search?q=firefly.adobe.com>) and log in.
- **Select Text-to-Image:** Choose the "Text to Image" module from the main dashboard.
- **Enter a Descriptive Prompt:** Input a highly specific prompt, such as: 'A close-up photograph of a vibrant, iridescent clownfish swimming among bright purple and green anemones, in a clear tropical ocean, dynamic lighting, ultra-detailed.' You can also take the help of a prompt enhancement tool.
- **Adjust Settings (Tools Panel):**
 1. Set Aspect Ratio to 16:9 for a presentation slide.
 2. Set Content Type to 'Photo' to ensure a realistic look.
 3. Select appropriate Styles (e.g., Refined, Hyper-realistic) to enhance the visual appeal.
- **Generate and Refine:** Click 'Generate.' Review the generated options. If the image is not perfect, modify the prompt (e.g., change 'clear tropical ocean' to 'darker deep-sea background') or adjust the style settings and re-generate.
- **Download:** Once satisfied, download the image for use in the presentation.

3.3. Tips and Best Practices

1. **Be Specific and Descriptive:** Use adjectives, nouns, and context to define the subject, style, colour, and lighting (e.g., instead of 'a flower,' use 'a macro-photograph of a single red rose in a vintage chiaroscuro style').
2. **Utilise Negative Prompts (where available):** Specify what you don't want in the image to refine the output.
3. **Iterate Quickly:** It can create many options and let you improve your prompts to get the result you want faster.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Adobe Firefly helps students turn abstract ideas into clear visuals, boosting creativity and understanding. It also helps teachers save time by creating custom, high-quality, and copyright-safe teaching materials.

4.2. Impact on Teaching and Learning

Adobe Firefly helps teachers make learning more engaging by creating custom visuals for lessons. Students can also use it to make images for their projects easily, encouraging creativity even without art skills.

4.3. Specific Classroom Applications

1. Generate eye-catching titles for classroom bulletin boards or presentation slides (e.g., a 'History' title with a carved stone texture).
2. It can quickly create images to explain complex scientific or philosophical ideas that are hard to find online.
3. Use Generative Fill to quickly modify existing images or create custom worksheets and flashcards with tailored visuals.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Requires an internet connection to work.
- Some advanced features need Adobe subscription.
- May have limited free credits for image generation.
- Generated images are sometimes not perfect.
- Works better in English prompts than in regional languages.

5.2. Ethical and Equity Considerations

- **Data Sourcing:** Adobe uses ethical and licensed data to train Firefly, which protects human artists and follows legal rules.
- **Transparency:** Adobe adds a CAI label to show when an image is AI-generated, helping people trust the content and avoid misinformation.

- **Equity:** Firefly is easy to use, so even people without design skills can create good visuals, making the tools more accessible to everyone.

5.3. Future Outlook and Roadmap

Adobe Firefly is continuously expanding its capabilities. The future roadmap includes:

- More sophisticated video and 3D generation features (Text-to-Video, Text-to-3D).
- Deeper integration with Augmented Reality (AR) creation.
- Increased precision and control over generated outputs through advanced prompt engineering and user interface enhancements.
- Further development of generative sound effects for multimedia projects.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL:

<https://firefly.adobe.com>

Pricing/License Model:

Freemium: Offers limited features and credits for free.

Subscription: Full features and commercial use are typically bundled with various Adobe Creative Cloud plans, using a credit-based system for generation.

6.2. Further Reading and Documentation

- Official Adobe Firefly documentation and tutorials.
- Adobe's white paper on the Content Authenticity Initiative (CAI) and responsible AI.
- Academic articles exploring the integration of generative AI in digital pedagogy.

6.3. References

Website References:

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Adobe. (n.d.). Content Authenticity Initiative (CAI). Retrieved November 21, 2025, from <https://contentauthenticity.org/>

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Bobola, M. (2024). Generative artificial intelligence (AI) in higher education: A comprehensive review of challenges, opportunities, and implications. *Journal of Learning Development in Higher Education*, 30. <https://doi.org/10.47408/jlde.vi30.1137>

AIPRM

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1. Introduction and Tool Overview

1.1. Tool name and core functionality

AIPRM, or AI-Powered Response Manager, is an innovative platform that makes using ChatGPT and other AI tools simpler and more effective. It helps users manage and organise prompts with ease, offering ready-to-use templates, customisation options, and collaboration tools. Designed especially for educators and students, AIPRM streamlines the process of interacting with large language models by giving AIPRM AI quick access to tried-and-tested prompt templates. This not only saves time but also ensures consistent, high-quality results from AI responses.



Fig. 1 AIPRM Logo

1.2. Brief History and Development

AIPRM was started in 2023 by Christoph C. Cemper, with support from fellow tech and software professionals Tibor Blaho and Marian Gablovsky. Motivated by a shared passion for making AI tools easier and more effective for everyone, this founding team used their deep background in software development and SEO to build the first version of AIPRM as a browser extension. Their vision and ongoing commitment are to help people access powerful prompt templates and get more out of AI, whether they're working in education, business, or other creative fields.

1.3. Target Audience and Scope

Anyone who uses AI services such as ChatGPT can find value in AIPRM, but it is especially helpful for educators, students, researchers, content creators, and professionals who want to simplify or improve their digital tasks. AIPRM is particularly important in the context of

Indian education, where teachers often manage large classrooms and need efficient solutions for lesson planning, generating exams, personalised student feedback, and academic writing support. The platform streamlines these demanding tasks, helping teachers better manage their time and deliver individualised support to students, even in settings with limited resources, while students and researchers benefit from tailored prompts and content that boost productivity and learning outcomes.

2. Characteristics and Features

2.1. Core AI Capabilities

AIPRM offers easy access to a huge library of ready-made prompts across fields like education, content creation, SEO, and customer support, helping users quickly find and use what they need. You can also create and save your own custom prompts, tailoring them for specific audiences or classroom needs. The 'Profiles' feature lets you change the AI's tone, style, and reading level instantly, making responses match your needs perfectly. AIPRM's live crawling brings in fresh information from the web, ensuring answers stay accurate and up-to-date. It supports teamwork by allowing prompt sharing and management among colleagues, and smart variables let you reuse and customise prompts on the fly. Overall, AIPRM is a flexible, fast tool designed to make working with AI simpler and more productive for everyone.

2.2. Key Features and User Interface (UI)

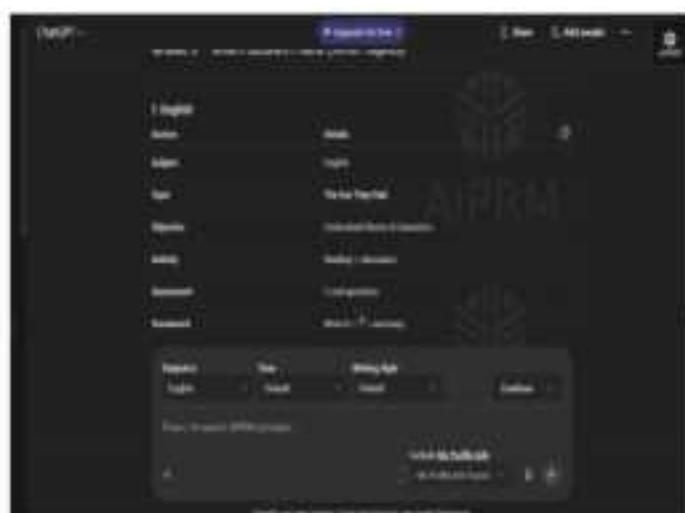


Fig. 2 User Interface

AIPRM stands out because of its clean, intuitive, and user-friendly interface. It offers a vast Prompt Library with over 5,400 templates that users can easily search and filter for everything from academic writing to business marketing. Teachers can also build their own custom prompts and save them for repeated tasks like weekly lesson plans or assignment instructions. The platform makes collaboration simple by allowing users to share their prompt templates with their team or even with the global community. It also integrates directly into the ChatGPT interface, so you can switch between AIPRM prompts and regular queries without ever leaving the page. Altogether, these features help save time, reduce mental workload, and support creativity within a clear and organised structure.

2.3. Differentiating Characteristics

Unlike basic prompt directories, AIPRM stands out by offering a dynamic and community-driven platform where users can rate and give feedback on prompts, ensuring the best and most relevant ones rise to the top. It enables automated customisation using variables like 'grade' or 'lesson topic,' allowing prompts to adjust automatically based on specific needs. AIPRM also fosters collaboration, making it easy for faculty teams or student groups to share, manage, and work together on prompt libraries. This blend of community curation, intelligent automation, and teamwork support makes AIPRM a powerful and flexible tool for anyone using AI prompts.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use AIPRM:

- Ensure Google Chrome or another supported browser is installed.
- Have an OpenAI account (ChatGPT free or paid).
- Install AIPRM via the Chrome Web Store.
- Log in to activate and access the prompt dashboard within ChatGPT.

3.2. Step-by-Step Usage Guide

Scenario 1: Teacher Creates a Lesson Plan

1. Open Chrome and go to ChatGPT with AIPRM installed.
2. Search 'lesson plan' in the prompt library.
3. Choose a template and enter details like grade, subject, and theme.
4. Submit the prompt—ChatGPT generates a detailed lesson plan.

which can be edited and reused.

Scenario 2: Student Seeks Help with Essay Writing

1. Student types 'essay writing' in the AIPRM search.
2. Selects a prompt for structured essay outlines.
3. Fills in essay topic (e.g., 'Climate Change and Youth').
4. Gets a well-organised outline or draft in seconds, building confidence and academic skills.

3.3. Tips and Best Practices

1. Tag and categorise all personal prompts for fast retrieval.
2. Regularly participate in the AIPRM community to update and upgrade templates.
3. Teachers should encourage students to use AIPRM prompts as learning scaffolds, not as a replacement for original thought.
4. Use the 'Team' feature for collaborative planning between faculty.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

AIPRM plays a vital role in education by automating repetitive and time-consuming tasks, allowing teachers to dedicate more time to creative, meaningful teaching and student engagement. This is especially important in large and diverse classrooms, like those commonly found in India, where individualised attention can be challenging. By streamlining routine activities such as lesson planning, grading, and content creation, AIPRM supports differentiated instruction tailored to varying student needs. The platform encourages innovative teaching methods and helps educators manage workload efficiently, ultimately enhancing the quality of education and learning outcomes.

4.2. Impact on Teaching and Learning

For educators, AIPRM boosts productivity by automating routine tasks, resulting in more consistent and high-quality lesson plans, assessments, and communication with students. It frees up valuable time, allowing teachers to focus on engaging and interactive instruction. For students, the platform offers quicker access to model assignments, helps improve writing skills, and provides structured assistance for research. Personalised feedback becomes

more achievable, which promotes greater student engagement and better academic performance. By making expert-designed AI resources accessible regardless of digital skill level, AIPRM helps democratise prompt engineering, supporting both students and teachers in navigating AI-enhanced learning environments effectively.

4.3. Specific Classroom Applications

Teachers today have many practical ways to make their work easier and more creative by using AI tools. They can quickly prepare lesson plans in regional languages like Marathi or Hindi, create model answers, quizzes, role-play scripts, and rubrics, and provide meaningful feedback to students. AI also enhances cross-curricular projects by blending subjects—like combining environmental science with literature to design activities that raise awareness about climate change. Additionally, AI supports team teaching and collaboration by enabling educators to share their favourite prompts and resources, helping whole departments build shared banks of useful teaching materials. This approach not only saves time but also fosters creativity and cooperation among teachers, making education more engaging and effective.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Relying heavily on AI for essential academic tasks can unintentionally hinder the development of original thinking and critical problem-solving skills if not carefully managed. The quality of prompts in AI platforms like AIPRM depends on their contributors, so teachers need to apply their own judgment and adapt prompts to suit their unique classroom settings. Additionally, access to AI tools requires a stable internet connection and sufficient digital infrastructure, which may not be available in many rural or under-resourced areas, raising concerns about equitable use. These challenges emphasise the importance of balancing AI assistance with traditional teaching approaches to support creativity, critical thinking, and fairness in education.

5.2. Ethical and Equity Considerations

When using tools like AIPRM in education, it's crucial to consider both ethical and equity issues. Teachers should remind students not to share sensitive information such as marksheets or personal

details to protect their privacy. Educators must carefully review the prompts created by the community since some may contain biases or inaccuracies that could affect learning outcomes. While AIPRM has the potential to promote digital inclusion when used thoughtfully and with proper teacher guidance, there is a risk that it could increase the digital divide if access is uneven, especially for students with limited technology resources. Therefore, careful monitoring and ethical oversight are essential to ensure AI tools benefit all students fairly and safely.

5.3. Future Outlook and Innovation

AIPRM is continuously advancing with exciting new features on the horizon. Future developments include enhanced analytics that will help track how prompts impact student learning outcomes, providing valuable insights for educators. The platform is also expanding multilingual and regional support to better serve languages like Marathi and Hindi, making AI tools more accessible across diverse classrooms. Integration with Learning Management Systems (LMS) is being strengthened for seamless classroom management and workflow. Additionally, AIPRM is focusing on implementing stronger safeguards to ensure ethical and responsible use of AI in educational settings, addressing privacy and bias concerns. These innovations aim to make AIPRM an even more powerful, inclusive, and trustworthy tool for teaching and learning in the years ahead.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: www.aiprm.com

Chrome Web Store: Search 'AIPRM for ChatGPT'.

Pricing/License Model: Free tier with premium (paid) advanced features such as priority support or analytics.

6.2. Further Reading and Documentation

- AIPRM official documentation: www.aiprm.com/documentation
- Research on AI in educational practice (see AIPRM website 'AI in Education Statistics').
- Latest teacher testimonials and video tutorials.

6.3. References

AIPRM. (2025). *AIPRM for ChatGPT*. <https://www.aiprm.com>

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AnyLearn.ai

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

AnyLearn.ai — an AI-powered learning assistant and microlearning platform that converts arbitrary online content (videos, podcasts, articles, PDFs, etc.) into structured,



Fig. 1 AnyLearn Logo

personalised learning modules. Anylearn.ai is an AI-driven learning platform that personalises education in real time to fit how you learn. It analyses your progress, adapts material, and suggests the next best steps to keep you moving forward. Adaptive learning powered by learner profiling helps you master topics faster by focusing on gaps.

Think of it as a smart coach that curates content, quizzes, and practice paths tailored to you. Personalisation reduces wasted effort and keeps motivation high, so you spend time on what matters. With features like intelligent recommendations, instant feedback, and scalable courses, Anylearn.ai aims to make learning more efficient and accessible for everyone. learning efficiency student success.

1.2. Brief History and Development

- According to a case study, the platform was reportedly launched around **July 2023**.
- Motivation: to address limitations of traditional e-learning rigid course structures, passive learning, lack of adaptability — by offering a flexible, AI-driven approach that transforms existing content into interactive learning experiences.
- Developed as an end-to-end solution: combining AI content-analysis, conversion and generation with a user-friendly frontend enabling learners (or educators) to build custom learning paths.
- According to a case study, the platform was reportedly

launched around **July 2023**.

- Motivation: to address limitations of traditional e-learning rigid course structures, passive learning, lack of adaptability — by offering a flexible, AI-driven approach that transforms existing content into interactive learning experiences.
- Developed as an end-to-end solution: combining AI content-analysis, conversion and generation with a user-friendly frontend enabling learners (or educators) to build custom learning paths.

1.3. Target Audience and Scope

AnyLearn.ai is suitable for a broad spectrum of users:

- Students and lifelong self-learners — to convert lecture videos, articles or study resources into digestible learning modules.
- Professionals and working adults — to upskill by converting podcasts, webinars, and articles into learning paths and quizzes.
- Educators, content-creators and trainers — to quickly generate lesson plans, summaries, and quizzes from existing content (videos, text, documentation) for their students or audience.
- Organisations / L&D teams / corporate training — can use for onboarding, training, and continuous learning by converting internal documents or external resources into structured learning.

Scope: Essentially 'universal learning' — users can input nearly any content type (video, article, podcast, PDF, etc.) and get back micro-lessons, quizzes/knowledge checks, summaries, flashcards, and personalised learning paths. [Trending AI Tools-2AI Nav Site-2](#)

2. Characteristics and Features

2.1. Core AI Capabilities:

- Content ingestion from multiple sources — Accepts YouTube links, podcast episodes, article URLs, uploaded PDFs and other documents.
- AI-based summarisation and concept-extraction — The AI processes the input, extracts main ideas, concepts, and themes to create a condensed version (summary, takeaways) of the content.
- Generation of structured, personalised learning paths — The system organises the content into lessons or modules adapted to the user's needs/goals.

- Quiz & Knowledge Check generation — After content ingestion, the platform generates interactive quizzes (MCQs, short-answer etc.) and flashcards to reinforce learning and retention.
- Progress tracking & adaptive recommendations — Users can bookmark content, track learning progress, and get personalized recommendations for next modules based on prior activity.

2.2. Key Features and User Interface (UI)



Fig. 2 User Interface

- Clean, intuitive dashboard for selecting topics or inputting content (video URL, article link, PDF upload) and initiating content conversion.
- Automatic generation of study plans, lessons, flashcards, quizzes, and summaries, facilitating learning at your own pace.
- Mobile-friendly interface and availability as an app (on iOS) — enabling learning on the go.
- Support for multiple languages (global accessibility) — allowing users worldwide to use AnyLearn.ai across languages.
- Personalised dashboard for progress tracking (what's done, what's pending), and adaptive suggestions for next learning modules based on user history and performance.

2.3. Differentiating Characteristics

- Any content to learning — Instead of having fixed courses, users can convert any resource (video, article, PDF) into

learning material. This flexibility distinguishes it from many fixed-course-based platforms.

- Micro-learning & adaptive flow — Useful for busy learners who want to learn in short bursts rather than commit to long formal courses.
- Automatic generation of quizzes & flashcards — Many platforms offer videos + reading, but few auto-generate testable material. This helps reinforce active learning rather than passive content consumption.
- Global and multilingual support — With claimed support for up to 90 languages in content processing/generation, making it suitable for a diverse user base.
- Freemium model with optional Pro subscription — Accessible free tier + paid plan for heavy or professional users. This lowers the entry barrier for students and casual learners.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

1. A device with internet access (desktop, laptop, or mobile). The platform works via the web, and there is also an iOS app.
2. Register/Sign-up (likely via email or standard account creation) — as with typical SaaS platforms. (Assumed — site workflow)
3. Select topic/provide content input — paste URL (video, article), upload PDF, or input other content source.

3.2. Step-by-Step Usage Guide (Scenario-Based):

Scenario 1: Converting a YouTube Video into a Study Module:

1. Log in to [AnyLearn.ai](#)
2. Paste the YouTube video link in the input field (e.g. a lecture on biology)
3. Click on 'Convert / Generate Learning Module'
4. Wait as AI processes the video transcript, extracts important themes, and auto-generates:
 - a. A concise summary/key takeaways
 - b. Flashcards of important terms/concepts
 - c. A quiz/knowledge check (MCQs or short-answer) related to the video content
 - d. Save the module to your dashboard, and start learning — first read the summary, then attempt a quiz, then revise flashcards.

Scenario 2: Converting an Article or PDF into Learning Material:

1. Log in → Upload article URL or PDF document (e.g. research paper or textbook excerpt)
2. Let AI analyse content → produce condensed notes / summarised version + flashcards + quiz questions
3. Use as a self-study guide or as lesson material (if you are a teacher)

Scenario 3: Self-guided Learning Path / Skill Upgradation:

1. Select a subject or topic area you want to learn (e.g. 'Basics of Coding' or 'Business Management Fundamentals')
2. Let AnyLearn.ai generate a structured learning path — a sequence of lessons/modules (video or article-based) + quizzes + flashcards
3. Follow through — track progress via dashboard, take quizzes, revise flashcards, get recommended next modules based on performance

3.3. Tips and Best Practices

- Use diverse content sources (articles + videos + PDFs) for a richer learning experience — the more varied the input, the more robust the learning path.
- Review the AI-generated summaries and flashcards carefully — cross-check facts if the content is technical or specialised (because AI summarisation can sometimes oversimplify).
- Combine AI-generated modules with active notes or teacher-led discussion (especially for deeper learning) — treat AnyLearn.ai as a supplement, not a full replacement for in-depth study.
- Frequently take quizzes and revise flashcards — microlearning + spaced repetition helps retention better than passive reading.
- Use the progress tracking & adaptive recommendations to identify weak areas and revisit or deepen learning.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

- Enables personalised, self-paced learning — accommodates different learning speeds, styles, and prior knowledge.
- Helps convert passive content consumption (videos, articles) into active learning — requiring reflection, recall, and

self-assessment (via quizzes, flashcards).

- Supports microlearning — especially beneficial for learners with limited time, or who need quick refreshers before exams or interviews.
- Facilitates lifelong learning and upskilling — professionals or hobbyists can transform everyday content (webinars, podcasts) into structured learning without enrolling in formal courses.

4.2. Impact on Teaching and Learning:

- Reduces teacher/educator workload — educators can quickly generate lesson plans, quizzes, and summaries from existing content, saving time on content prep.
- Enhances student engagement and retention — interactive components (quizzes, flashcards), along with summaries, help deepen understanding and memory.
- Promotes flexible and inclusive learning — accessible on multiple devices, supports many languages, and allows learners to learn on their own schedule.
- Bridges informal and formal learning — students or professionals can supplement formal courses with self-generated modules for revision or deeper exploration.

AnyLearn reshapes teaching and learning by aligning methods with real classroom needs. Adaptive feedback loops help teachers tailor instruction, while interactive content keeps students engaged. When lessons respond to student progress in real time, outcomes improve because support is targeted, not generic.

For instance, a math module can adjust difficulty based on immediate responses, reducing frustration and building confidence. The platform also enables data-driven planning so educators spend time where it matters most, not on guessing. In short, AnyLearn turns teaching into a responsive practice and learning into a trackable journey, with clearer milestones and faster mastery.

4.3. Specific Classroom Applications

Pre-class preparation: Teachers can assign AI-generated lesson summaries and quizzes to students before class to ensure readiness.

Revision modules: Students can convert textbook chapters or class notes into flashcards and quizzes for revision before exams.

Lifelong/self-study: Professionals from any background (tech, business, arts) can feed in webinars, articles or podcasts to build

structured learning paths.

Flipped-classroom approach: Educators assign content, students study via AnyLearn, then class time is used for discussion/problem-solving.

Supplement for MOOCs/online courses: Use AnyLearn.ai to summarise, create quizzes, flashcards for better understanding & retention of massive course materials.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- **Dependency on the internet**—content ingestion, processing, and access require a stable connection; as per reviews, there's no mention of offline mode.
- **Quality variation**—Since content is AI-generated (summaries, quizzes, flashcards), there may be oversimplifications, misinterpretations, or inaccuracies— especially for technical, advanced, or highly nuanced content.
- **Limited depth compared to formal courses** — Useful for microlearning and revision, but may not replace comprehensive, instructor-led courses or deep-learning modules.
- **Lack of collaboration/peer interaction**—Many AI-generated platforms focus on individual learning; limited or no built-in features for group discussion, peer review, or classroom interaction noted.
- **Data privacy & content sourcing concerns** — If users upload copyrighted materials (PDFs, videos) — unclear how licensing or copyright compliance is handled. Also, AI summarisation of sensitive or specialised info may misrepresent.

5.2. Ethical and Equity Considerations

Access inequality: Users without stable internet or modern devices may be left out; freemium model helps but still requires basic digital infrastructure.

Over-reliance on AI: Learners may over-trust AI-generated content — risk of accepting incorrect summaries or shallow understanding without human oversight.

Academic integrity: In educational settings, relying on automatically generated answers/quizzes may raise concerns about originality, plagiarism, or fair assessment.

Language & Cultural Bias: Although the platform claims

multilingual support (up to 90 languages), AI summarisation and content accuracy may vary across languages, possibly disadvantage for non-English users.

5.3. Future Outlook and Roadmap

Based on current features and limitations, plausible future enhancements for AnyLearn.ai (or similar tools) may include:

- Offline mode/offline content processing to allow learning without continuous internet.
- Improved AI models for better accuracy and nuance especially for technical, specialised or sensitive content.
- Collaboration features—group study, sharing of modules, peer discussion, and instructor feedback.
- Deep course creation integrating assignments, projects, and peer assessments to evolve beyond micro-learning to full-length courses.
- Institutional/classroom integration—APIs or LMS-like features for schools, colleges to adopt and integrate with their curricula.
- Multi-media supports expansion beyond text/video: interactive simulations, visualisations, or multimedia-rich lessons.
- Stronger privacy, copyright & content-licensing frameworks especially if users upload paid/ copyrighted materials.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://anylearn.ai> — The main landing page.
- **Mobile App:** Available on iOS as 'AnyLearn AI' — with automatic quiz generation, flashcards, study plans, and mobile-friendly UI.
- **Pricing/License Model:** Freemium model — basic access is free (limited content conversions per month), Pro subscription (e.g. monthly) unlocks unlimited conversions, advanced features, and full access.

6.2. Further Reading and Documentation

- AnyLearn.ai official site (for latest documentation, updates, support)
- Reviews & tool-listing sites summarising features/ use cases (e.g. trending ai tools, AIProductList, Toolerific) — useful for understanding strengths & limitations.

- App Store listing for user reviews, mobile-specific functionality, and version history.

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Avidnote

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality:

Avidnote is an artificial intelligence - powered research assistant platform that enables academics, student and professional to read, write, analyse, and organise academic papers, documents, and research data. It includes capabilities such as document summarization, text generation or rewriting, interview transcription, data analysis, note taking, reference management, and more, all of which help to streamline the overall research workflow.



Fig 1 Avidnote AI Logo

1.2 Brief History and Development:

Avidnote was created by a team of researchers with the goal of streamlining the research process for academics and students worldwide. The program is marketed as "AI for Researchers", implying that its features and models are intended for academic settings rather than general AI operations. Because it is web - based, there is no need to install software, making it available anywhere in the world with an Internet connection.

1.3 Target Audience and Scope:

Avidnote is suitable for:

- **University students** - For essays, assignments, thesis work, and summarising readings.
- **Researchers** - For literature reviews, data analysis, qualitative and quantitative research, interview transcription, and paper writing.
- **Educators** - They can use it to organise course materials, reading lists, and help with research ideas of articles.

Avidnote is ideal for research teams since it facilitates collaboration, shared notes, reference management, and team plans. Its scope includes reading support, writing and rewriting text, data analysis, interview transcription, note taking, document management, and collaborative research processes, transforming it into a full fledged “AI research assistant”.

2. Characteristics and Features

2.1 Core AI Capabilities:

- **Summarization and reading aid:** Avidnote allows you to upload research papers or documents and it will automatically summarise them, extract essential findings, or clarify complex text in simpler terms.
- **AI powered writing and rewriting:** Can generate fresh material, improve clarity and style, and build arguments based on user input. Examples include literature review sections and discussions.
- **AI assisted data analysis:** Can reveal correlations and insights in quantitative and qualitative research. Avidnote automatically transcribes audio and analysis qualitative data, saving time for researchers conducting interviews.
- **Note taking and reference management:** The platform allows you to maintain papers and personal notes side by side, manage references, tag documents, and organize research projects all in one location.

2.2 User Interface (UI) and Workflow:

- Avidnote is totally web based, with no installation required. Simply sign up and start using it through a browser. Depending on the necessity, the AI allows you to upload a variety of documents.
- Inside avidnote, you may maintain your study paper on one side and take notes on the other, which reduces the need to transfer between windows and improve workflow.
- Supports tag based organizations, workbooks, simple export to word and storage making it ideal for long term study tracking and documentation.

2.3 Distinguishing and Differentiating Characteristics:

- Unlike general AI tools, Avidnote is designed specifically for academic research, so its templates, summarization, writing aids and data analysis tools are context aware.
- It combines reading, writing, data analysis, transcription note taking, reference management, and collaboration on a single platform, eliminating the need to transfer between numerous programs. Strong emphasis on data privacy and ownership.
- User data is kept private, owned by the user and not utilised to train AI models by default which is critical for academic or sensitive research work.

3. Practical Implementation and Use

3.1 Prerequisites and Setup:

- Avidnote is web based, so all you need is a browser, no downloads or installations required. To begin, sign up for a free account. The free plan includes basic capabilities (limited AI-generated words, readings/transcriptions, and storage).
- Intensive use (several documents, data analysis, loads of summarization or transcription) May require a premium plan (Professional/ Premium).

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Reading and Summarizing a Research Paper

- Upload a PDF (or other supported format) to Avidnote.
- Use the AI function "Summarize" or "Explain this" to get concise summaries or simplified explanations of complex sections.
- Take notes side-by-side while reading — all within the same interface.

Scenario 2: Writing/Rewriting Academic Content

- Paste your draft or write a prompt describing your study/section.
- Use AI to generate literature review, introduction, methodology, discussion, or rewrite existing text to improve clarity and style.
- Export generated or edited documents as Word or PDF when done.

Scenario 3: Data Analysis & Interview Transcription

- Upload datasets (e.g. spreadsheet) and ask Avidnote to analyze for patterns, correlations, or insights.

- For qualitative data (e.g. interviews) upload audio/video files → let Avidnote transcribe automatically → code or analyze transcripts.

Scenario 4: Organizing Research Workflow & Collaboration

- Use tags, folders or projects to organize papers, notes, data, analysis, references.
- For team work - collaborate via shared workspaces. Teams or research groups can share documents, notes, analysis results, etc.

3.3.Tips and Best Practices

- Always review/verify AI-generated summaries or content, AI helps but you stay responsible for accuracy and academic integrity.
- Organize well: use tags, separate projects by topic/subject to avoid confusion.
- Combine AI-assisted writing with your own critical thinking use AI outputs as draft or starting points, not final submission.
- When handling sensitive or unpublished data, ensure you comply with privacy/ethics standards: Avidnote claims data privacy but double-checks before sharing or publishing.

4. Educational & Research Implications and Applications

4.1 Rationale and Benefits for Academia

Avidnote covers important points in research and education, such as reading long papers, summarising literature, composing drafts, organising references, data analysis, transcription, and note taking all time consuming chores. by automating many of these tasks, instructors, researchers, and students can save time and concentrate on critical thinking, creativity, and in depth study. It promotes enhanced workflow, better documentation, and more efficient research work flows, potentially accelerating research output and learning

4.2 Impact on Teaching, Learning, and Research Workflows:

Students can use avidnote to better understand complex text, write summaries, take notes, and organize course work or thesis projects. This promotes effective time management and learning. Teachers and academic writers can simplify lesson preparation, literature reviews, research proposals, and joint initiatives. Centralised document management, collaborative editing, shared analysis, and structured data handling are all beneficial to the research team.

4.3 Specific Use Cases in Academic/Research Settings:

- Writing a literature review or thesis entails gathering various publications, summarising them automatically, organising notes and references, drawing parts with AI, refining, and exporting the final work.
- Qualitative research entails conducting interviews, automatically transcribing responses, coding and analysing them, and drafting a result section.
- Quantitative research entails uploading data sets then instructing Avidnote to perform preliminary analysis, identify correlations, insights, and generate tables or summaries.
- Classroom applications include summarising reading materials for pupils, creating simplified summaries, and making lecture notes or handouts.
- Collaborative research involves team members sharing notes, documents, and data, co-writing papers, and keeping versioned records.

5. Challenges, Limitations, Ethics, and Considerations

5.1 Limitations and Challenges:

AI generated content is not always ideal, they may overlook nuance, misread context, or over simplify complicated academic arguments. Therefore, human oversight is needed. Advanced functions like extensive writing, data analysis, and transcribing frequently necessitate a premium package.

For extended use, the free plan may be insufficient

- Dependence on the Internet and web based access.
- Offline work is not possible.
- In places with poor connectivity, utilization becomes challenging.

Learning curve: Although the UI is user friendly, adjusting to AI enabled academic writing and analytical workflows may take some time, particularly from novices.

5.2 Ethics and Integrity Considerations:

Academic honesty: Using AI to generate essays or papers must be ethical, users must ensure that the result is original, correctly credited, and reflects their own knowledge. Avidnote itself emphasises that its tool is intended to supplement, not replace, researchers' own work.

Data privacy: Although Avidnote says that user data is private, not used to train AI, and securely maintained researchers must exercise caution when handling sensitive data, unpublished work, confidential interviews, and so on. **Over-reliance:** If AI is utilized correctly, it has

the potential to degrade research habits, educational and research integrity must be upheld.

5.3 Future Outlook and Roadmap

- More advanced collaboration tools: real-time collaborative editing, version control, team workflows for large research groups.
- Improved interaction with external reference managers for example Zotero and Mendeley, citation tools, and bibliographic databases to facilitate academic writing.
- More powerful data analysis tools, including statistical analysis, visualization, and direct export of charts and graphs.
- Improved AI models for complicated academic writing, including multidisciplinary literature reviews, cross referencing, citation management, and deeper critical analysis.
- Offline access or desktop app to assist users with restricted Internet connection or to safely handle sensitive data offline.

6. Supplementary Information and References:

6.1 Tool Access Details:

Avidnote can be accessed through its official website, where users can create a free account to begin writing, organizing, and managing research notes.

Website: <https://avidnote.com>

Pricing/Licensing Model

Avidnote offers a free basic plan suitable for students and individual researchers. Premium features such as advanced collaboration, extended storage, and enhanced analytics are available through paid plans. Academic institutions may also request special licenses.

6.2. Further Reading and Documentation

- Avidnote provides online tutorials, a help center, and a blog section with guidance on research writing, referencing, note organization, and productivity tools for scholars.
- These resources help users understand the platform's features and best practices for research documentation.

6.3. References

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<https://arxiv.org/abs/2209.10432>

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<https://doi.org/10.48550/arXiv.2311.01984>

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UNESCO (2023). Guidelines on AI Tools in Higher Education and Academic Integrity.

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Beautiful AI

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1. Introduction and Tool Overview

1.1. Tool name and Core Functionality

Beautiful AI is an online presentation designing tool that relies on artificial intelligence to assist users to design attractive and professional presentations with ease. It has automatic slides formatting, alignment, layout and theme recommendations, and multimedia input e.g. images, icons, charts and text. Its intelligent templates enable users to concentrate on content and not on manual designing.



Fig 1. Logo of Beautiful AI

1.2. Brief History and Development

In 2017 Mitch Grasso, the co-founder of SlideRocket launched Beautiful AI. The site was designed in order to address the issue of time-consuming manual presentations. As time went by, it increased its intelligent slide system, asset library, collaboration tools, brand controls and analytics. Today, Beautiful AI is a complex presentation solution based on automation, branding, and real-time design help that is offered to educators, professionals, businesses and learners.

1.3. Target Audience and Scope

Beautiful AI serves teachers, students, corporate teams, startups, researchers and also marketing professionals and trainers. It is particularly helpful in academic and business settings whereby rich communication is required to be visual. Customers use the platform to create lesson presentations, reports, business proposals, seminar decks, visual aids in research, training content, portfolio displays and pitch decks.

Being easy to use, clever in slides and collaborative features can be useful to curriculum developers, instructional designers or teachers wishing to capture the audiences with visual storytelling.

2. Characteristics and Features



Fig 2. Landing page

2.1. Core AI Capabilities

Beautiful AI offers AI-powered slide formatting and automated layout optimization, real-time design suggestions, AI writing support, and Smart Templates that produce structure of slide that is specific to the content input. AI makes sure that there are clean alignment, consistency, spacing and professional quality without the manual effort.

2.2. Key Features and User Interface (UI)

Users can use such ready-made smart slides in the form of a timeline, a chart, an infographic, icons, text blocks, and grids of images. The interface is user-friendly, as the user drags, types, inserts graphics and AI makes formatting. With teamwork, it is possible to share editing, commenting and managing versions. Brand controls guarantee colour scheme, fonts and assets to be institutional or corporate identity. It supports PowerPoint, PDF and online sharing of links as an export option.

2.3. Differentiating Characteristics

In contrast to other presentation tools, Beautiful AI ensures that presentation stays clean and aligned and up to date consistently because of the design rules that it enforces. Its intelligent templates change automatically when a user types or adds an element, which saves time and error in design mistakes.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Users sign up using an email address and browse intelligent slides and templates. Premium plans also open up branding and analytics along with enhanced collaboration.

3.2. Step-by-Step Usage Guide

- The situation: Building a Commerce Lesson Presentation about E-Commerce Trends.
- Open an account & choose the New Presentation.
- Select a specific intelligent appearance, colour scheme.
- Added a Title Slide bar, write whatever you want to know in it.
- Insert a specific Timeline Slide to demonstrate the evolution of e-commerce.
- Include Icons, Charts or Intelligent Diagrams of merits/demerits.
- Insert a supporting image, statistics, and short videos, infographics in it.
- Rewrite with the help of the AI assistant, perfect layout or even rewrite headings once more.
- Share and distribute through link, download in PPT/ PDF or show on the Internet.

3.3. Tips and Best Practices

- Maximize conciseness in the content- AI writes well when text is articulate.
- Attach the Smart Slides like Comparison, Timeline, Steps or Chart to simplify complex concepts.
- Check AI-proposed structure to make the text more understandable.
- Branding should be the same--logos, fonts, colours.

4. Educational Instructions and Applications.

4.1. Pedagogical Rationale

Beautiful AI supports the process of learning by visual structuring, clarity, organization, and storytelling. It has an auto layout to allow teachers to stick to concept delivery and not formatting design.

4.2. Impact on Teaching and Learning

Educators take less time to make slides. The students are interested because of attractive graphics. The tool promotes use of projects,

presentations, collaborative work and skill development in digital communication.

4.3. Classroom Applications

- Concept presentations
- Business plan pitches
- Research presentations
- Seminar delivery
- Digital storytelling
- Group project visuals
- Revision Notes and Flash Presentation.
- The teachers can create instructions in guided lesson decks, flip-classroom, and interactional reflections.

5. Issues, Ethics, and Future.

5.1. Limitations and Challenges

Free accounts are limited in the number of slides and exporting. Excessive use of automated templates can lessen creativity. Needs stable access to the internet.

5.2. Ethical and Equity Issues.

Critical design involves accuracy checking, referencing and allowing the students equal access. Educators have to promote intellectual clarity and not merely aesthetic refinements.

5.3. Future Outlook and Roadmap

Beautiful AI can widen AI writing capacities, LMS assimilation, interactive exams, analytics and enhanced cooperation applications. As it is adopted more and more, it can transform digital pedagogy and digital communication skills of the workplace.

6. Additional Materials and Sources.

6.1. Tool Access Details

- Website: <https://www.beautiful.ai>
- Pricing: The Free limited version, paid options have advanced branding, analytics and collaboration.

6.2. Literature on reading and documentations.

- Beautiful AI Help Center
- The discussion presentation AI tools are technology reviews and EdTech blogs.
- The studies in visual learning and instructional design.

6.3. References

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2. Beautiful AI Help Center. (n.d.). Instructional papers and tutorials. Thought to be retrieved in January 2025, on the help.beautiful.ai site.
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4. eLearning Industry. (2024). AI educational tools: Collaboration and presentation platform review. Stolen in <https://elearningindustry.com>
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BRISK TEACHING

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Brisk Teaching is an AI-powered platform which assists in education, designed to help teachers plan lessons, create worksheets, generate



Fig. 1 Brisk Teaching Logo

assessments, and differentiate learning. Specifically built for educators, Brisk uses advanced natural language processing (NLP) to convert teacher prompts into ready-to-use instructional resources aligned with the curriculum objectives.

The core strength of Brisk lies in its ability to convert any teaching resource, be it in any format, viz., PDFs, web pages, images or text, into simplified notes, questions, rubrics, summaries, and differentiated resources to cater to diverse learners.

Brisk supports teachers by integrating generative AI directly into the workflow of Google Docs and Google Classroom. It has teacher-friendly features, and it has become a reliable classroom tool that supports instructional design, personalisation and digital pedagogy.

1.2. Brief History and Development

Brisk Teaching was founded in 2021 by a group of former educators, curriculum designers, and software engineers who recognised the challenge teachers face in managing both instructional design and classroom workload. Our aim is simple: to lighten the workload for teachers so they can spend more time doing what they love - teaching, not administrative tasks.

The following constitute the Brisk Leadership Team:

Arman Jaffer	Founder & CEO
Alex Muscat	Head of Data
Marvel Ley	Head of Operations
Pam Martinez	Head of Engineering
Christian Hartjes	VP of Sales
Suvi Gluskin	Head of Marketing
Bri Nistler	Head of Customer Success
Brittany Cheng Betten	Head of Product
Josh Hammell	Head of Revenue Operations
Hannah Grantz	Chief of Staff

Launched as a Chrome extension, Brisk rapidly expanded, foraying into tools for planning, feedback assessment, and differentiation. The user base substantially grew in 2023-24 as educators shifted toward blended learning ecosystems integrating Google Workspace.



Fig. 2 Brisk Teaching homepage

1.3. Target Audience and Scope:

Brisk is built primarily for:

- School teachers (primary, secondary, senior secondary)
- Teacher educators
- Curriculum developers
- Special educators/inclusive education instructors
- School administrators using Google Classroom

2. Characteristics and Features

2.1. Core AI Capabilities

Brisk Teaching uses advanced Generative AI and NLP models to:

- Understand curriculum content
- Identify learning outcomes
- Generate grade-level appropriate material
- Adapt text for different reading levels
- Create questions using Bloom's Taxonomy
- Provide multimodal processing (PDFs, images, URLs)

Its algorithms process text contextually rather than simply replacing words. This allows Brisk to:

- Simplify for lower proficiency learners
- Enrich for advanced learners
- Summarise without losing meaning
- Generate error-free, pedagogically sound content
- Produce explanations tailored to age groups

2.2. Key Features and User Interface (UI):

Key Tools include:

- Generates structured lesson plans
- Worksheet Generator
- Reading and Content Simplifier
- Bloom's Taxonomy Question Builder
- Differentiated Instruction Tool
- Assessment and Rubric Creator
- Classroom Integration Tools

2.3. Differentiating Characteristics

Brisk stands out from broader AI platforms (like ChatGPT or Bard) because:

- It is built specifically for teachers.
- It aligns outputs to school-level learning objectives.
- Brisk offers instant differentiation, which most AI tools do not.
- It accepts PDFs, images, and URLs directly for educational transformation.
- Brisk maintains teacher-controlled customisation at every step.
- It integrates seamlessly with **Google Classroom**, allowing direct assignment creation.

Unlike generic AI models, Brisk prioritises age-appropriateness, curriculum relevance, and classroom practicality.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Brisk Teaching effectively, users need:

1. A stable internet connection
2. A Chrome browser
3. The Brisk Chrome Extension (recommended)
4. A Google account for integration
5. Basic familiarity with digital teaching tools

Once the extension is installed, Brisk can be used directly inside Google Docs or via its web dashboard.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Example Scenario 1: Differentiating a Lesson

1. Copy/paste the lesson text into Brisk.
2. Click Differentiate Level.
3. Select levels:
 - a. Basic
 - b. Intermediate
 - c. Advanced
4. Brisk instantly creates 3 versions of the same concept.
5. Teachers assign based on student needs.

Example Scenario 2: Simplifying a Text for Lower Grades

1. Open a Google Doc with the selected text.
2. Highlight the paragraph.
3. Open Brisk from the sidebar.
4. Choose 'Rewrite for Lower Reading Level.'
5. Select desired grade level (e.g., Grade 4).
6. Brisk instantly generates a simpler, child-friendly version.
7. The teacher reviews and inserts the revised text into the document.

Useful for: English, Social Science, Science, EVS, Humanities.

Example Scenario 3: Creating Questions for a Lesson

1. Paste lesson content into a Google Doc.
2. Highlight text.
3. Open Brisk → Create Questions.
4. Choose question type:
 - a. MCQs

- b. Short Answer
 - c. Higher-Order (HOTS)
5. Brisk generates 5–10 questions instantly with answer keys.
Useful for: Worksheets, tests, quizzes, homework.

Example Scenario 4: Giving Feedback on Student Essays



Fig. 3 Feedback

1. Open the student's essay in Google Docs.
2. Launch Brisk → Analyse Student Writing.
3. Brisk evaluates:
 - Clarity
 - Grammar
 - Structure
 - Coherence
 - Rubric alignment

The teacher receives constructive feedback to share with the student.

Effective for: English assignments, project submissions, and reflection writing.

3.3. Tips and Best Practices:

- Always review AI-generated output before sharing with students.
- Use the 'Simplify Text' feature for inclusive classrooms.
- For assessments, combine AI-generated questions with teacher-made ones.
- Use Bloom's Taxonomy generator to ensure cognitive variety.
- Use Brisk as a *support tool*, not a replacement for teacher judgment.
- Encourage students to edit using teacher feedback, not copy AI output.
- Avoid over-reliance—ensure students practice real writing.
- Maintain ethical boundaries when using AI for grading.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

Brisk supports modern teaching pedagogy by:

- Enabling differentiated instruction
- Supporting inclusive education
- Reducing teacher workload
- Allowing teachers to focus on pedagogy over paperwork
- Enhancing formative assessment practices
- Encouraging competency-based learning

Brisk ensures students engage with content at their level, enhancing comprehension and retention.

4.2. Impact on Teaching and Learning:

Brisk enhances the classroom by:

- Reducing teacher workload
- Supporting clear and structured instructional materials
- Helping students understand complex texts
- Improving the quality of feedback
- Encouraging self-paced learning through simplified content
- Increasing learner confidence and comprehension
- Saving hours of planning time weekly

Teachers can devote more time to interaction, creativity, and reflection.

4.3. Specific Classroom Applications: (with screenshots)

Teachers can use Brisk to:

- Create lesson plans in minutes
- Generate practice worksheets
- Develop revision notes
- Simplify textbook chapters
- Prepare case studies and application-based questions
- Support special educators with modified content
- Create Google Classroom-ready assignments instantly

Brisk is versatile across subjects—from Physics and Biology to Economics, English, and Social Sciences.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- AI-generated content may sometimes lack contextual accuracy
- Requires teacher review to avoid misconceptions
- May reduce student effort if used excessively
- Limited offline functionality
- Data privacy concerns when uploading sensitive documents
- Premium features may be costly for some schools

5.2. Ethical and Equity Considerations:

- Data privacy concerns when analysing student writing
- Overuse may hinder the development of student writing skills
- Bias in AI-generated feedback
- Must be used as a *support tool*, not a replacement for pedagogy
- Schools should develop clear guidelines for AI use
- Teachers must ensure equal access for all students

Brisk's design attempts to mitigate risks by not storing personal data, but professional judgment remains essential.

5.3. Future Outlook and Roadmap:

Brisk plans to expand by:

- Adding curriculum-based templates
- Integrating multimedia lesson designs
- Improving the accuracy of reading-level adjustments
- Offering subject-specific AI engines (Math, Science, Social Studies)
- Enhancing analytics for student progress
- Introducing school dashboards for administrators

The long-term goal is to become a universal AI assistant for teachers, enabling more personalised, efficient, and meaningful teaching.

6. Supplementary Information and References

6.1. Tool Access Details:

Official URL: <https://www.briskteaching.com>

Chrome Extension: Search 'Brisk Teaching' on the Chrome Web Store.

Pricing/License Model:

Plan	Cost	Key Benefits
Free	£0	Reading-level changes, question generation, basic summarisation
Premium	School/District Pricing	Advanced analytics, unlimited feedback, customised integrations

6.2. Further Reading and Documentation:

What is Brisk Teaching? — the official overview page explaining what Brisk provides: the extension, 'Boost' (student-facing AI), and 'Next' (planning hub). help.briskteaching.com

Official website / Landing page — gives a full list of features (lesson-plan generation, quizzes, differentiation, feedback, reading-level adjustment, etc.). briskteaching.com

FAQ page — clarifies how Brisk differs from generic AI tools, what platforms it integrates with (Docs, Slides, PDFs, web pages, LMSs) and how it supports differentiated instruction & feedback at scale. briskteaching.com

Tool-specific guide: Presentation Maker — shows how to automatically generate slide decks from any article, video or PDF, customisable by grade/standard/number of slides. briskteaching.com

Tool-specific guide: Quiz Generator — describes how to auto-create quizzes (MCQs, short-answer, etc.) from various resources (text, web, video), for quick formative assessments. briskteaching.com-1

Chrome Extension details (Web Store page) — gives practical info on installation, supported languages, version, and user ratings. [Chrome Web Store](https://chrome.google.com/webstore/detail/brisk-teaching-extension)

How to use these: These official documentation pages are useful as the 'user manual' for Brisk. You can use them to understand all features, integrate Brisk into your teaching workflow (Google Docs, Slides, PDFs, etc.), and plan how to use it in your classroom (lesson planning, quizzes, feedback, differentiation).

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Canva AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Canva has been a popular platform for beginners and non-designers for many years. With the introduction of its AI suite, known as Magic Studio, the platform has become a powerful creative assistant. The purpose of Canva AI is simple: it turns short prompts into complete visual or written content. Users can create posters, presentations, worksheets, videos, or social media posts faster and with less effort. Even someone with no design experience can produce clean, professional work in a few minutes.



Fig. 1 Canva Logo

1.2. Brief History and Development

Canva was founded in 2013 by Melanie Perkins, Cliff Obrecht, and Cameron Adams. It began as a web-based design tool that focused on drag-and-drop layouts. The platform grew steadily because it was easy to use, offered thousands of templates, and did not require advanced skills.

The global rise of AI between 2022 and 2023 encouraged Canva to expand its features. It launched tools like Magic Write (AI text generation) and Text to Image (AI image creation). In 2023, Canva combined all these features under a single system called Magic Studio, marking a shift from a simple design tool to a fully AI-driven creative platform.

1.3. Target Audience and Scope

Canva AI is designed for a wide range of users, such as:

- Students and Teachers
- Small Business Owners and Marketers
- Hobbyists and Everyday Users

- **Corporate Teams and Professionals (Canva Enterprise)**

The scope of Canva AI is broad. Users can create designs, generate visuals, improve text, produce videos, or edit photos using natural-language prompts. Its strength lies in how seamlessly AI is integrated into each part of the platform.

2. Characteristics and Features

Canva AI is different from many other AI tools because everything works directly inside the design editor. Users do not need to switch tabs or learn complicated software. The tools appear as simple buttons or prompt boxes.

2.1. Core AI Capabilities

Canva AI includes several intelligent tools grouped into four main categories:

Capability	Key Function	Feature
Image Generation	Create images/videos from prompts	Magic Media
Smart Editing	Modify or remove elements in a photo	Magic Edit, Magic Eraser, Background Remover
Content Creation	Generate, rewrite, or summarise text	Magic Write
Design Curation	Produce layouts or adapt designs instantly	Magic Design, Magic Switch

Table 1 Canva Features

These tools simplify tasks that normally require skilled editing tools.

2.2. Key Features and User Interface (UI)

- The Canva interface is beginner-friendly. Each AI feature appears as a guided option with clear instructions. Some main tools include:
- **Magic Media (Text to Image):** Users type a short

prompt, choose a style (photo, illustration, 3D, watercolour, etc.), and generate visual options automatically.

- **Magic Edit / Magic Eraser:** Users brush over a selected area to remove or replace objects. Canva fills or adjusts the background automatically.
- **Magic Switch:** Instantly changes a design from one format to another. For example, a poster can become a presentation slide or a video.
- **Magic Write:** Converts notes into summaries, explanations, captions, or polished text.

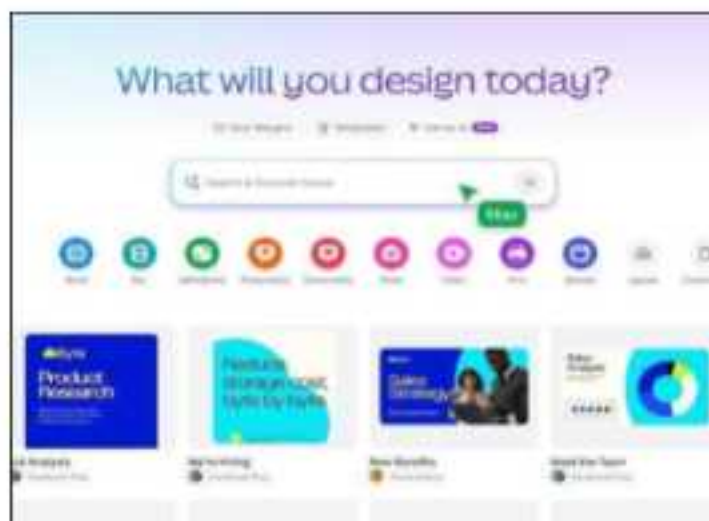


Fig. 2 User Interface

2.3. Differentiating Characteristics

- **All-in-One Platform:** Users do not need multiple tools for writing, editing photos, or creating designs. Everything is integrated.
- **High Accessibility:** No design knowledge is required. The interface is simple enough for beginners.
- **Design Context Awareness:** Canva AI understands layers, layout balance, and typography. This helps it generate designs that look clean and professional.
- **Canva Shield:** A built-in system to ensure safe and

responsible AI usage. It includes privacy controls and content moderation.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Account:** A free Canva account is enough to access basic functions. The Pro version offers additional AI features.
- **Access Limitations:** Some tools, such as Magic Expand and extended image generation, have limits in the free plan.
- **Canva for Education:** Verified teachers and students in K-12 or higher education may get premium features at no cost.
- **Device Requirements:** The platform works best on modern browsers or updated mobile apps.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario: Creating a Research Infographic

Step 1: Generate Ideas with Magic Write Open a Canva Doc and type a prompt like: 'Summarise the key points of my research on renewable energy and create an outline for an infographic.' Magic Write instantly provides a structured summary.

Step 2: Create the Infographic Layout with Magic Design Use Magic Design from the homepage.

Prompt example:

'Infographic for Instagram Story explaining renewable energy policies in India. Use cool colours and a clean, modern style.'

Canva generates multiple layouts that you can edit.

Step 3: Improve Visuals with Magic Media and Magic Edit

- Generate new images such as: 'Flat illustration of solar panels with soft glow.'
- Remove unwanted elements using Magic Eraser.
- Adjust colours and icons as needed.
- Additional Practical Examples

To make the chapter more useful for teachers and beginners, below are three extra classroom-focused examples.

Example: Creating a Lesson Plan Prompt for Magic Write:

'Create a lesson plan for Grade 7 on the topic 'Photosynthesis.'

Include objectives, materials, activities, and an exit ticket.' Magic Write gives a ready-to-use structure. You can then paste it into your design.

3.3. Tips and Best Practices

- **Be Specific:** Clear prompts produce better results. For example, instead of 'Make a poster,' say 'Create a poster for Grade 5 science with bright colours and simple diagrams.'
- **Use Magic Switch Early:** Start with one main design. Then convert it into slides, posters, or worksheets.
- **Review AI Output:** AI can make mistakes. Always check facts, grammar, layout, and accuracy.
- **Add Your Style:** Personalise fonts, colours, and images after the AI generates the base design.

4. Educational Implications and Applications

Canva AI plays a meaningful role in teaching and learning. It reduces time spent on formatting and increases time spent on learning and understanding content.

4.1. Pedagogical Rationale

Modern learners respond better to visuals and well-structured materials. Canva AI supports this need by reducing the effort required to create such resources. Teachers can focus on pedagogy rather than design. Students can express ideas creatively without technical frustration. Tools like Magic Write help students overcome writer's block. Magic Design ensures that visuals look organised, even when students are beginners.

4.2. Impact on Teaching and Learning

Impact on Teaching

- **Faster Resource Creation:** Worksheets, lesson plans, presentations, quizzes, and posters can be designed in minutes.
- **Differentiation and Accessibility:** Magic Switch helps adjust content for different grade levels or learning needs.
- **Adaptability:** Teachers can generate multiple variations of the same resource quickly.

Impact on Learning

- **Enhanced Creativity:** Students can combine AI-generated elements with their own ideas.
- **Better Focus on Content:** Because design tasks are simplified, students spend more time analysing topics and completing tasks.
- **Confidence Building:** Beginners feel more capable because the AI handles the technical aspects.

4.3. Specific Classroom Applications

Quiz Maker: Converts lesson content into quizzes automatically.

Course Creator/Magic Activities: Generates lesson outlines, activities, or unit plans based on grade level and subject.

Presentation Builder: Converts research documents or essays into slides.

Worksheet Generator: Helps produce vocabulary lists, grammar exercises, science diagrams, or math templates.

Poster and Chart Design: Good for making learning aids like timelines, diagrams, or instructional posters.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

1. **Generic Content:** If prompts are too short, Magic Write may produce simple or repetitive text.

2. **Usage Caps:** Free uGenerative Errors: Images may include strange shapes or missing details. Sometimes text in images may appear distorted.
3. Users may experience limits on how many AI tools they can use daily.

Quick Tips for Avoiding These Issues

- For Generative Errors: Regenerate the output. Use clearer prompts describing style, angle, lighting, or emotion. Edit the final design manually using the drag-and-drop tools.
- For Generic Text: Add more details such as purpose, audience, tone, and length. Ask for multiple versions: 'Give me three alternatives.'
- For Free Plan Limitations: Use 'Canva for Education' if eligible. Combine AI results with templates to reduce the need for repeated generations.

5.2. Ethical and Equity Considerations

- **Plagiarism Concerns:** Users must acknowledge AI-generated content when required by academic or professional guidelines.
- **Data Privacy:** Inputs may be processed by third-party AI providers. Users should avoid sharing sensitive or personal information in prompts.
- **Creator Compensation:** Canva supports ethical AI development through programs that return value to original contributors.

5.3. Future Outlook and Roadmap

Canva continues to expand its AI capabilities. Future developments include:

- **Deeper Integration:** Smarter assistance for long documents, multi-page reports, and complex data charts.
- **More Automation:** Stronger brand consistency features, automated marketing campaigns, and improved content suggestions.
- **Cross-Platform Collaboration:** Better integration with Affinity tools and partnerships that support advanced design.

workflows

6. Supplementary Information and References

6.1. Tool Access Details

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Canvas

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1. Introduction

The rapid expansion of digital learning ecosystems has reshaped the global educational landscape, compelling institutions to adopt robust, scalable, and learner-centered digital platforms. In this era of technological transformation, Learning Management Systems (LMS) have evolved from tools of content delivery to sophisticated, data-driven, AI-enhanced learning environments. Among these, Canvas LMS by Instructure stands out as one of the most widely adopted platforms globally, celebrated for its intuitive design, pedagogical soundness, and seamless integration capabilities.



Fig 1 . Logo of Canvas AI

Canvas LMS is used by universities, colleges, K-12 schools, and professional training institutions across continents. The platform supports online, blended, and hybrid learning while empowering educators with tools for course authoring, content management, assessments, communication, and analytics. With the recent integration of Canvas AI, Instructure has moved decisively toward building an AI-empowered instructional ecosystem that enhances teaching efficiency, strengthens learner engagement, and promotes evidence-based pedagogical decision-making.

2. Evolution and Growth of Canvas LMS

Founded in 2008, Instructure launched Canvas LMS in 2011 with a mission to create an open, flexible, and educator-friendly LMS. Unlike earlier systems that were technically heavy and pedagogically restrictive, Canvas introduced a clean interface, simple navigation,

cloud-based deployment, and open integrations through LTI standards leading to rapid global adoption.

Over the years, Canvas expanded with mobile apps, advanced analytics, cloud storage, multimedia capabilities, and deep integration with institutional technologies. The platform's growth has been shaped by several key milestones:

- **2016–2019:** Widespread global expansion to universities and K–12 districts
- **2020:** Massive uptake during the global shift to remote learning
- **2023–2024:** Introduction of Canvas AI, marking the transition from LMS to an AI-augmented learning ecosystem
- **2024–2025:** Enhanced predictive analytics, AI-generated content, automated assessment workflows, and intelligent feedback tools

Today, Canvas LMS is used by over 30 million learners, supported by a vibrant global community of educators, developers, and instructional designers.

3. Core Capabilities of Canvas LMS

Canvas offers a comprehensive suite of tools designed to streamline instructional delivery, facilitate assessment, enhance collaboration, and support student success. Key capabilities include:

3.1 Course Authoring and Management

Canvas provides intuitive, drag-and-drop tools for creating modules, uploading content, embedding multimedia, and structuring learning paths. Features include:

- Pages, modules, and multimedia-rich lessons
- File repository and direct cloud integrations (Google, OneDrive)
- Canvas Studio for video creation and analytics
- Simple navigation with mobile responsiveness

3.2 Assessment and Evaluation Tools

Educators can design varied assessments such as:

- Quizzes (MCQs, open-ended, hotspots, matching)
- Assignments with rubrics
- Peer reviews and group submissions
- Outcomes-aligned measurements

The integrated Speed Grader tool accelerates evaluation by allowing inline feedback, annotations, and rubric-based scoring.

3.3 Communication and Collaboration

Canvas strengthens engagement through:

- Announcements
- Discussion boards
- Inbox messaging
- Conferences (BigBlueButton)
- Calendar and event notifications

These tools support active learning and foster interaction across online, hybrid, and blended environments.

3.3 Step-by-Step Usage Guide

Scenario 1: Innovation Workshops

- Corporate teams or consultants can use Canvas AI to make brainstorming sessions more productive. Key points:
- Structured Ideation: Converts abstract ideas into organized canvases for better clarity.
- Value Proposition Development: Helps teams define clear, customer-focused value propositions.
- Customer Segment Definition: Identifies target audiences for proposed products or services.
- Actionable Plans: Transforms concepts into measurable and implementable strategies.
- Workshop Productivity: Enhances team collaboration and ensures session outputs are usable.
- Iteration & Refinement: Allows multiple canvas iterations to refine and improve ideas efficiently.

3.4 Analytics and Insights

Canvas offers multiple levels of analytics to support data-driven instructional decisions:

- Course-level insights
- Student activity dashboards

- Learning mastery reports
- Predictive analytics (AI-supported)
- Early warning indicators

These tools help educators identify at-risk learners and intervene proactively.

4. AI-Powered Capabilities in Canvas

With the introduction of Canvas AI, the LMS has transformed into an intelligent teaching assistant. AI is now embedded across content creation, assessment generation, feedback, and learner support.

4.1 Canvas AI Assistant

The AI Assistant helps educators by:

- Generating course templates
- Drafting learning objectives
- Creating lesson outlines
- Designing differentiated learning activities
- Producing summaries, instructions, and teaching materials

This reduces manual workload and enhances instructional effectiveness.

4.2 AI-Generated Assessments

Canvas AI automates:

- Quiz creation
- Question banks
- Rubrics
- Case scenarios
- Adaptive questioning patterns

Educators can upload text or a topic, and the AI generates assessment items aligned to learning outcomes.

4.3 AI-Enhanced Feedback and Grading

Speed Grader integrates AI in the form of:

- Auto-generated draft feedback
- Rubric-aligned comments
- Grammar and clarity suggestions
- Personalized learner inputs

Educators maintain full control, approving or editing AI suggestions.

4.4 Predictive Analytics

Canvas AI uses machine learning to identify:

- Students at risk of low performance
- Declining engagement trends
- Incomplete submission patterns
- Low participation indicators

This enables timely interventions and improves learning success rates.

4.5 Content Enrichment and Summarization Tools

AI supports:

- Automated summaries of uploaded documents
- Expansion or simplification of content
- Translation assistance
- Checking alignment to outcomes or standards

These features support differentiated instruction and inclusive learning.

5. Educational Applications of Canvas

Canvas LMS is used across educational levels and sectors due to its adaptability and pedagogical robustness.

5.1 Higher Education

Universities use Canvas for:

- Fully online and blended courses
- Research supervision and project submission
- Synchronous and asynchronous learning
- Discussion-based pedagogies

5.2 Teacher Education and Professional Development

Canvas supports:

- Practicum tracking
- Portfolio management
- Reflective journals
- Rubric-based evaluations
- Peer collaboration

5.3 K–12 Schooling

For schools, Canvas offers:

- Parent access portals

- Child-friendly interfaces
- Classroom communication tools
- Individualized learning pathways

5.4 Corporate Training

Businesses use Canvas for:

- Compliance training
- Employee onboarding
- Skill development programs
- Certification pathways

6. Distinctive Advantages of Canvas

Canvas stands out due to its:

6.1 Intuitive, User-Centered Design

Clean interface, simple navigation, accessible tools.

6.2 Open Ecosystem with LTI Integrations

Supports 6000+ third-party tools (Zoom, Turnitin, Panopto, MS Teams).

6.3 Mobile-First Accessibility

Canvas Student and Canvas Teacher apps offer full functionality.

6.4 AI-Augmented Teaching Workflows

Reduces instructor workload, enhances clarity, and accelerates content creation.

6.5 Strong Global Community

Educators worldwide share templates, resources, and research.

7. Challenges and Ethical Considerations

Despite its strengths, Canvas LMS faces certain challenges:

- Over-dependence on AI may reduce educator agency
- Institutional readiness and digital access inequities
- Data privacy and ethical concerns with student analytics
- Quality assurance for AI-generated assessments
- Training required for AI-enabled features

Instructure continues to refine responsible AI governance to ensure transparency and educator control.

8. Future Outlook

Canvas LMS is positioning itself as a next-generation intelligent learning hub. Future directions include:

- Expanded multimodal AI content generation
- Intelligent tutoring systems
- Enhanced plagiarism and originality detection
- Cross-platform AI orchestration
- Deeper interoperability with institutional data infrastructure
- Advanced early-warning systems for student success

Canvas aims to create an ecosystem where educators and AI collaborate harmoniously to enhance teaching and learning.

9. Conclusion

Canvas LMS has evolved from a traditional course management system into a dynamic, AI-supported learning ecosystem. By integrating generative AI, predictive analytics, inclusive design, and open interoperability, Canvas strengthens instructional delivery and enhances learner engagement. Its ability to scale across K-12, higher education, and professional learning contexts makes it a versatile and future-ready platform.

As AI continues to shape global education, Canvas LMS stands at the forefront—offering a powerful blend of pedagogy, technology, and intelligence that supports holistic and transformative learning experiences.

10. References

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CHALKIE

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1. Introduction

1.1. Tool name and core functionality

Chalkie.ai is an AI-powered platform that helps educators rapidly create high-quality, curriculum-aligned lessons and teaching materials. It generates



Fig. 1 Chalkie AI Logo

complete lessons, worksheets, tests, activities, and multi-lesson units from simple prompts or objectives. Teachers can edit AI-generated slides, apply custom themes, and export materials to PowerPoint, Google Slides, or PDF. The platform also supports school-wide use with centralized management and maintains a privacy-focused design that avoids collecting student data.

1.2. Brief History and Development

Chalkie.ai, founded in London in 2024 by Mark Hughes, Pete Sanderson, and Phil Daneshyar, was created to reduce teachers' lesson-planning workload. Hughes contributed ed-tech experience from Tutorful, while Daneshyar brought Y Combinator expertise. In October 2025, the company raised around £1 million in a pre-seed round led by Triple Point Ventures, offering plans for both individual teachers and schools.

Developed in collaboration with active educators, Chalkie.ai addresses the demand for AI-supported lesson creation that maintains instructional quality. The platform reports rapid global growth, with users in over 100 countries, more than 250,000 educators, and support for 40 languages. Its privacy model requires that schools store no personally identifiable student data, aligning with standards such as the Australian Privacy Act.

1.3. Target Audience and Scope

Chalkie.ai primarily serves K-12 educators across subjects and grade levels, supporting early-career teachers, classroom teachers, and substitutes who need high-quality materials with minimal preparation time. Department heads and administrators also use it to maintain

consistent planning standards. The platform enables school-wide deployment with shared access and quality oversight, while emphasising data security by avoiding the storage of personally identifiable student information. With users in over 100 countries and support for 40 languages, Chalkie.ai aligns with multiple curricula—including the Australian Curriculum and U.S. state standards—making it suitable for diverse educational contexts.

2. Characteristics and Features

2.1. Core AI Capabilities.

Chalkie.ai's functionality is based on advanced large-language model (LLM) technology, which allows for the automatic development of structured, curriculum-aligned instructional materials.

Chalkie's primary AI capabilities include:

- **Automated Lesson Generation:** Creates full, sequential lessons—including objectives, explanations, examples, activities, assessments, and summaries—from simple prompts or curriculum inputs.
- **Adaptive Content Creation:** Adjusts complexity, tone, and structure by grade, subject, and learning goals, with quick refinements like 'simplify' or 'differentiate.'
- **Resource Production:** Generates worksheets, quizzes, recap tasks, and formative assessments aligned with each lesson's outcomes.
- **Unit Planning:** Builds multi-lesson units with clear progression and curriculum alignment.
- **Natural-Language Editing:** Allows teachers to modify lessons using plain-language commands to update slides, examples, pacing, and activities.

These capabilities enable Chalkie.ai to streamline planning processes while maintaining instructional coherence and pedagogical structure.

2.2. Key Features and User Interface (UI)

Chalkie.ai blends automated material generation with a streamlined, teacher-friendly interface that reduces workload and simplifies class planning. Its main features include:

1. **Lesson and Unit Generators:** Users can construct single or multi-lesson units by entering a topic, curricular standard, or prompt. The software generates structured learning objectives,

- explanations, exercises, and assessments.
2. **Worksheet and Quiz Creator:** Chalkie.ai creates printable worksheets, recap quizzes, and activity sheets to complement instructional content and ensure consistency across resources.
 3. **Integrated Slide Editor:** Teachers may modify AI-generated presentations, add new content, distinguish content, and make stylistic adjustments immediately within the platform.
 4. **Custom Themes and Styling:** Teachers can use preset or custom visual themes, altering fonts, colours, and layouts to ensure consistency between courses and presentations.
 5. **Export Options:** Lessons and slide decks can be exported to PowerPoint, Google Slides, or PDF for seamless integration with existing school systems.

User Interface (UI)



Fig. 2 User Interface

Chalkie.ai's interface is designed for simplicity and efficiency: A dashboard provides quick access to recent lessons, templates, and school-shared resources. A prompt-based workspace allows teachers to generate or refine content using natural-language instructions. The slide editor features familiar layout tools, drag-and-drop components, and instant AI-assisted edits. Navigation is clean and minimal, making the platform accessible for users with varying levels of technical experience. Overall, the UI prioritises clarity, ease of use, and rapid content creation, supporting teachers in producing high-quality materials with minimal effort.

2.3 Differentiating Characteristics

Chalkie.ai distinguishes itself from other AI tools with a number of features designed with education in mind:

CHARACTERISTICS	DESCRIPTION
AI-Driven Lesson Creation	Generates complete, structured lessons from short prompts, reducing teacher planning time compared to traditional manual preparation.
Integrated Resource Production	Produces worksheets, quizzes, recap tasks, and assessments aligned with the generated lesson content.
Unit / Multi-Lesson Planning	Builds coherent, sequential lesson units that follow curriculum strands or standards.
Natural-Language Editing	Allows teachers to modify lessons or slides using simple text commands rather than manual formatting.
Customisable Output & Export	Supports theme customisation and export to widely used formats such as PowerPoint, Google Slides, and PDF.

Table 1 Characteristics of Chalkie

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Chalkie.ai involves minimal technical preparation and is designed for immediate use. Users don't have to install any software or connect anything else, as it is fully web-based.
- Requirements
- Device: A tablet, laptop, or computer with an up-to-date web browser.
- Browser: The latest version of Chrome, Edge, Safari, or equivalent. Reliable connection to broadband for creation and export of resources.

- An institutional user login provided by the school or a Chalkie.ai teacher account.

Set-Up Procedure

Go to the official website: chalkie.ai

1. Form an Account: Users sign up on the Chalkie.ai website, using either an email address or school credentials. <https://app.chalkie.ai/register>
2. Review Dashboard: After logging in, teachers can look at generators for lessons, recent projects, templates, or anything shared by their school. <https://app.chalkie.ai/dashboard>
3. Create a First Lesson: Users enter a topic, standard or prompt to create lessons, worksheets, or slides, the first one being generated automatically. <https://app.chalkie.ai/create/lesson>
4. Optional School Access: Schools that routinely use Chalkie.ai can onboard for shared access, manage staff accounts, and customise the curriculum settings for their own school.

This simple set-up allows teachers and schools to create engaging and high-quality instructional resources in almost no time.

3.2. Step-by-Step Usage

Chalkie.ai offers a unified workflow to enable educators to generate, edit, and export a range of instructional resources. Each of the platform's primary features described below may be used in a different order depending on a teacher's particular goals.

1. Lesson Creation



Fig. 3 Generative Lesson

- Select “Create Lesson” in the dashboard
- Enter your topic or curriculum standard (i.e., fractions, photosynthesis) <https://app.chalkie.ai/create/lesson>
- AI will generate the lesson you requested with objectives, explanations, examples, activities, and assessments.
- You can make modifications to the output, such as simplify, add examples, extend, or differentiate for support.
- You can either edit and modify lessons in the slide editor or export them directly.

2. Multi-Lesson Series Generation

- Choose Lesson Series Generator: Users select the multi-lesson / unit-planning tool from the Chalkie.ai dashboard. <https://app.chalkie.ai/create/series>
- Input Unit Details: Enter a broad topic, year level, or grouped curriculum outcomes to guide the system.
- AI-Generated Sequenced Unit: Chalkie.ai creates a structured series of lessons with progression, learning intentions, formative checks, and recap or next-step activities.
- Editable Lessons: Teachers can revise, regenerate, or customize any lesson within the unit.
- Export as a Bundle: The completed multi-lesson unit can be exported together for classroom use.

3. Worksheet and Activity Creator

Choose a creation method:

- When starting an activity sheet, Chalkie.ai offers three options on the interface:

- Create from lesson – Generate a worksheet based on an existing Chalkie lesson.
- Pick a new topic – Start from scratch by typing in a topic or objective.
- Create from resource – Upload a file or webpage for the AI to transform into an activity.
- Generate Activities:
- Chalkie.ai produces worksheets, quizzes, recap exercises, and other task-based activities aligned to the selected topic or resource.
- Customise the Output:
- Teachers can adjust difficulty, format, examples, or layout using simple edits or natural-language prompts.
- Export or Integrate:
- Final worksheets can be downloaded or added directly into a lesson or multi-lesson unit.

4. Exporting

When teachers are finished working on their materials, they click the 'export' button in the top navigation. Choose from:

- PowerPoint (pptx)
- Google Slides
- PDF

Teaching materials will download immediately or open in the chosen platform for teaching or additional edits.



Fig. 3 Export Options

5. Saving, Sharing, and Organising

All lessons are saved automatically on the Dashboard. Users can:

- Clone lessons
- Organise into folders
- Share with colleagues (school plan only)

A school may even opt into having a shared repository to ensure consistent planning and materials across departments.

3.3. Tips and Best Practices

- Give clear instructions for more accurate outcomes. Adapt the tone and level of difficulty to your audience.
- Verify that the produced content aligns with your curriculum.
- Use the theme selection to maintain visual consistency across slides.

4. Educational Applications and Consequences

4.1. Pedagogical Rationale

- Chalkie.ai supports teachers by providing structured, curriculum-aligned resources that can be adapted for different skill levels.
- The platform aims to reduce teacher planning time without replacing professional competence.
- Teachers can edit AI-generated content, allowing differentiation for task extension, simplification, or modification to accommodate a range of learners.
- Lessons and resources can be aligned with curriculum standards or objectives, supporting progression and coherence across units.

4.2. Impact on Teaching and Learning

- Teachers can focus more on delivery rather than content creation.
- Students benefit from well-structured, visually appealing slides.
- Learning is made more engaging by AI-generated explanations and examples.
- All things considered, Chalkie.ai enhances both teaching efficacy and student comprehension.

4.3. Classroom Applications

Chalkie.ai can be applied to:

- Creating educational slides
- Making notes for revisions
- Creating project presentations
- Promoting education through exercises
- Teachers can readily modify the AI-generated content to meet the needs of the classroom.

5. Challenges and Future Directions

5.1. Challenges

- Chalkie.ai is designed as a support tool, so teachers need to review and adjust AI-generated materials to ensure they align with curriculum objectives and students' needs.
- Effective staff training and onboarding are likely necessary for schools adopting the platform, as suggested by its school-wide features and centralised management.

5.2. Future Directions

Chalkie.ai development is likely to continue focusing on curricular alignment, personalisation, and differentiation, consistent with the platform's current features for editing AI-generated lessons and resources. The platform supports school-wide collaboration and centralised management, which may be extended to enhance team-based planning across departments. Chalkie.ai emphasises privacy and compliance with data protection regulations, including GDPR and the Australian Privacy Act, highlighting ongoing attention to data security and ethical use.

6. Supplementary Information and References

6.1. Tool Access Details

Chalkie.ai's official website can be Cost and License Structure

Free Plan: Offers an unlimited number of worksheets each month and lets users create up to ten full lessons.

The Pro Subscription, which offers more AI generation credits, advanced editing tools, and priority features, costs about \$5.99 per month (or \$5.99 annually).

Institutional Plans: Priced according to user count and institutional requirements, these plans are made for schools or districts and enable several teachers to work together and have centralised access

6.2. Further Reading and Documentation

- Chalkie.ai's official website contains general product information and feature descriptions: <https://chalkie.ai>
- Privacy and compliance details can be found in Chalkie.ai's privacy policy: https://chalkie.ai/us/privacy-policy?utm_source=chatgpt.com
- Public reporting on Chalkie.ai's funding and launch provides context for its impact on AI-assisted lesson planning: https://www.uktech.news/education/ai-lesson-planner-startup-raises-1m-in-pre-seed-round-20251001?utm_source=chatgpt.com

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ChatGpt

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

ChatGPT is a generative artificial intelligence (AI) tool, created by OpenAI. It stands for 'Generative Pre-trained Transformer'. Its system utilizes groups of Large Language Models (LLM), builds on recent advances in Deep Learning (DL), as well as Natural Language Processing (NLP). This tool does significantly more than just search for information. Core functionality include:



Fig 1. Logo of ChatGpt

- Allows its users to have humanized conversations.
- Synthesizes, generates, and manipulates texts based on predictive probability.
- It possesses nuances of human language, style, grammar, and a vast sea of factual knowledge.
- Designed to interact across multiple domains such as education, business, coding, entertainment, and more.

1.2. Brief History and Development

ChatGPT has been developed by OpenAI, which was founded in 2015 by Elon Musk, Sam Altman, Greg Brockman, Ilya Sutskever, Wojciech Zaremba, and John Schulman. An early demo of ChatGPT was released on November 30, 2022. The chatbot had attracted over one million users. ChatGPT has seen continual advancements, with each version building upon previous tools. The foundational architecture, GPT-1, released in June 2018, demonstrated the power of unsupervised learning in language understanding tasks, using books as training data to predict the next word in a sentence. GPT-2, which was released in November 2019, showed a dramatic improvement in capability to generate texts and produced coherent, multi-paragraph responses. GPT-3, released in June 2020 was trained on a staggering 175 billion parameters, marking a pivotal impact. Finally, GPT-4 was

released in March 2023, with significantly improved capabilities for complex tasks.

1.3. Target Audience and Scope

The multidimensional nature of ChatGPT spans various disciplines, making it a universal AI knowledge partner. It caters to a large global audience, a few of which include:

- Students and Educators (assignments, lesson plans, explanations, etc)
- Scholars and Researchers (literature reviews, data interpretation, etc)
- Businesses and Professionals (marketing, emails, analytical reports, etc)
- Software Developers (coding support and debugging, etc)
- Content Creators (scripts, blogs, social media planning, etc)
- General Users (solving daily queries, decision making, learning, etc)

2. Characteristics and Features

2.1. Core AI Capabilities

- Deep Learning Communication: Ability to understand context, intent, tone, and semantics.
- Ability to Generate: Creates original content such as stories, emails, presentations, articles, etc.
- Adaptive Learning: Produces responses based on user history and input.
- Problem-Solving: Programming, logic, mathematics, data explanation, etc.
- Multilingual: Allows translation and regional communication.
- Personalization: Remembers prompts in long conversations and tailors output.

2.2. Key Features and User Interface

Essential features of ChatGPT include:

- Text Conversation: It responds like a teacher or expert to your typed questions. It can summarize, explain, generate, solve, and guide.
- Voice Mode: One can engage in an actual human conversation with ChatGPT. It assists in pronunciation and languages, making it easily accessible for visually impaired or dyslexic learners.

- **Image Mode:** Allows users to upload textbook pages, diagrams, math problems, tables, graphs, and more, while also explaining, solving or describing the visual content.
- **Video Understanding:** Explains steps, mistakes, processes, observations of uploaded short videos or screen recordings.
- **Projects:** This is like an organized workspace, allowing users to create folders for topics. It saves conversations and continues automatically.
- **Custom GPTs:** Users can create their own personalized AI chatbot, assigning a unique personality to it (e.g., Phonics Teacher Bot, Psychology Counsellor). This can be done by simply choosing instructions, and uploading material.
- **File Mode:** Can summarize, proof read, rewrite, or convert formats.
- **Memory Feature:** Makes future responses personalized by remembering your subject, writing style, and preferred tone.

The user interface of ChatGPT is minimalistic, and distraction-free, so that interaction with the AI feels easy. After logging in, users are greeted with a chat window that contains a central text panel. The input bar appears at the bottom of the screen, where users type instructions, questions, or prompts of any length. The interface allows children, novice users, and even people with limited technical knowledge to interact comfortably.

2.3. Differentiating Characteristics

- Generates human-like responses in text.
- Understands and continues conversations contextually.
- Can multi-task
- Learn patterns from data, not personal memory unless allowed.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Prerequisites:

- Internet connection
- Device (laptop, desktop, mobile phone)
- App or Web browser

Setup:

- Download the app or open it in a browser.
- Sign up using your email or mobile login.
- Choose a free or paid version.
- Start typing or upload to begin.

3.2. Step-by-Step User Guide

The following scenarios depict the practical implication of the features of ChatGPT:

Scenario 1: Project Mode for Long-Term Work

A B.Ed. student is writing a year-long Internship School Case Study Report

How ChatGPT helps: She creates a Project Folder named "School Internship Report."



Fig 2. Creating project name

Inside the folder, she creates sub-chats:

- Chapter 1: Intro + Demographics
- Chapter 2: Observation of Classroom
- Lesson Plan Templates
- Final Recommendations
- Conclusion Draft

ChatGPT saves, updates and continues each chapter without repeating instructions. Long-term academic work becomes organized like a digital notebook. Instructions do not have to be given repeatedly.

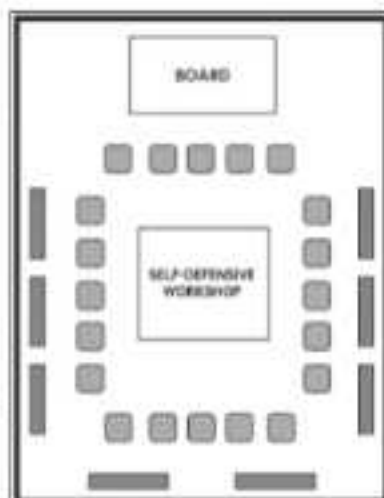


Fig 3. Output of the given prompt

Scenario 2: Generating Image

A teacher needs ideas to arrange a classroom of 20 students for a self defense workshop.

How ChatGPT helps:

She types:

"Generate an image layout for a self-defence training setup for 20 students in a school classroom. Show mat placements and instructor zone. ChatGPT creates a visual classroom arrangement with:

- Rows of training mats
- Space between students for movement
- A designated instructor area

The teacher prints the layout and uses it to organize the classroom before students arrive. It plans practical setups clearly and professionally without trial-and-error. Saves time, improves safety, and enhances training quality.

3.3. Tips and Best Practices

- Use clear and specific prompts
- Provide context like grade level, board, etc
- Ask for revisions to refine accuracy
- Always cross-check academic information from reliable sources

4. Educational Implications and Applications

4.1. Pedagogical Rationale

ChatGPT supports inquiry-based learning instead of rote learning. It acts as:

- A personalized tutor
- A tool for differentiated assessment
- Aid for collaborative and project-based learning
- A cognitive assistant enhancing student autonomy

4.2. Impact on Teaching and Learning

Positive impacts of ChatGPT:

- Reduces teacher and student workload
- Allows personalized pacing for students
- Supports inclusive education (language and disability aids)
- Global access to high-quality knowledge

Potential Risks:

- Over-dependence
- May be inaccurate if unverified

- Ethical issues in plagiarism

4.3. Specific Classroom Applications

The features of ChatGPT have diverse uses from an educational perspective. Below are examples of specific classroom applications for both students and teachers.

- **Geography (Grade 7 – Weather & Climate):** The teacher can ask students to ask ChatGPT to explain "Explain the monsoon mechanism with an example from Maharashtra". Once students get the explanation, they must label a monsoon map of India using only their textbook or atlas, not AI. This makes ChatGPT an assistant, and not the final answer.
- **Voice Mode for Learning Support:** Students with reading difficulties can use Voice Mode to ask questions such as, "Explain types of trees". ChatGPT speaks back in a short, child-friendly answer, helping them revise independently.
- **Unit Planning Using Projects Mode:** A history teacher creates a long-term project titled "Indian Freedom Struggle for Class 8" using Projects Mode. Inside the project, she can store lesson plans, timelines, debate prompts and assessment rubrics. The teacher continues adding to it as the unit progresses, instead of starting new chats every day.
- **Multilingual Translations for Inclusivity:** Students who are non-native English speakers can use translation tools to convert information into Marathi or Hindi, e.g., "Explain Types of Water bodies in Marathi in simple language." This can help them understand difficult topics with ease.

Other than the examples mentioned above, teachers can further use the AI for:

- lesson planning
- creating differentiated worksheets for slow, average or advanced learners
- remedial support for children who struggle to learn
- interactive class starters
- assessment tasks
- recognizing plagiarized work

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Incorrect or Biased Information:** May generate inaccurate answers due to probabilistic predictions, known as hallucinations. Teachers should always verify tasks or content, using textbooks, government websites, experiments, or atlases. This builds critical evaluation skills, not blind trust.
- **Cheating and Over-dependence on AI:** Students can paste full homework questions and copy answers without thinking. This can be curbed if teachers assign tasks that require personal interpretation, such as oral presentations, map-drawing, or reflection diaries.
- **Over-generalization:** Data provided may sometimes be too general, missing local context and textbook accuracy. This limitation again requires cross verification of information.
- **Inequality in AI Access:** A major limitation is the digital divide between students of well-funded, and low-income schools. It creates unequal learning opportunities. Furthermore, students who lack basic digital skills may often struggle with using ChatGPT. Hence schools should use ChatGPT mainly as a teacher-assisting and planning tool.
- **Risk of sharing private data:** Students often share private information such as their name, institution or private documents. This can have dangerous consequences like information being leaked and misused.

5.2. Ethical and Equity Considerations

- Students may submit AI-generated assignments without learning
- Responses may be biased
- Should not enter sensitive personal or institutional information

5.3. Future Outlook and Roadmap

ChatGPT is progressing towards:

- Multimodal learning (integrating text, voice, video, images)
- Personalized AI tutors for every student
- Adaptive assessment systems with real-time feedback
- Emotionally-aware AI for socio-emotional learning
- Integration in textbooks and e-learning platforms

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: chat.openai.com

The landing page displays a simple sign-in window with login options such as Google, Microsoft, and Apple ID.

Pricing/License Model:

- Free: Basic features with limited use.
- Plus (Paid): Faster, stronger models, more tools
- Business/Enterprise: For institutes; high security and admin control.
- API: Pay only for usage (for apps/integration).

6.2. Conclusion

ChatGPT, from an educational perspective, is a revolutionary tool to support teaching and learning. It is a dynamic platform for personalized learning, inquiry, and creativity. For teachers, it minimizes workload by assisting in lesson planning, creating multilingual explanations that accommodate diverse learners, and generating differentiated worksheets. For students, it acts as an instant guide, supports self-paced learning, and encourages curiosity through interactive questioning. However, it cannot replace actual teachers, critical thinking, or classroom interactions. Educators must use it responsibly to simplify concepts, create inclusive resources, and most importantly guide students to use AI ethically. With equitable access and proper training, ChatGPT can enrich pedagogy, bridge learning gaps, promote deeper understanding, and expand opportunities for inclusive, meaningful learning experiences in modern classrooms.

6.3. References

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Chat PDF

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

ChatPDF AI is an online tool that lets users 'chat' with any PDF to quickly understand and summarise it without reading every page. It was created to help people handle long, complex documents. By using document processing, smart search, and conversational AI, it allows students, researchers, and professionals to ask questions in plain language and get fast, relevant answers based on the PDF's content.

1.2. Brief History and Development

ChatPDF is a tool created by Mathis Lichtenberger that uses the ChatGPT API to let people chat with PDF documents. It launched on 2 March 2023. The main goal has always been to turn static PDFs into interactive documents, making it easy to pull out key points and answers within seconds instead of manually skimming through pages.

1.3. Target Audience and Scope

The tool is mainly used by

- students
- teachers
- researchers
- lawyers
- business analysts
- anyone who reads long PDFs.

2. Characteristics and Features

2.1. Core AI Capabilities

- ChatPDF uses OCR (Optical Character Recognition) to read text from scanned or image-based PDFs.
- Uses large language models to understand the content and answer questions.
- Creates a semantic index of the document.

- Allowing it to find the most relevant sections even if the user's question is worded differently from the text.

2.2. Key Features and User Interface (UI)

- *Ask Questions* – Ask anything in plain language and get answers from your uploaded document.
- *Instant Summaries* – Get quick, clear summaries of the whole PDF or specific parts.
- *Page References* – Answers include page numbers so you can check the source.
- *Multi-PDF Support* – Upload and chat with several documents at once.
- *Multiple File Types* – Works with PDFs, Word files, text documents, and some presentations.

2.3. Differentiating Characteristics

- Document-based answers – Responses come only from your PDF, with page links for easy checking.
- Side-by-side view – You can read the PDF and chat at the same time.
- Handles long, complex files – Uses semantic search to understand big reports, not just keywords.
- Clear explanations – Turns complicated text into simple language.
- Works with scanned PDFs – OCR makes image-based pages searchable.
- Helpful starters – Auto-summaries and suggested questions make it easy to begin.
- Easy to use – Just upload the file and start asking questions.
- Built for verification – Clickable citations lead to the exact paragraph in the PDF.
- Multilingual support – Ask questions in your language, even if the PDF is in another.
- Shareable results – Share the processed file or chat with others for teamwork.

ChatPDF is a specialised tool for chatting with PDFs, while ChatGPT is a broad, flexible AI for many tasks.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

All you need is a web browser and an internet connection—no software installation.

To get started: go to the ChatPDF website, upload your PDF, wait a few seconds for it to process, and make sure the PDF shows on the left with the chat box on the right.



Fig. 1 Chat PDF

3.2. Step-by-Step Usage Guide

Step 1: Open ChatPDF Website

- Visit the website: Go to chatpdf.ai.
- No account required: start using ChatPDF immediately without signing up. Signing up is optional and mainly useful to save chat history, manage multiple PDFs etc.

Step 2: Upload Your PDF

- Click the 'Upload PDF' button or drag-and-drop your PDF file into the browser window.
- Supported formats: Primarily PDF. Other formats may be supported depending on updates.
- Wait for the file to upload — larger files may take a few moments.

Step 3: Let ChatPDF Process the Document

- ChatPDF will analyse the PDF to understand its contents.
- This step is automatic — the AI creates an internal index of the text to answer your questions accurately.
 - Step 4: Ask Questions / Interact
- Type natural-language questions in the chat interface,
 - for example, no 1 - Summarise this document.
 - example, no 2 - What are the main findings of the section?
 - example, no 3 - Explain this table in simple terms.
- ChatPDF will provide answers based on the document content, often referencing page numbers.

Step 5: Use Extra Features

- **Summary:** Get an overview of long documents quickly.
- **References & Navigation:** Many answers include page numbers or links one can verify or read the context.
- **Multi-file chat:** Upload multiple PDFs to compare or synthesise information across documents.

Step 6: Optional — Create an Account / Save / Share

- **Create an account** to save chat history and manage documents.
- **Shareable links:** Some versions allow to create secure links to share chats or documents with others.

Step 7: Download or Export Results - Depending on the UI (User Interface), export chat insights, summaries, or answers for offline use.

3.3. Tips and Best Practices

- **Make sure PDF text can be searched** (use OCR if it's scanned).
- **Ask clear, specific questions** for accurate answers.
- **For long PDFs**, start with a summary, then ask about sections.
- **Always check page numbers** to confirm details.
- **Upload multiple files**, to compare or combine information.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

ChatPDF helps active learning by students for example,

- Ask questions
- Get simpler explanations
- Explore ideas step by step
- Makes difficult academic texts easier to understand
- Supports students in subjects like Science, Math, Economics and other

4.2. Impact on Teaching and Learning

Students can use ChatPDF to

- Save time
- Get ready for discussions
- Find parts if students don't understand

- Teachers can *recommend it to help read research papers*

4.3. Specific Classroom Applications

- In **seminars**, students can use ChatPDF to create important questions about a research article to discuss in class.
- For **group work**, each member can study different parts of a long report with ChatPDF and share what they find in a presentation or assignment.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Limitations:

- Poorly scanned PDFs may be read incorrectly.
- Complex formatting can confuse the tool.
- Free plans have file size limits.
- Free plans limit how many PDFs you can use.
- Very large documents may not process well.

Challenges:

- Some text may be skipped or misread.
- Users need to check page references carefully.
- Summaries may miss details. Learning to ask clear questions takes practice.
- Not all subjects or formats work equally well.

5.2. Ethical and Equity Considerations

Ethical Considerations:

- Students might copy answers instead of understanding them.
- Copying without credit can cause plagiarism.
- Uploaded documents are stored in the cloud.

Equity Considerations:

- Not all students may have access to ChatPDF.
- Some students may need extra help using the tool.
- Reliance on the tool could widen learning gaps.

- Sensitive or confidential files could be exposed.
- Users should check the service's privacy policy.
- Students with disabilities may face accessibility issues.
- Unequal access to technology can create unfair advantages.

5.3. Future Outlook and Roadmap

Future Outlook:

- Better understanding of complex texts.
- Faster processing of large documents.
- Improved summarisation and question generation.
- More subject-specific support (e.g., Science, Math.)
- Enhanced accessibility for all users.

Roadmap:

- Add support for more file types and formats.
- Improve accuracy for scanned or complex PDFs.
- Introduce advanced AI features for analysis and insights.
- Expand collaboration tools for group work.
- Strengthen privacy, security, and ethical safeguards.

6. Supplementary Information and References

6.1. Tool Access Details

Official

- URL: <https://www.chatpdf.com>
- Pricing/License Model: Free tier with limits on file size, number of documents, or daily questions, plus paid plans for heavier academic or professional use.

6.2. Further Reading and Documentation

All information comes from the ChatPDF website, teacher reviews, and independent sources - <https://www.chatpdf.com/>

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Citation Gecko

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Tool Name : Citation Gecko

Using citation networks, Citation Gecko uses key or seed papers to find relevant literature for the research. It's a free, open-source academic discovery tool. Instead of searching with keywords alone, Citation Gecko maps how articles are connected through references and citations. Gecko will search the citation network for connected papers to retrieve important papers; otherwise, the researcher may have missed through keyword matching. This tool uses co-citation and bibliographic coupling techniques as indicators of similarity. This tool can be used to identify papers, suggest new papers, and to provide understanding about the research environment. It is easy to use as this tool is browser based with no need to download any software.



Fig. 1 Citation Gecko Logo

1.2. Brief History and Development

Citation Gecko was developed by Barney Walker, a PhD student at Imperial College London. It became popular because it visually represents citation relationships, reducing the time scholars spend searching databases manually. Its goal is to support early-stage literature reviews, scoping studies, and research mapping.

1.3. Target Audience and Scope

- Researchers conducting literature reviews
- Students working on dissertations/theses
- Faculty identifying key papers in a field
- Librarians supporting research guidance
- Anyone exploring academic domains through citation graphs

2. Characteristics and Features

2.1. Core AI Capabilities

Using Citation Gecko, one can quickly generate a list of papers relevant to their topic, visualize the relationship or connection between papers, and retrieve most cited papers in the particular field.

This tool is not a traditional AI tool. Citation Gecko uses algorithmic matching to:

- Map citation relationships
- Identify highly connected or influential papers
- Suggest relevant articles based on seed papers
- Visualize citation networks in an interactive graph
- Allows you to export the list in a "bib" file (bibliography) for easy import into your favorite reference manager.

2.2. Key Features and User Interface (UI)

- **Interactive citation graph:** Shows nodes (papers) and edges (citation links)
- **Seed paper upload/import:** Users add papers to begin discovery. They can upload from a recommended list, from Citation managers like Zotero, and also search and import directly from the web.
- The tool is simple and easy to use. Since no professional training is required to navigate this tool effectively, it is widely used by researchers, students and professionals globally.
- **Exploration of Citation Network:** Identifies the papers referenced by the seed papers and the papers that subsequently cite them.
- **Filters:** Year, relevance, connections, type of paper
- **Export options:** Save results, export citations, download network data
- Clean, intuitive browser-based UI

2.3. Differentiating Characteristics

- Visual approach to literature discovery
- Works with PDFs, DOIs, and reference lists
- No login required; privacy-friendly
- Fast network-based exploration instead of keyword searching
- Helps uncover "hidden" but important papers

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Internet browser (Chrome, Edge, Firefox)
- Seed papers (PDFs, reference list files, DOIs)
- Basic understanding of literature review strategies
- No installation required; it runs fully online.



Fig. 2 Website Homepage

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Starting a Literature Review

1. Open Citation Gecko. You will be seeing the following screen.
2. Click to start discovering papers.
3. Add Seed Papers:
4. Add 5 or 6 seed papers in your area of interest. You will be given four options to add papers as shown in the figure. These papers form the foundation of research. If no connected papers are shown in the response, then more seed papers will have to be added.

Upload 2–5 seed papers in PDF or DOI format. If you would like to see an example of a citation tracking tool in use, you can click “Show an Example”. You can import seed papers from Zotero, or Mendeley citation management tools.

Second option: "Search for Papers"

Enter your query and click search. The tool reads references and generates a citation map.

Figure shows what the network looks like after adding seven seed papers on AI Literacy. Each seed is represented as a yellow dot on the graph. Papers which are given as reference to the seed appear as grey dots and connected to the seed with lines. Citation Gecko has two frames of reference papers which are cited by the seed and newer papers that cite the seed. Cited by papers look backward in time, and citing papers look forward in time.

View recommended papers based on connections.



Fig. 2 View Connected Papers

Node size of grey spots depends on how many seed articles they cite or are cited by. The papers are arranged in the time line view. The newer ones are on the upper side and older ones on the lower side of the map. Expand or hide nodes depending on relevance.

The most important papers may be the ones in between, citing more than one of the seed papers.

Save or export the results: You can view papers and after going through, if the paper is irrelevant for your research topic, you can delete the seed paper from the recommended list. Recommended lists and current sections can be exported to bibtext format.

Exploring Research Gaps

1. One view of citation gecko shows references your seed papers cite.
Another view helps to see who cites your seed papers.
2. The user can spot under-researched areas by identifying isolated nodes.
3. To expand the research area or the results, users can combine multiple themes.

3.3. Tips and Best Practices

- Always start with **high-quality, peer-reviewed seed papers, and highly relevant papers by experts from the field.**
- Use at least **3–5 papers** for better network accuracy.
- Use filters such as year, journal, cited by, etc. to narrow results.
- Export your citation network for further study or use.
- Use Gecko early in your research to build a strong literature review and understand the topic.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

How knowledge builds on prior work can be explained with Citation Gecko. The two reference frames of Gecko (Papers Cited-By Seed Papers, and Papers Citing Seed Papers) give a visual representation of papers. Cited by seed papers refers to reference done by authors of seed paper, i.e. prior work, and citation received by seed papers refers to work done after the seed paper publication.

4.2. Impact on Teaching and Learning

- Students learn to analyze citation patterns 'cited by' and 'citing by'.
- Encourages deeper engagement with scholarly communication by understanding research gaps.
- Helps avoid superficial keyword-based searching. Co citation and bibliographic coupling enhances critical thinking about how research evolves by understanding the relationship between the themes.

4.3. Specific Classroom Applications

- Teaching literature review methodology
- Showing how similar papers influence a field
- Mapping research for classroom presentations
- Helping students select research topics: A citation map shows some areas where research is not conducted exclusively. Isolated papers that do not have many references and citations, can be taken up by students as an area for research.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Cannot access full text in articles if the content is subscription or paypal based.
- Citation maps heavily depend on the quality of seed papers.
- Does not read full text, only reference lists.

5.2. Ethical and Equity Considerations

- Supports open science by using open citations
- Avoids user tracking and protects privacy since there is no login required (browser base)
- May be a disadvantage for fields with fewer open citation datasets

5.3. Future Outlook and Roadmap

- Improved AI-based relevance ranking
- Deeper integration with major databases
- More powerful visualization tools
- User-customizable metrics

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://citationgecko.com>

Pricing/License Model: Free/Open-source

6.2. Further Reading and Documentation

Citation Gecko GitHub repository

Open Citations documentation

Guides on citation network analysis

6.3. References

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ClassPoint

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

ClassPoint AI is an educational tool designed to help teachers create interactive and engaging lessons directly inside Microsoft PowerPoint. It uses artificial intelligence to generate questions, quizzes, summaries, and lesson ideas with just one click, reducing the teacher's preparation time. ClassPoint AI also includes interactive features such as a name picker, timer, whiteboard, and live quizzes, which make classroom teaching more active and enjoyable.

This tool was developed to reduce the workload of teachers, especially in lesson planning and assessment creation. Many teachers spend hours preparing questions, worksheets, summaries, and classroom activities. ClassPoint AI uses artificial intelligence to analyze the content of any slide and automatically generate questions, explanations, hints, objectives, and summaries within seconds. As a result, teachers can focus more on teaching and guiding students, rather than spending too much time on manual preparation.



Fig. no. 1 ClassPoint

1.2. Brief History and Development.

ClassPoint was created by INKNOE to make PowerPoint interactive for teachers.

In 2023, ClassPoint AI was introduced to help teachers save time by automatically generating questions, quizzes, and lesson ideas. From 2024 onwards, it became more advanced and accurate, helping educators create high-quality teaching materials quickly inside PowerPoint.

1.3. Target Audience and Scope

ClassPoint AI is mainly meant for:

- School teachers
- Undergraduate and postgraduate students
- Trainers and presenters
- Teacher Trainees preparing teaching aids

It is used for lesson planning, assessments, interactive teaching, and improving classroom engagement.

2. Characteristics and Features

2.1. Core AI Capabilities

- ClassPoint AI instantly generates questions from any slide content, making lesson planning faster for teachers.
- It creates quizzes along with accurate answer keys, which helps teachers assess students more efficiently.
- The tool also suggests improvements for slide design, helping teachers make their presentations clearer and more engaging.
- ClassPoint AI supports teachers by generating lesson ideas, learning objectives, and short summaries based on the slide information, making teaching more organised and effective.

2.2. Key Features and User Interface (UI)

- ClassPoint AI has a simple, PowerPoint-based interface that is easy for teachers to use without needing any extra software.
- It allows teachers to create questions instantly while presenting.
- It also provides ready-made quiz templates that can be used during lessons to assess understanding.
- ClassPoint includes several interactive teaching tools such as polls, a whiteboard, a timer, and a name picker, which help make the classroom more engaging and interactive for students.

2.3. Differentiating Characteristics

- ClassPoint AI works completely inside PowerPoint, which makes it easy for teachers to use without switching between different apps.

- It does not require any external applications or additional software, so teachers can manage everything within their presentation.
- The tool is designed especially for teachers, focusing on their classroom needs and teaching styles.
- It uniquely combines AI-powered features with interactive teaching tools, making lessons both smart and engaging.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Updated laptop/computer
- Microsoft PowerPoint
- ClassPoint AI plugin installed
- Stable internet connection (for AI features)

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario Example 1: Creating Questions for a Lesson



Fig. no. 2 ClassPoint

Open PowerPoint.

Select the slide you want to use.

Click the **ClassPoint AI** button.

1. Choose 'Generate Questions.'
2. AI creates MCQs, short answers, and long-answer questions.
3. Add them to your slide.

Scenario Example 2: Making a Quiz

1. Click 'Create a Quiz.'
2. Select question type (MCQ, True/False, etc.)

3. Review the generated questions.
4. Insert the quiz into the slide.
5. Use interactive mode to conduct it in class.

3.3. Tips and Best Practices

- Review AI-generated questions before using them.
- Keep slides simple for better AI accuracy.
- Use tools like timer, name picker, and whiteboard during class.
- Combine AI suggestions with your own ideas.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

ClassPoint AI supports active and meaningful learning by helping teachers create interactive lessons and instant assessments. It encourages student participation, provides quick feedback, and supports diverse learning styles. By simplifying lesson preparation, it allows teachers to focus more on facilitation, engagement, and understanding students' learning needs.

4.2. Impact on Teaching and Learning

Impact of Using ClassPoint

For Students

- Participates actively via live quizzes and polls on their devices.
- Receives immediate feedback on answers, helping quick correction of mistakes.
- Experiences lessons visually with slide annotations and image-upload activities.
- Feels motivated by gamified elements (leaderboards, points, stars).
- Practices varied question types (MCQ, short answer, image responses) for better skill-building.
- Engages in collaborative tasks using the whiteboard and group activities.

For Teachers

- Quickly generates questions and quizzes from slides, saving preparation time.
- Runs instant formative assessments and views responses in real time.
- Uses leaderboards and name picker to boost participation and manage class flow.

- Adapts instruction on the spot using live student response data.
- Keeps slides interactive with annotations, timers, and image responses.
- Exports results for grading or tracking progress, simplifying record-keeping.

4.3. Specific Classroom Applications

- ClassPoint.AI helps teachers create quick MCQs and short questions from any slide.
- It allows teachers to run live quizzes so students can respond instantly.
- The tool can summarise long slides to make concepts easier for students.
- Teachers can generate hints and explanations to support difficult topics.
- It helps create word clouds to check students' prior knowledge at the start of a lesson.
- ClassPoint.AI can create rubrics quickly for projects and presentations.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Needs internet for AI features
- Only works in PowerPoint
- Teachers must verify the accuracy of AI content
- Some features are limited in the free version
- It does not work on mobile PowerPoint

5.2. Ethical and Equity Considerations

- AI should support teachers, not replace them
- Avoid overuse of AI-generated content
- Students may have unequal access to digital tools
- Privacy and data safety must be considered

5.3. Future Outlook and Roadmap

- More interactive AI tools expected
- Improved question accuracy
- Better personalisation for students

- Support for more subjects and educational levels

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://www.classpoint.io/>

Pricing/License Model: <https://www.classpoint.io/pricing>

Plans include:

Free plan: Limited quizzes and AI credits

Pro plan: Unlimited features

Institutional plans: Available for schools and colleges

6.2 Further Reading and Documentation

ClassPoint official blog: <https://www.classpoint.io/blog>

Tutorials & guides: <https://www.classpoint.io/getting-started>

6.3 References

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Claude AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Claude AI is an educational and productivity tool developed by Anthropic, which acts as a large language model (LLM). It is developed for safe and human-like conversations with professionals, educators, and students. Its main aim is to use natural dialogue to support content creation, research, document analysis, image



Fig.1 Claude Logo

interpretation, coding assistance, and academic planning. The AI can handle various administrative and teaching tasks, and it is built on the principles of helpfulness, honesty, and safety.

1.2. Brief History and Development

Claude AI was developed in 2021 by Anthropic, a research company founded by former members of OpenAI. It was designed to focus on human values, responsible behaviour, and transparent responses. The first version of Claude was introduced in 2023 as a competitor to other large language models. After its launch, it went through several upgrades that improved its performance in areas like reasoning, summarisation, coding, and academic writing.

A major step in its development was the introduction of the Constitutional AI framework. This helped Claude respond in a more consistent and responsible manner. With continuous updates, Claude has kept evolving, becoming more efficient, more aware of context, and better aligned with ethical AI standards.

1.3. Target Audience and Scope

Claude AI is aimed at educational users who want safe, trustworthy, and high-quality AI assistance, including both primary and secondary students, teachers, researchers, academic administrators, and content

creators. This tool makes it easy to do lesson planning, breaking down complex concepts, creating tests and worksheets, giving feedback, and handling institutional tasks like curriculum design and analytics. Districts, colleges, and schools can integrate Claude to take advantage of intelligent automation and improve workflows.

2. Characteristics and Features

2.1. Core AI Capabilities

Claude AI is great at understanding user intent and producing accurate, tailored results for different tasks.

- Engaging in natural language conversations for clear, relevant explanations.
- Analyzing and summarizing lengthy or complicated documents, such as policies and research articles.
- Understanding and interpreting drawings or diagrams (in supported versions).
- Creating, evaluating, and editing academic content.
- High-level reasoning for more organized planning and project management.

2.2. Key Features and User Interface (UI)

Claude features a straightforward, user-friendly web interface accessible through a browser, along with integrations with other productivity and educational tools.

Its features include:

- File and image uploads for full detailed analysis.
- Options for voice and text input are integrated in the UI.
- Retaining long conversation history for better context management.
- Safe mode and adjustable conversation settings for privacy and control are provided.
- A simple and clean dashboard for organizing chats, files, and user data.

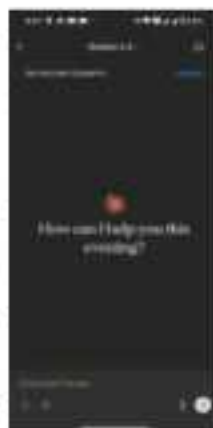


Figure 2 Landing Page

2.3. Differentiating Characteristics

Claude is unique for its ethically-focused "Constitutional AI" design, which ensures outputs are in line with responsible teaching and learning practices. It can handle longer conversations and larger documents better than typical chatbots. Safety features not only prevent harmful interactions but also support honest, transparent, and to the point or accurate exchanges, making it more reliable than many standard content-generation tools.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Claude AI, users need any internet-enabled device (computer, tablet, or phone) and an account set up through Claude's web platform. No local installation is needed.

Steps:

1. Register at <https://claude.ai> (or through linked school platforms)
2. Select a plan (Free, Pro, or institutional based on needs and budget)
3. Set curriculum or usage preferences if needed.
4. Access Claude's dashboard to begin using its features.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario A: Lesson Planning and Teaching Materials

- Log in and start a new chat, clarifying the subject, grade level, and desired outcomes.
- Ask Claude to create lesson plans, slides, or worksheets.
- Review and edit the output to fit the classroom context and your criteria.
- Download or share materials with students or colleagues for use.

Scenario B: Automated Review and Feedback

- Upload student essays or answer sheets. (without personal data)
- Request Claude to evaluate answers or create rubric-based feedback.
- Check, modify, and provide feedback to students through safe channels.
- Utilize built-in analytics to track student progress and learning gaps.

- Upload research articles, policy documents, or academic texts.
- Instruct Claude to summarize, give views on, or create practice questions.
- Use conversation to clarify complex theories or conduct comparative analysis.

3.3. Tips and Best Practices

- Always use clear prompts, stating the subject, grade, and intent.
- Break large requests into focused queries for better results.
- Regularly fact-check and ensure the accuracy of Claude's outputs before classroom use.
- Teach students about responsible AI use, while explaining the difference between assistance and dependence.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Constructivist teaching techniques, variation, and an inquiry-based learning framework are all supported by Claude AI. Its multi-example explanations and conversational feedback can help students gain more insight. By offering the curriculum in many formats for a diverse student group, educators can encourage inclusive practices.

4.2. Impact on Teaching and Learning

Teachers report substantial time savings in curriculum preparation, planning, and feedback, which frees up more time for classroom involvement. Immediate explanations, exposure to different approaches to problem-solving, and enhanced self-directed learning are all beneficial to students. Institutions benefit from increased productivity, documentation, and quality control when Claude is integrated as an educational partner.

4.3. Specific Classroom Applications:

- Creating interactive worksheets, quizzes, and games for various grades
- Drafting model answers, rubrics, and assessment criteria
- Supporting inquiry projects, essay planning, and case study analysis
- Reviewing curriculums and aligning lesson content with educational standards

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

While Claude is quite advanced, it may produce inaccurate or outdated information, especially when live browsing is unavailable. Some requests may be declined due to strict safety protocols, even if appropriate for learning. Compared to specialized graphic tools, its multimedia or visual development may require additional resources.

5.2. Ethical and Equity Considerations

To safeguard data and privacy, educators and students should utilize Claude appropriately. Academic integrity should be maintained, and AI-generated responses shouldn't take the place of real student labour. In order to prevent digital divides, schools and policymakers must address connectivity and financial gaps. Equal access to AI tools is crucial. It is advised to receive regular training and education about AI ethics and data privacy.

5.3. Future Outlook and Roadmap

Future updates for Claude include more sophisticated multimodal features, enhanced contextual memory, live data integration for real-time instructional changes, and deeper links with LMS/classroom applications. These advancements are expected to further transform classroom processes and enable large-scale personalized learning.

6. Supplementary Information and References

6.1. Tool Access Details

- Official website: <https://claude.ai>
- Pricing: Free trial available, Pro plans for heavy users, and institutional options for schools and colleges. Pricing varies based on features and user base.

6.2. Further Reading and Documentation

- Anthropic's official documentation and user guides
- Ethics frameworks such as the UNESCO Recommendation on AI Ethics (2021)

- Reports on “AI in Education” from organizations like OECD, UNESCO, and World Bank
- Recent academic research on large language models in education.

6.3. References

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Clockwise AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

ClockwiseAI is an advanced scheduling and calendar optimisation tool specifically built to provide smart, AI-powered time management for both individuals and



Fig 1.1 Logo of Clockwise AI

enterprise teams. The core functionality of ClockwiseAI revolves around automatic rescheduling of meetings, creating blocks of uninterrupted 'Focus Time,' resolving calendar conflicts, and prioritising high-impact work using intelligent algorithms. These features empower users to streamline daily planning, reduce manual intervention, and maximise productivity by allowing the software to manage the intricacies of scheduling and time allocation.

1.2. Brief History and Development

The development of ClockwiseAI began in 2016, when founders Matt Martin, Gary Lerhaupt, and Mike Grinolds set out to solve the growing challenge of fragmented, overloaded calendars in professional environments. Recognising the need for a digital assistant that could holistically optimise schedules, they created Clockwise's proprietary scheduling engine capable of reasoning about time and balancing individual and team preferences for meetings, focus periods, and work-life boundaries. Over the years, ClockwiseAI's technology has evolved by integrating cutting-edge natural language processing (NLP) and large language models (LLMs), resulting in innovative features like chat-based assistance and personalised scheduling powered by fast, accurate machine learning algorithms. In 2024, their Prism update introduced a human-in-the-loop model, giving users full control over calendar changes and further reinforcing the platform's commitment to intelligent automation and user empowerment.

1.3. Target Audience and Scope

ClockwiseAI is designed for a wide range of users; its primary audience includes busy professionals, knowledge workers, and teams within organisations that require efficient time management to improve productivity and collaboration. Its reach spans remote, hybrid, and in-office workplaces, making it an invaluable asset for companies wanting to reduce meeting fatigue, avoid burnout, and orchestrate seamless coordination across departments. The tool has been adopted by thousands of organisations globally, including leading tech companies and consultancies, and continues to expand with new AI-driven features, integrations, and performance enhancements to serve broader scheduling needs.

2. Characteristics and Features

2.1. Core AI Capabilities

ClockwiseAI is distinguished by its advanced AI capabilities, comprehensive features, and user-focused interface that collectively transform calendar management into a productivity enhancing

experience. At the core, its AI engine processes up to one million calendar permutations daily to identify scheduling conflicts and opportunities, enabling the automatic rescheduling of flexible meetings to create large, uninterrupted blocks of 'Focus Time' that are crucial for deep and focused work. The system employs predictive scheduling and real-time optimisation, continuously adapting team calendars as priorities and events evolve. This proactive AI understands individual and organisational preferences, balancing collaborative needs with personal work rhythms to reduce context switching and overload.

2.2. Key Features and User Interface (UI)

The key features of ClockwiseAI include focus time protection that intelligently defends uninterrupted work periods, dynamic conflict resolution that autonomously shifts meetings across participants' calendars, and team-wide analytics for monitoring calendar health and productivity patterns. The user interface is clean and intuitive, offering visual cues such as colour-coded events and specific icons to help users quickly interpret and manage their schedules. It couples natural language processing capabilities, enabling effortless meeting management through conversational commands, with seamless integrations into popular calendar and communication platforms like Google Calendar, Outlook, Slack, and Zoom. These features allow users to set custom preferences and easily onboard while enjoying powerful automation that respects individual work styles.

2.3. Differentiating Characteristics

What differentiates ClockwiseAI is its team-centric approach and scalability. Unlike many scheduling tools that focus on individual calendars, Clockwise optimises multiple calendars simultaneously at the organisational level, compressing meetings to maximise collective focus time. It automatically adapts to time zones for remote and hybrid teams, providing smooth global coordination. Its advanced analytics go beyond basic time tracking by offering actionable insights on meeting fragmentation and workload balance, empowering organisations to make data-driven decisions about time management. Moreover, the AI's human-in-the-loop model ensures users retain control over scheduling changes, fostering trust and collaboration across teams. This combination of sophisticated AI, rich features, user-friendly design, and organisational focus positions ClockwiseAI as a leading solution for enhancing productivity and well-being in modern work environments.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

ClockwiseAI requires only basic setup prerequisites and provides a streamlined implementation process that enables users to maximise productivity quickly. To get started, users need a modern device running supported operating systems such as Windows 10 or later, MacOS 11 or later, or a recent Linux distribution, along with a stable internet connection and the installation of the ClockwiseAI application, which integrates with calendars like Google Calendar or Outlook. The setup involves logging in with your work email using secure OAuth (Open Authorization) authentication, setting work hours, meeting preferences, and specifying which meetings are flexible or fixed. Users can personalise focus time goals, designate lunch and travel breaks, and adjust how the AI manages scheduling on their behalf. Once configured, the AI assistant begins analysing the calendar to automatically reschedule flexible meetings, prioritise focus time, and reduce conflicts.

3.2. Step-by-Step Usage Guide

A typical usage scenario involves a user instructing ClockwiseAI via chat or calendar interface to find optimal meeting times for a large team or handle last-minute meeting changes. The AI instantly evaluates all team members' availability and preferences, proposing new meeting slots that minimise disruption, while preserving protected focus blocks. Another scenario includes tracking how well focus time is maintained over a week, with ClockwiseAI providing analytics and recommendations to improve calendar health. The clear and visual user interface ensures users can quickly see colour-coded meetings, focus blocks, and flexible time windows.

3.3. Tips and Best Practices

Best practices recommend users regularly review their meeting flexibility settings to allow the AI more freedom to optimise schedules, update preferences to reflect changing work habits or team configurations, and leverage integrations with collaboration tools like Slack to automate status updates when in meetings or focus time. Users should set realistic focus time goals aligned with their workload intensity and communicate scheduling preferences clearly with teams to enhance overall efficiency. Periodically reviewing productivity analytics helps identify patterns and make informed adjustments for continuous improvement. This practical implementation approach enables ClockwiseAI users to reduce scheduling overhead, increase uninterrupted work time, and foster productive, collaborative environments.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

ClockwiseAI offers significant educational implications by addressing the intense scheduling challenges faced by educators and learners, promoting more effective teaching and learning environments. The pedagogical rationale for integrating ClockwiseAI in educational settings lies in its ability to automate complex scheduling tasks, optimise calendar management, and protect valuable focus time, which collectively reduce administrative burdens and cognitive overload for teachers. This enables educators to dedicate more time and mental resources to instructional planning, personalised student support, and innovative pedagogical activities. By learning individual rhythms and adapting dynamically, the AI aligns scheduling with the natural ebb and flow of the school day, respecting periods of high cognitive load, grading cycles, and other educational stressors.

4.2. Impact on Teaching and Learning

The impact of Clockwise AI on teaching and learning is profound: it reduces burnout by automating conflict resolution and rescheduling, ensures that teaching staff have protected blocks of uninterrupted time for lesson preparation, and helps balance meetings with core instructional duties. For students, smarter scheduling can translate to more coherent class timetables and better access to tutoring or office hours, enhancing engagement and learning outcomes. The data-driven insights from the platform also empower school administrators to make informed decisions regarding workload distribution, room allocation, and collaboration timing, improving overall school efficiency.

4.3. Specific Classroom Applications

Specific classroom applications include automating the scheduling of parent-teacher conferences, coordinating team meetings among faculty without disrupting class schedules, and streamlining the planning of student support sessions, such as counselling or homework clubs. Additionally, ClockwiseAI can assist students in managing their study time, balancing coursework deadlines with extracurricular activities, thereby fostering self-regulated learning habits. In remote or hybrid learning contexts, the AI helps navigate time zone differences and asynchronous collaboration more effectively. By minimising scheduling frictions, ClockwiseAI supports more focused instructional time and promotes well-being across educational communities, positioning it as a valuable tool for modern pedagogy and school management.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

ClockwiseAI, while powerful, faces several limitations and challenges that users and organisations should be aware of. The platform does not possess full standalone calendaring functionality—users cannot edit event details, titles, or add guests directly within Clockwise but must revert to native calendar apps like Google Calendar for these tasks. Additionally, its flexible meeting rescheduling feature only applies to internal meetings, excluding external participants such as clients or contractors, which limits its usefulness in mixed-attendance scenarios. The automation can sometimes be perceived as too aggressive, with the AI rescheduling meetings without sufficient input or opt-in from all involved parties, potentially leading to frustration or burnout. Privacy is another concern: though it marks personal calendar events as 'Busy,' co-workers may lack contextual information about these events, which can cause interruptions. Also, Clockwise does not support syncing multiple calendars or bi-directional sharing across diverse calendars, narrowing its applicability for users juggling many roles or accounts.

5.2. Ethical and Equity Considerations

Ethically, ensuring transparency and user control over AI-driven scheduling is crucial to prevent over-automation that might undermine autonomy or cause workplace stress. Equity considerations include making sure that the AI respects diverse working hours, accessibility needs, and does not unintentionally marginalise users with less predictable schedules. The platform's effectiveness strongly depends on broad team adoption since individual users see limited benefits otherwise, raising adoption and change management challenges for organisations.

5.3. Future Outlook and Roadmap

Looking forward, ClockwiseAI's roadmap includes refining its human-in-the-loop models to provide balanced automation with stronger user consent, expanding integrations with external meeting participants and calendars, and enhancing contextual understanding of meeting importance to better prioritise focus and collaboration time. Future iterations are expected to leverage deeper AI insights for workload prediction, personalised scheduling preferences, and more seamless integration with enterprise communication platforms. The ongoing evolution focuses on improving usability, increasing adoption flexibility, and addressing privacy and ethical concerns to make

ClockwiseAI an indispensable tool for sustainable productivity in increasingly complex work environments.

6. Supplementary Information and References

6.1. Tool Access Details

ClockwiseAI is accessible through its official website at [getclockwise.com](https://www.getclockwise.com), which features a user-friendly landing page showcasing its AI-powered scheduling capabilities, core benefits such as focus time protection and real-time calendar optimisation, and testimonials from over 40,000 companies worldwide. The site offers direct sign-up options, integration details, and security information highlighting enterprise-grade protections like OAuth (Open Authorization) and encryption. The pricing model includes a free tier for individuals, alongside multiple paid plans tailored for teams and enterprises that include advanced features such as detailed analytics, priority support, and administrative controls. These plans are typically offered on monthly and yearly billing cycles, with enterprise options available for custom pricing to suit larger organisations.

6.2. Further Reading and Documentation

Clockwise provides extensive resources for users, including a detailed blog, help centre, and case studies that cover workflow optimisation, AI advancements like their Prism visual calendar, and conversational scheduling powered by GPT-based AI. Documentation includes setup guides, integration walkthroughs, productivity tips, and updates about new features, ensuring users can adopt and maximise the tool effectively. The platform also facilitates access to beta features and community insights supporting continuous learning and adaptation.

References:

The primary source for ClockwiseAI is its official site, providing comprehensive details about the product, AI-driven scheduling features, integrations, pricing, and security.

Source:	Clockwise	Official	Website	—
	https://www.getclockwise.com			

Source:	Skywork AI Review, 'How Clockwise AI Revolutionised My Google Calendar'	(2025)
	https://skywork.ai/skypage/en/Beyond%20Color%20Coding%3A%20How%20Clockwise%20AI%20Revolutionized%20My%20Google%20Calendar/19761195	

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The Clockwise Knowledge Base hosts FAQs, setup guides, integration support, and troubleshooting resources for users. Source: Clockwise Support Site <https://support.getclockwise.com>

Source: Clockwise AI Security & Data Privacy <https://www.getclockwise.com/security-ai>

Source: AI Tools Insider, 'Clockwise - AI Scheduling and Calendar Automation Tool' <https://www.aitoolsinsider.com/clockwise> TechCrunch. (n.d.). [Title of the article about Clockwise's Series C funding]. TechCrunch. <https://techcrunch.com> Clockwise. (n.d.). *Clockwise AI: Natural language scheduling and integrations.* <https://www.getclockwise.com/blog/clockwise-ai>

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CONKER.AI

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1. Introduction and Overview

1.1. Tool Name and core functionality

Conker AI is an AI-based teaching tool that helps educators quickly create customisable quizzes and formative assessments from any topic or text. It supports different question types like multiple-choice and fill-in-the-blanks, allows easy export to Google Forms or LMS platforms, and includes accessibility tools such as read-aloud. It saves teachers a lot of time and supports differentiated learning.



Fig 1. Logo of Conker.ai

1.2. Brief History and Development

Conker, also called **Conker AI**, is an AI quiz-creation platform introduced in **January 2023** by **Mote Technologies**, the makers of the Mote voice-note tool. Within a year, it became widely used, gathering over **220,000** users who created more than **800,000** quizzes. From the beginning, Conker focused on accessibility with features like audio support and smooth integration with Google Classroom, Canvas, and Google Forms.

1.3. Target Audience and Scope

Conker AI mainly serves the K-12 education sector. Its purpose is to make assessment creation faster and easier using AI while still maintaining quality and accessibility.

Primary Users

- K-12 Teachers
- School Administrators
- Tutors and Content Creators
- Homeschooling Parents
- Students

Scope of Conker AI

- Quick quiz and assessment generation

- Aligning content with curriculum standards
- Supporting accessibility and inclusiveness
- Easy integration with school platforms
- Maintaining user data privacy

2. Characteristics and Features

2.1. Core AI Capabilities

Conker AI uses artificial intelligence to automatically generate quizzes based on a topic or text provided by the teacher. It helps educators save time by producing ready-to-use assessments that can be edited and adjusted to suit learning needs. However, teachers should always double-check the AI output for accuracy.

Key AI-Driven Capabilities:

- Automated Quiz Generation
- Diverse Question Formats
- Standards Alignment
- Customisation & Personalisation.

2.2. Key Features and User Interface (UI)

- **Dashboard:** Gives teachers access to student performance, analytics, and quiz management.
- **User-Friendly Layout:** Makes the quiz-creation process simple and efficient.
- **Easy Quiz Generation:** Enter a topic or paste text to generate questions instantly.
- **Integration:** Works well with Google Workspace and Canvas to support teachers' workflows.

2.3. Differentiating Characteristics

The key differentiating characteristics of Conker AI — what makes it stand out (or gives it strengths) compared with conventional quiz-makers or non- AI tools.

- Very fast quiz creation
- Flexible customisation (difficulty level, question types, etc.)
- Large question bank aligned with learning standards
- Reduces teacher workload significantly
- Supports adaptive or personalised learning

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Conker AI is a web-based quiz generation tool that does not require complex local installation or a specific development environment for general use. Its primary prerequisites are a modern web browser and a stable internet connection.

Prerequisites

- **Internet Access:** A stable internet connection is required as Conker AI is a cloud-based Software as a Service (SaaS) platform.
- **Web Browser:** A modern, up-to-date web browser such as Chrome, Firefox, Safari, or Edge is necessary for access.
- **Account:** A user account on the Conker.ai platform is needed. A free trial or demo version is typically available.
- **Learning Management System (Optional):** For seamless integration with an LMS like Canvas or for exporting to Google Forms, you will need existing accounts and, for institution-wide use, administrative setup to connect the systems.

Setup Instructions(easy/medium/hard)

- **Visit the Website:** Navigate to the Conker.ai website in your web browser.
- **Sign Up/Log In:** Follow the prompts to sign up with your email or log in if you already have an account.
- **Onboarding:** The platform will guide you through a brief onboarding process to get you started.
- **Start Creating:** You can immediately begin generating quizzes by entering a topic or pasting source material into the provided text area.

LMS Integration (for Schools/Districts)

If you intend to use Conker AI within a school or district's existing LMS (like Canvas), specific administrative steps are required:

- **Administrator Setup:** A school or district administrator must complete the necessary steps to connect Conker with the LMS platform. This may involve specific configuration details or API credentials.
- **Create Assignments:** Once the admin setup is complete, educators can log into their LMS account, navigate to the assignments tool, select 'Conker Assignment' as the type, and configure the assignment settings directly within the LMS interface.

3.2. Step-by-Step Usage Guide (Scenario Based)

Scenario A

Teacher logs in and creates a quiz using Conker AI

- Open the Conker AI website.
- Click 'Login / Sign In.'
- Enter your email + password OR use Google login.
- On the home screen, click 'Create Quiz.'
- Type your topic (example: Photosynthesis Grade 7).
- Select number of questions (MCQ, short answer etc.).
- Click 'Generate.'
- Conker creates the quiz in a few seconds.
- Review the quiz → click 'Save' or 'Download.'
- Share it with students if needed.

Scenario B

Students log in and practice using a Conker AI Open Conker AI website.

- Click 'Login' (use email or Google).
- On the dashboard, select 'Practice Quiz.'
- Type your topic (example: Fractions).
- Choose difficulty level.
- Click 'Start Quiz.'
- Answer the questions one by one.
- Click 'Submit.'
- Conker shows correct answers + feedback.
- Try again or choose a new topic.

3.3. Tips and Best Practices

Conker AI is a tool designed primarily for educators to quickly generate quizzes and assessments. Best practices involve using the tool to save time on administrative tasks, tailoring content to specific learning needs, and always verifying the AI-generated output for accuracy.

Tips for Using Conker AI

- Use as a time-saver
- Provide specific prompts/source material
- Customise for differentiation
- Integrate with existing workflows
- Engage students
- Utilize accessibility features.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Conker AI supports teachers by automating the creation of high-quality, standards-based assessments. It helps teachers focus more on instruction rather than administrative tasks. It enhances feedback quality and promotes personalised learning.

4.2 Impact on Teaching and Learning

1. Saves teachers' time
2. Supports differentiated instruction
3. Improves assessment quality
4. Promotes inclusive teaching
5. Increases student engagement
6. Encourages self-paced learning
7. Reduces exam anxiety.

4.3 Specific Classroom Applications (with Screenshots)

Teachers can quickly create quizzes, worksheets, flashcards, and comprehension checks. They can enter a topic or reading material, customise the assessment, and export it to Google Forms or LMS platforms. The text-to-speech option supports students who need audio assistance.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- AI-generated content may need correction
- Requires internet access
- Free version has limited features
- May not cover very specialised topics
- Risk of over-dependence
- Data privacy concerns
- Schools may face budget limitations for paid plans

5.2 Ethical and Equity Considerations

Conker AI, a tool for generating quizzes and educational materials, must navigate general AI ethics while focusing specifically on student data privacy and ensuring equitable learning opportunities.

Ethical Considerations

- Protecting user data
- Being transparent about how AI generates content

- Ensuring accuracy and preventing misinformation
- Human oversight remains essential
- Respecting intellectual property

Equity Considerations

- Algorithmic Bias
- Digital Divide/Access
- Cultural Inclusion
- Inclusive Design

6. Supplementary Information and References

6.1. Tool Access Details

Official Website: <https://www.conker.ai/>

Pricing/License Model

Key Pricing Aspect

Free Plan: Available with basic AI quiz creation tools, no ads, and integration with Google accounts.

Paid Tiers: Premium plans are around \$3.99/month to \$5.99/month for more features, though specific tiers and benefits can vary.

School/District Pricing: Custom enterprise plans are available, with goals reaching around \$2 per student per year at scale.

Factors: Cost depends on extra features, number of users, and integration needs.

6.2. Further Reading and Documentation

For further reading and documentation on the AI quiz generator [Conker AI](#), the best resources are available directly on the official website and its associated blog.

Official Documentation and Resources

- **Official Website:** The primary resource for all information, features, and to access the tool itself is [Conker.ai](#).
- **Blog/Help Articles:** The [Conker AI Blog](#) provides step-by-step guides and documentation on specific features, such as creating quizzes from your own material, using different question types, and sharing options.
- **Terms and Conditions/Privacy:** Information regarding user data and age requirements can be found in the [Terms & Conditions](#).

Video Tutorials

For a visual guide on how to use the platform, several third-party video tutorials are available on YouTube:

[Quickly Create Quizzes](#).

Create Google Forms Quizzes Instantly with Conker ai!

6.3. References

All content is taken from CONKER.AI official website, educator feedback, CHATGPT.

Consensus AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Consensus AI (<https://consensus.app/>)

An AI enabled search engine to search scientific knowledge from 200+ million peer reviewed papers, this search engine is founded with a goal to make the research easier by accessing, finding, and synthesizing scientific knowledge which is locked in millions of scientific publications. It is one of the best search engines to find the most valuable source of scientific information. This search engine makes it easier for users to search, access and understand trusted knowledge, which was created for the development of human civilization. The main goal of the tool is to make the trusted scientific knowledge accessible to all easily.



Fig.1 Consensus Logo

1.2. Brief History and Development

In 2021 Consensus was founded by Christian Salem and Eric Olson in order to provide better access to scientific information. As of November 2025, consensus has claimed more than 7 CR users. More than 12000 universities joined Consensus as members. 12 million + papers from consensus have been shared online till today.



Fig.2 Users of Consensus

Monetary Model: free as well as Premium Models with advanced search options are available.

1.3. Target Audience and Scope:

The target audience includes students who need scientific information for literature review, researchers and academicians who need large amounts of scientific data for synthesizing and creating new knowledge. Clinical or medical professionals require scientific information for evidence-based decision making in their practice. Evidence based practitioners require scientific evidence to ground their decisions.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Retrieval strategy:** Consensus uses both semantic and keyword matching to retrieve relevant scientific information, providing data with exact literal meaning, and the context behind the query.
- **AI powered Summarization and Synthesis:** Once relevant papers are retrieved, the AI synthesizes findings across studies to provide a detailed and comprehensive evidence-based summary.

2.2. Key Features and User Interface (UI)

The Consensus App offers several tools to make academic research easier and more insightful. Its Pro Analysis feature summarizes the main findings from top papers and provides a high-level synthesis with proper citations. Users can save and organize papers into custom lists, making it simple to revisit, and manage research. The 'Consensus Meter' uses AI to show how much agreement or disagreement exists in the literature on yes or no questions. With advanced AI-powered search filters, searches can be refined to yield more relevant results. Finally, the 'Ask Paper' feature allows users to interact directly with the full text of a paper to get detailed answers about its methods, results, and conclusions.

Unlike other AI tools, consensus is built by training models which use scholarly publications to retrieve relevant information. The primary source of information is Semantic Scholar (Zhao,2024), OAcare, and Sciscore (Tay, 2022). Consensus ensures that the paper data comes from trusted sources, including Semantic Scholar, OpenAlex, and Consensus' own crawl of the scholarly web.

Coverage: Consensus covers a wide range of scientific fields from Astronomy and Sociology to Biochemistry. It includes research from major academic journals and even indexes of all papers available on PubMed, making it a comprehensive tool for exploring scholarly literature.



Fig 3. Consensus Meter and Research Question

Consensus integrated a Copilot to provide summaries with citations and an abstract (Consensus copilot). Consensus meter is a unique feature that shows supporting and contrasting evidence for a yes or no question. Consensus app retrieves papers based on semantic meaning rather than exact keywords. This allows the app to surface the most relevant academic research more efficiently.

This tool is an academic search engine that extracts evidence directly from peer reviewed journals. The key features of this search engine are:

- **Evidence Based Search:** Unlike other search tools, consensus retrieves information from authentic sources of research publication rather than general content.
- **Direct Answers:** Content can be searched by asking direct research questions in natural language. For example, "Can AI increase technostress among teachers?"
- **Paper Level Summaries:** Each result includes objectives, research methodology, key findings, etc. Hence relevant information can be accessed easily.
- **Consensus Meter:** One of the key features of Consensus AI is the Consensus meter which visually shows how much agreement exists among studies.
- **Filter Options:** Consensus offers filters to refine the search query. Following options are available:
 - Publish Year

- Journal Rank
- Citations
- Methodology
- Field of Study
- Country
- Citation and Reference Access: Export of citations of research papers retrieved will help with citation and reference work.
- Bias Reduction: The query responses are retrieved from peer reviewed publications. Hence reduces misinformation and opinion-based information.
- Time Saving Synthesis: Results can be exported in CSV format.

User Interface (UI)

- User Interface of Consensus is designed for simplicity, clarity, and academic usability.
- A central search bar invites users to ask research questions.
- Neat responses arranged with evidences clearly
- Visualization with colour codes in Consensus meter enables synthesis of information quickly.
- Users can switch and can access multiple tab view
- Easy to navigate and mobile friendly too.

2.3. Differentiating Characteristics

- Research is Only Knowledge Base: Consensus AI retrieves information exclusively from peer-reviewed scientific papers and credible academic sources.
- Academic Reliability: It provides information from reliable sources of scientific search, not from opinion-based sources from the general web, hence providing academic reliability.
- The Consensus indicator is the unique feature of this tool.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Consensus is a web-based platform
- To use Consensus, you have to sign up
- You can search for answers to real research questions rather than a keyword search
- Allows users to verify the output.

3.2. Step-by-Step Usage Guide

First, Consensus scans its huge database of over 220 million papers using a mix of AI and traditional search. The AI understands the

meaning behind your query, while keyword search (BM25) matches the exact words. Together, they rank papers based on how closely they fit what you are looking for.

Next, the top 1,500 papers are refined by quality, considering factors like how recent the research is, how often it's cited, and the reputation of the journal. This ensures the results are not just relevant, but credible.

Finally, the system selects and ranks the top 20 papers with even more precision. A stronger AI model checks relevance again, while also providing publication date, citations, and journal impact. The end result is a small list of highly relevant, trustworthy research papers.

Below are scenarios showing how one might use Consensus in practice.

Scenario 1: Student doing a literature review for a term paper

1. Go to the Consensus homepage and log in.
2. Enter a clear research question in the search bar, e.g. what is the impact of internet addiction on the achievement of high school students?
3. Choose the appropriate search mode based on how deep you want to go; Consensus has AI features like Pro Analysis and Ask Paper.
 - All: can browse through more than 200+ Million Peer reviewed papers
 - Medical: Top Medical Papers of more than 8 Million
 - Pro: for a more comprehensive summary (up to ~20 papers)
4. Review the AI-generated summary as well as the "consensus meter" (if available) — this shows the degree of agreement across the selected studies.
5. Go through individual paper entries to view abstracts — or full text when available — for deeper reading, methodology, sample size etc. This helps when you need to analyse studies or gather detailed evidence critically.
6. Save/organize relevant papers into custom lists. You can build a literature collection for your project.

Scenario 2: Clinician or policy-maker checking evidence on a medical question

1. Use the "Medical mode" to restrict searches to clinical research papers and guidelines to get relevant papers from health care

2. Enter a clinically relevant question, e.g., Can excessive water intake cause electrolyte imbalance in healthy adults?
3. Run a “Pro” or “Deep” search to get a broader view of evidence across studies.
4. Use the consensus meter + quality indicators (like citation count, study type, journal reputation) to analyse how robust the evidence is.
5. For important decisions, inspect original studies to assess methodology, population, limitations — don’t rely solely on summaries.

3.3. Tips and Best Practices

- Use well-structured research questions rather than vague keywords — better queries lead to more relevant, high-quality results.
- Use filters — e.g. by study design, sample size, date, open-access status — to refine results and focus on the most relevant/credible papers.
- Consider summaries as starting points, not conclusions — always check original papers for details (methods, context, limitations). Consensus emphasizes transparency and citation traceability.
- Use “Consensus Meter” thoughtfully — it indicates overall agreement across studies, may not be the actual findings.
- Combine with manual literature review — Consensus can give a general idea or evidence, but users need to verify the evidence manually.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

- Consensus helps students to gain evidence-based learning even without full research training.
- It helps inculcate research literacy — students learn to ask and frame research questions, interpret the evidence and scientific findings.
- Using Consensus fosters critical thinking by comparing summaries, exploring studies, analyzing methodology, and reflecting on evidence.

4.2. Impact on Teaching and Learning

- **Accelerated research assignments:** What previously took days of searching and reading, can be initiated in minutes, empowering students to spend more time analyzing rather than collecting data.
- **Improved accessibility to research:** Students can access open-source peer reviewed articles and can understand the research topic more easily.
- **Facilitates data-driven discussions:** In class debates or assignments, students can quickly gather evidence from multiple studies, evaluate conflicting results, and build informed arguments.

4.3. Specific Classroom Applications

Here are some ways educators or students could integrate Consensus into classroom / academic workflows:

- **Literature review assignments:** Ask students to use Consensus to survey peer-reviewed studies on a given topic, then prepare a report summarizing the state-of-the-art, conflicting findings, and research gaps.
- **Journal club/discussion sessions:** Use Consensus to quickly fetch and summarize papers, then bring them to class for critical discussion — saving prep time and encouraging broader reading.
- **Designing evidence-based projects:** For student projects or proposals (e.g. sociology, psychology, environmental science), use Consensus to formulate hypotheses in existing literature before data collection or experimentation.
- **Teaching research methodology:** Use consensus meter + study-quality indicators to teach students how to evaluate study design, sample size, citation count, and how these affect the strength of evidence.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Apata et al. (2025) review the Consensus App and show how it helps students and researchers to quickly find and summarize evidence. While the tool is convenient, they remind users not to depend on it blindly, stressing the need for accuracy checks, transparency, and responsible use to promote research integrity:

- **Not all studies are open access:** Some relevant papers may be behind paywalls — limiting a user's ability to read full texts.

- **Risk of oversimplification:** AI-generated summaries may miss many critical analyses in methodology, limitations, population samples which are important qualifiers that affect how findings should be interpreted.
- **Discipline variability:** In fields with conflicting evidence (e.g., social sciences, emerging topics), the “consensus meter” might mask complexity by showing the majority view.
- **Dependence on available literature:** For very new or niche topics, there may simply be insufficient peer-reviewed studies, which may lead to inconclusive or weak summaries.

5.2. Ethical and Equity Considerations

- **Access inequality:** Users without institutional subscriptions may struggle to read full texts when papers are paywalled; this could widen disparities between well-funded institutions and under-resourced ones.
- **Overreliance on AI summaries:** There is a risk that users, especially students may treat summaries as equivalent to reading full studies, missing critical methodological or contextual details.
- **False sense of authority:** Because Consensus presents “consensus” visually and authoritatively, some may overtrust its outputs.
- **How Consensus deals with Hallucinations:** Consensus blog identified 3 types of Hallucinations (fake sources, wrong facts, and misread sources), out of which only one is applicable to Consensus AI, i.e. misread sources. Sometimes the model can interpret a source incorrectly.

5.3. Future Outlook and Roadmap

- The Consensus GPT plug-in allows users to find answers, search for academic papers, and draft content based on scientific research all within the ChatGPT interface.

Key Applications of Consensus GPT

- **Real Study Insights:** Get interpretations of findings from actual research.
- **Enhanced Academic Writing:** Draft literature reviews or academic papers with accurate citations.
- **Targeted Paper Searches:** Find specific research papers easily, without needing exact keywords.
- **Advanced Filtering:** Refine searches by publication type, journal reputation, or study design.

- Research Paper Analysis: Summarizes and examines key elements of a research article.
- Concept Extraction: Compile strategies or findings across multiple studies in one place.
- Science-Based Content Creation: Create authoritative blog posts or articles on health and wellness topics.

6. Supplementary Information and References

6.1. Tool Access Details

- Official URL: The main landing page for Consensus is <https://consensus.app>
- Pricing / License Model:
 - Consensus offers a freemium model: there is a free tier that allows basic searches and limited usage.
 - Paid / "Pro" subscription unlocks advanced features — such as unlimited GPT-4 summaries, deeper analysis, more exports, better filtering and citation management.

6.2. Further Reading and Documentation

Consensus blog :<https://consensus.app/home/blog/>

Consensus : How it works :
<https://consensus.app/home/blog/welcome-to-consensus/>

Consensus Support :How to search and Consensus meter
<https://consensus.app/home/blog/maximize-your-consensus-experience-with-these-best-practices/>

6.3. References

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COPILOT

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

Tool Name: *Microsoft 365 Copilot* (often just 'Copilot')

Core Functionality

AI-Powered Assistance:

It gives suggestions, explains things, and offers help. It understands regular language, so you can type or speak normally.

Content Creation:

It helps with writing emails, reports, essays, lesson plans, and presentations. It can also create summaries, outlines, stories, and new ideas.

Microsoft 365 App Integration:

It works inside Word, Excel, PowerPoint, Outlook, and Teams.

Here's how it helps:

- In Word: It can create, rewrite, or summarise documents.
- In Excel: It can analyse data and offer formulas, charts, and insights.
- In PowerPoint: It can automatically convert text into slides.
- In Outlook: It can help draft and summarise emails.
- In Teams: It can summarise meetings and highlight important points.

Data Analysis & Insights:

It finds trends, patterns, and important information in your files and emails.

Automation of Routine Tasks:

It saves time by doing repetitive tasks automatically. It can create schedules, reminders, and task lists.



Fig. 1 Copilot Logo

Meeting and Communication Support:

It summarises meetings and highlights action items. It also provides talking points and follow-up drafts.

Code Assistance (for developers):

It suggests code in real time. It can help fix bugs and explain code.

Personalised Recommendations:

It learns your work style (within privacy settings) to give better suggestions over time.

1.2. Brief History and Development

Origins with GitHub Copilot

The 'Copilot' brand started with GitHub Copilot, launched in 2021. It was designed to help developers by offering code suggestions in real time. This showed Microsoft's vision of using AI to assist users with productivity tasks.

First Major Consumer Launch - Bing Chat (Feb 2023)

On February 7, 2023, Microsoft released 'new Bing', which included a chatbot named Bing Chat. This was a big step: integrating a powerful large language model (LLM) into search, moving from traditional search to a chat and generative AI experience.

Microsoft 365 Copilot Announcement (March 2023)

On March 16, 2023, Microsoft announced Microsoft 365 Copilot, bringing generative AI to Office apps like Word, Excel, PowerPoint, Teams, and Outlook. The goal was to help people be more productive by automating routine or tedious tasks, such as summarising emails, generating content, and analysing data.

Unified Microsoft Copilot (Sept 2023)

On September 21, 2023, Microsoft announced a unified Copilot experience that works across Windows, Edge/Bing, and Microsoft 365. Instead of having fragmented AI assistants, Microsoft wanted one Copilot that understands both your web activity and personal/work data, delivering a seamless assistant across devices. They emphasised privacy and security, ensuring Copilot uses your data intelligently but with protections.

Ongoing Evolution

Microsoft has continued enhancing Copilot with newer models, more context, and broader integration. It is also part of Microsoft's larger AI transformation, helping businesses automate, analyse, and innovate faster.

Why Microsoft Built a Copilot?

Improve Productivity: To automate repetitive and time-consuming tasks in work applications like Office.

Make AI More Accessible: To bring powerful language models into everyday tools (Windows, Office, browser) instead of keeping them separate.

Leverage Data: To use work data (documents, emails, meetings) to offer context-aware assistance.

Strategic for Microsoft: To strengthen its ecosystem (Windows + 365 + Azure) through AI by staying competitive in the generative AI race.

Democratise Innovation: Through Power Platform + Copilot, non-developers can build smart apps, opening up AI to a wider audience.

1.3. Target Audience and Scope

Primarily educators, business professionals, and enterprise users.

Roles include writers, analysts, managers, developers (through related Copilots), and IT admins.

Use across domains: document writing, data analysis, presentation building, and email management.

2. Characteristics and Features

2.1. Core AI Capabilities

Natural Language Processing: It understands prompts in everyday language.

Generation: It drafts reports, emails, and presentations.

Summarisation: It summarises email threads, meetings, and chat messages.

Analysis: It analyses data trends in Excel, suggests formulas, and builds visualisations.

Automation: It can automate repetitive workflows via Power Platform Management, meeting summaries.

2.2. Key Features and User Interface (UI)

Embedded UI: Copilot sidebar in Word, PowerPoint, Excel, Outlook, and Teams.

Business Chat: A cross-app chat interface that uses business data (calendar, documents, chat).

Memory / Personalisation: Copilot can remember user-specific information over time for more personalised responses.

Security & Privacy Controls: Based on Microsoft 365; data access is permissioned; Copilot is not trained on your private data.

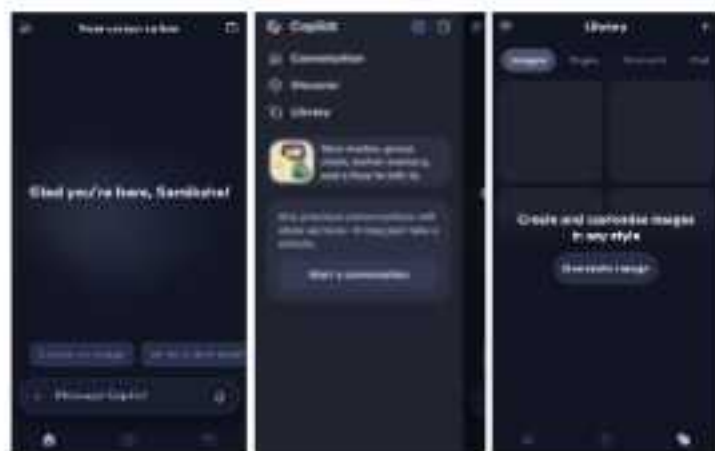


Fig.2 Features

2.3. Differentiating Characteristics

Deep Integration with Microsoft 365 Ecosystem vs. External Chatbots: Copilot uses your own content and context (emails, meetings, documents) to ground its responses.

Real-time Business Insights: Business Chat can generate status updates, action items, and summaries based on live data.

Responsible AI: Microsoft claims adherence to AI principles and explainability.

Skill-learning: Copilot can 'learn' new tasks to perform more complex work.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Microsoft 365 subscription is required (Copilot is built on top of it).

Admin/IT setup: Organisations need to provision Copilot, manage security, and compliance policies.

Data Access: Copilot requires permissions to read from Microsoft Graph (emails, files, calendar) to provide context-aware responses.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario A: Drafting a Report in Word

1. Open Word → launch Copilot pane.
2. Prompt: 'Write a first draft of a market-analysis report for Q3'.
3. Copilot generates a draft; you ask it to shorten the executive summary.

4. Refine sections, request rewrite in a more formal tone, add bullet points.
5. Review, edit, and finalise.

Scenario B: Data Analysis in Excel

1. Open Excel → select dataset.
2. Ask: 'Analyse sales trends over the last 12 months, highlight any anomalies, and create a chart'.
3. Copilot suggests formulas, generates a chart, and writes a brief summary of key findings.
4. Ask it to project next quarter based on the trend or to simulate a 'what-if' scenario.

Scenario C: Summarising Meetings in Teams

1. After a Teams meeting, open Copilot in Teams.
2. Prompt: 'Summarise what was discussed, what decisions we made, and next action items'.
3. Copilot outputs a structured summary: bullet points, who said what, follow-ups.
4. Optionally, ask Copilot to draft a follow-up email to attendees with the summary and action items.

3.3. Tips and Best Practices

Always review and edit Copilot-generated content: AI is powerful but may make mistakes or misinterpret context.

Use prompt refinement: ask Copilot to rewrite, reformat, or simplify outputs.

Provide context: the more relevant data Copilot has access to, the better (e.g., attaching documents, giving prompts that refer to specific meetings).

Be clear with permissions: make sure users understand what data Copilot can access.

Train users: run internal workshops or pilot programs so people learn how to use Copilot effectively in their workflows.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Copilot can help teachers with tasks like making lesson plans, writing emails, and giving feedback, which can save time.

It also helps both students and teachers think more deeply about their work. They can create ideas, get feedback from the AI, and then improve their work.

Copilot can support creating personalised worksheets, explanations, or summaries that match the needs of different students.

4.2. Impact on Teaching and Learning

Teachers can use Copilot to save time on routine tasks, allowing them to focus more on teaching and interacting with students.

Students can use AI assistance to come up with essay ideas, do research, organise information, or check their understanding.

During group projects, Copilot can help summarise discussions, plan the project, or write presentations.

4.3. Specific Classroom Applications

Lesson Planning: Teachers can ask Copilot to create a weekly lesson plan, including learning goals, activities, and assessments.

Student Feedback: Teachers can share student work, like a draft essay, with Copilot and ask for suggestions on how to improve it, note strengths, or organise the structure better.

Research Projects: Students can use Copilot to summarise articles, come up with research questions, or help outline a presentation.

Meeting Minutes: In group meetings with students or staff, Copilot can help record important decisions and next steps.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Copilot might create incorrect or irrelevant information.
- It may not fully understand specialised or detailed data.
- If used too much, students or teachers might rely too heavily on AI, which could affect their critical thinking or writing skills.
- Using Copilot can also be costly, as it requires additional licenses on top of Microsoft 365.

5.2. Ethical and Equity Considerations

- Copilot uses user data like emails and documents, which means it's important to have clear policies and get user consent.
- The content generated by Copilot could include biased language or ideas.
- Users should be aware when content is created by AI, and they should be able to check or fix it.
- Not all students or teachers may have access to Copilot due to cost or licensing issues.

5.3. Future Outlook and Roadmap

Copilot is expected to expand its ability to handle more complex tasks across Microsoft Office apps. It will become more personalised by remembering past interactions and using long-term context. Copilot may also connect more easily with non-Microsoft tools like calendars and email services. New features, such as voice commands and vision support, are in development. The future of Copilot will also focus on making AI more explainable, fair, and user-controlled.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: Microsoft Copilot / Microsoft 365 Copilot page.
[Microsoft-1](#)

Pricing / License Model: Copilot is added on top of Microsoft 365 pricing and licensing details depend on enterprise plan.

6.2. Further Reading and Documentation

Microsoft 365 Blog: 'Introducing Microsoft 365 Copilot'

Microsoft Work Lab report: 'A Year with Copilot: What Microsoft Learned About AI at Work'

Responsible AI standards and principles from Microsoft

6.3. References

- UC Today: 'Microsoft Launches Copilot' - [UC Today](#)
- Wikipedia (for broader history) [Wikipedia-1](#)
- Qualitative study on user perception: Muneera Bano et al. (2025)

Curipod

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Curipod is an AI tool which is designed to help teachers create innovative and interactive lessons, presentations and quizzes.

- It generates lesson content within seconds
- Allows students to interact and participate
- Supports gamified learning



Fig. 1 Curipod Logo

1.2. Brief History and Development

Curipod was founded in 2019 in Bergen, Norway, by co-founders Eric and Yent, to support teachers in reducing lesson planning time and fostering human connection within the classroom.

1.3. Target Audience and Scope

- Teachers for all grades
- School administrators
- Instructional and technology coaches
- Library media specialists

2. Characteristics and Features

2.1. Core AI Capabilities

- AI lesson generator
- AI slide creator
- Automatic question generation
- AI-based feedback and reflection prompts
- Learning analytics and insights

2.2. Key Features and User Interface (UI)

- Interactive modules for polls, drawings, quizzes and open-ended responses
- Easy to join the class using a code
- All the real-time responses are displayed live
- Easy drag-and-drop editing tools

2.3. Differentiating Characteristics

- Instantly generates full lessons using AI
- Works across mobiles, laptops and tablets
- Anonymous participation increases engagement

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- A Curipod account (free or paid)
- Internet connection
- A device for teacher + student devices
- Classroom projector (optional)

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Creating a Lesson

- Log in to Curipod
- Select "Create Lesson"
- Enter topic → Click "Generate with AI"
- Edit slides as needed
- Add interactive elements (polls, drawing, Q&A)
- Present live → Share student access code

Scenario 2: Conducting a Quick Check

- Choose "Quick Question"
- Select type (poll, word cloud, open-ended)
- Students respond in real time
- Teacher reviews results instantly

3.3. Tips and Best Practices

- Keep slides minimalistic
- Use drawing activities to boost creativity
- Mix assessments i.e. polls + open-ended questions
- Download reports after each session for revision tracking

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Curipod provides a safe space for student voice through anonymous responses. It follows an interactive and constructive learning approach.

4.2. Impact on Teaching and Learning

- Saves significant lesson preparation time
- Enhances participation among students
- Supports immediate feedback and formative assessment
- Encourages creativity and collaboration

4.3. Specific Classroom Applications

- Warm-up activities
- Exit tickets for quick assessment and feedback
- Concept checks
- Debate prompts
- Drawing-based brainstorming
- Vocabulary building exercises

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Requires stable internet
- AI content may not always be correct and may need manual correction
- Student misuse during live sessions
- Limited offline functionality

5.2. Ethical and Equity Considerations

- Protects student data
- Ensuring equal access to devices
- Avoiding over-reliance on AI

5.3. Future Outlook and Roadmap

- More advanced analytics
- AI-powered personalised learning paths
- Offline and multilingual features

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://curipod.com>



Fig. 2 Curipod Homepage

Pricing/License Model

- Free basic plan
- Premium plan for individuals
- School/district licenses
- Additional features for collaboration

6.2. Further Reading and Documentation

Curipod Help Center

AI in education research articles

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Deep Brain AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

DeepBrain AI is a next-generation AI video creation tool that automatically converts written text into high-quality videos using lifelike AI avatars. It eliminates the need for cameras, microphones, actors, or complex editing software by providing text-to-video, auto-lip sync, multilingual narration, and professionally designed templates. Its core purpose is to support fast, accurate, and accessible video production for education, research, professional training, presentations, and communication.

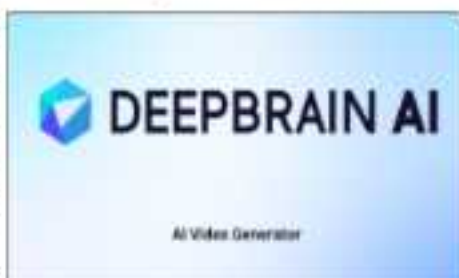


Fig 1 Deep Brain AI Logo

1.2. Brief History and Development

The development of DeepBrain AI began when industries shifted toward digital learning, online training, remote work, and global communication. Traditional video creation demanded studios, recording equipment, and expert editors. To address these barriers, DeepBrain AI introduced:

- Neural rendering technology
- Digital humans with natural voice and expressions
- Automated editing workflows
- Multilingual AI narration and ultra-realistic lip-sync
- Its evolution reflects increasing demand in:
- E-learning platforms

- Businesses requiring scalable training
- Content creators producing frequent videos
- Multilingual marketing and communication

1.3. Target Audience and Scope

DeepBrain AI serves a wide user base. These include:

Teachers and Educators:

They can create lesson videos, tutorials, concept explanations, and digital assessments without filming themselves. It reduces preparation time and supports blended and flipped classrooms.

Students:

Students can prepare project presentations, video assignments, and short explainer clips using structured scripts and ready-made templates.

Researchers:

Researchers can convert academic content into visual interpretations for conferences or research dissemination.

Businesses & Professionals:

Companies use it to create marketing videos, product demonstrations, onboarding modules, and training content.

Content Creators/YouTubers:

Those who want to make videos quickly without appearing on camera benefit from DeepBrain AI's avatars and automatic editing.

The tool's scope extends across education, technology, business, journalism, and digital learning environments.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Text-to-Video Conversion:**
Users type or paste any script, and the system converts it into a fully produced video with a speaking avatar. This removes the complexity of filming, recording audio, or manual editing.
- **AI Human Avatars:**
The platform provides digital humans that resemble real presenters. These avatars:
 - Deliver speech naturally

- Display facial expressions
 - Maintain realistic gestures
 - Provide consistent video quality
- **Multilingual Support:**
The tool supports more than 80 languages and accents. This allows localisation of videos for global audiences.
- **Neural Lip-Sync:**
Advanced lip-sync technology ensures that the avatar's lip movements match the spoken words precisely, increasing realism.
- **Automatic Voiceover:**
DeepBrain AI uses natural text-to-speech models that sound human-like, avoiding robotic or artificial tones.
- **Multi-format Output:**
Videos can be exported in various sizes and formats suitable for YouTube, social media, presentations, or classroom platforms.

2.2. Key Features and User Interface (UI)

The UI is designed to be simple and accessible for beginners while powerful enough for professionals.

AI Video Generator (Primary Feature):

This feature converts your written content into a complete video:

- Select an avatar
- Paste script
- Choose voice language
- Pick a template
- Generate video

Benefits:

- Saves hours of editing
- Reduces the cost of hiring actors
- Ensures consistent delivery

Chat/Editing Panel:

Allows users to:

- Modify scripts

- Adjust timing
- Add visual elements
- Insert subtitles
- Change avatar placement

It acts like a simple storyboard editor.

Template Library:

DeepBrain AI offers industry-based templates designed for:

- Education
- Training
- Business pitch
- Corporate communication
- Marketing & promotions

Each template includes design elements, backgrounds, and placeholders.

Multilingual & Translation Mode:

This feature helps convert existing videos into other languages:

- Auto-translation
- Voice replacement
- Lip-sync matching
- Subtitle generation

Avatar Library & Custom Avatars:

Users can choose:

- Professional presenters
- Friendly characters
- Corporate trainers
- News anchors

For advanced plans, users can create a custom avatar of themselves for branding and personalised teaching.

2.3. Differentiating Characteristics

- **Highly realistic digital presenters:**
DeepBrain AI offers digital presenters that closely resemble real human anchors, with natural expressions and smooth body movements. This realism improves viewer engagement and makes the content feel more professional and credible.

- **Accurate voice–lip alignment:**
The tool's advanced AI ensures that lip movements match the spoken script precisely. This accurate synchronisation creates a seamless speaking effect, making the avatar appear genuinely lifelike and easy for audiences to follow.
- **Fast rendering time:**
DeepBrain AI generates complete videos quickly, reducing the time normally spent on filming and editing. This fast rendering allows teachers and professionals to produce content efficiently, even on tight schedules.
- **Adaptability across industries:**
The platform is versatile and can be used in education, business training, marketing, news-style presentations, customer support, and more. Its multilingual support and variety of avatars make it suitable for different audiences and purposes.
- **User-friendly interface suitable for beginners:**
DeepBrain AI is designed with an easy-to-navigate interface that guides users through each step. Even first-time users with no technical background can create polished videos without difficulty.

Professional-grade results without technical skills: The tool delivers high-quality, studio-like videos without requiring cameras, microphones, or editing expertise. Users simply enter their script, and the platform handles the rest, producing clean, professional results every time.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Internet-enabled device (Laptop/Mobile)
- Browser (Chrome recommended)
- DeepBrain AI account
- Prepared script or lesson content

3.2. Step-by-Step Overall Process (Scenario + Upload Space)

Scenario: Creating a Lesson Video on 'Water Cycle' Using DeepBrain AI

Step 1: Accessing the Platform (WHEN: Start of activity)

- Open DeepBrain AI in your browser and log in.
- Visit the homepage/dashboard.
- The user opens the DeepBrain AI website to access the main dashboard.
- This step allows the user to enter the workspace and begin the video creation process.

Step 2: Entering Script (WHEN: After login)

- Paste the lesson script into the editor
- The user types or pastes the written content into the script editor.
- This script becomes the narration that the AI avatar will speak in the video.



Fig. 3 Deep Brain AI

Step 3: Selecting an AI Avatar (WHEN: After script preparation)

- Choose a professional or teacher-like avatar to deliver the lesson.
- The user chooses a suitable digital avatar from the available options.
- The selected avatar presents the content using natural voice and expressions.

Step 4: Choosing a Template (WHEN: Before video generation)

- Pick an educational template with suitable visuals and layout.
- A template is selected to set the visual layout, background, and style of the video.

- This ensures that the video looks neat, structured, and professional.



Fig. 4 Deep Brain

Step 5: Adding Visuals (WHEN: During editing)

- Insert diagrams or relevant images, such as the water cycle chart.
- The user inserts diagrams, images, or icons to support the explanation.
- These visuals help make the content clearer, engaging, and easy to understand.

Step 6: Previewing the Video

Once all editing is completed, the user must preview the video to ensure that everything is correct before downloading. The user clicks on the Preview button. DeepBrain AI generates a draft version of the video. The avatar starts speaking the script exactly as entered. Background, images, and transitions appear in order.

Step 7: Exporting / Downloading the Final Video

After the preview is approved, the final step is exporting the video. The user clicks the Export/Download button. DeepBrain AI processes the video and prepares the final output. The user chooses:

Video quality (720p / 1080p)

File format (commonly MP4)

The video is then saved to the user's device.

3.3. Tips and Best Practices

- Use short, clear sentences to improve avatar narration.
- Add diagrams for better student understanding.

- Check pace, tone, and clarity before final export.
- Choose avatars suitable for the age group of students.
- Maintain academic language for educational content.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Constructivism

DeepBrain AI helps students build understanding by presenting concepts through visuals and narration. This allows learners to connect new ideas with what they already know.

Multimedia Learning

The tool combines images, voice, and movement, helping students remember information more effectively. Videos make lessons clearer and more engaging.

Differentiated Instruction

Teachers can adjust narration speed, language, and explanation level, making lessons suitable for diverse learners. This supports inclusion and varied learning needs.

Digital Pedagogy

DeepBrain AI works well in online, hybrid, and flipped classrooms. Teachers can use videos for pre-learning, in-class support, and after-class revision.

4.2. Impact on Teaching and Learning

Reduces Teacher Workload

Once created, videos can be reused across classes, saving teachers time and effort. This reduces repeated explanations.

Makes Abstract Concepts Easier

Visuals and step-wise narration simplify complex ideas. Students understand faster with clear demonstrations.

Supports Visual and Auditory Learners

The combination of images and spoken content supports multiple learning styles. This improves comprehension and focus.

Enhances Engagement

AI videos are more attractive and interactive than plain text. Students stay attentive and show greater interest in lessons.

Provides Consistent Explanations

Every student receives the same clear and structured explanation. This ensures uniform teaching quality.

Useful for Revision and Reinforcement

Students can rewatch videos for exam preparation or homework help. This strengthens long-term understanding.

4.3. Classroom Applications

- **Digital Lessons**
Teachers can create complete lesson videos for class or home learning. These lessons make topics easier to understand.
- **Topic Introductions**
Short videos can introduce new topics and build curiosity. They prepare students before detailed teaching.
- **Homework Explanations**
Videos explaining homework make tasks clearer for students. They also help parents guide learning.
- **Project Presentations**
Students can use AI to create neat and creative project videos. This improves digital skills and confidence.
- **Activity Demonstrations**
Teachers can show experiments or processes step by step. Students understand the procedure better before trying it.
- **Revision Modules**
Quick recap videos help students revise major points. These are useful during test preparation.
- **School Announcements**
Schools can create attractive videos for notices or events. These videos look professional and easy to display.
- **Morning Assembly Videos**
AI can be used for the thought of the day, news, or special messages. This adds clarity and interest to school assemblies.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Premium features require a paid plan:

Advanced tools (custom avatars, detailed analytics) are only available with a subscription, which can create inequality for budget-constrained institutions.

Some avatars still lack full emotional depth:

Current AI-driven avatars often miss subtle facial expressions and vocal tones, limiting the emotional connection with students.

Requires stable internet for video rendering :

High-quality video and real-time avatar interaction need a fast, reliable connection; this can be a barrier in low-bandwidth or rural areas.

Overdependence may reduce live teacher-student interaction:

Relying too heavily on avatars could diminish face-to-face dialogue, mentorship, and personalised guidance, affecting learning quality.

5.2. Ethical and Equity Considerations

Deepfake misuse concerns:

The technology can be abused to create fake voices or images, raising the need for clear policies and detection tools.

Data security for custom avatars:

Personal photos, voice recordings, and behavioural data used to build avatars must be encrypted and protected under strong privacy protocols.

Accessibility issues for students without devices:

Not all learners have high-end devices or fast internet, which could widen the digital divide.

Need for transparency when using AI visuals:

Students should be informed when content (videos, quizzes, feedback) is AI-generated to maintain trust and avoid deception.

5.3. Future Outlook and Roadmap

- **More expressive avatars:**
Improving facial micro-expressions, gestures, and lip-sync using generative adversarial networks (GANs) and transformer models.
- **Real-time avatar interaction:**
Integrating speech-to-text and natural-language understanding so avatars can answer questions instantly.
- **AI-generated quizzes integrated with videos:**
Automatically creating quizzes from video content to support formative assessment and adaptive learning paths.
- **Better emotional modelling:**
Syncing avatar responses with learners' affective states, engagement levels, and physiological signals (e.g., heart rate).
- **Full LMS (Learning Management System) integration:**
Connecting the avatar platform to existing LMSs (Moodle, Canvas, etc.) via APIs for seamless attendance, grading, and progress tracking.

6. Supplementary Information and References

6.1. Tool Access Details

Official Website: <https://www.deepbrain.io/>

Pricing: Freemium + Premium subscription plans.

6.2. Further Reading

- DeepBrain AI Documentation
- Research papers on neural rendering
- Studies on AI in education and multimedia learning

6.3. References

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Technical guides on digital humans and AI video generation.

DeepSeek AI

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1. Introduction and Tool Overview

1.1 Tool name and Core functionality

DeepSeek AI is a large language model (LLM) platform created by Hangzhou DeepSeek Artificial Intelligence Basic



Fig. 1 DeepSeek AI Logo

Technology Research Co., Ltd. It is an advanced, open-source Artificial Intelligence tool developed for human-like text generation, problem-solving, research support, coding, multimodal tasks, and data analysis. It is high-speed, accurate information generation.

1.2 Brief History and Development

DeepSeek AI was founded in 2023 by Liang Wenfeng in Hangzhou, China, under the High-Flyer hedge fund. The breakthrough model DeepSeek-R1 was released in January 2025, achieved 10 million users in only 20 days, showing very rapid global adoption. DeepSeek is designed to support a diverse range of users. Learners, educators, and academic researchers can use the platform for study support, teaching tasks, and investigative work. Professionals in business environments may apply it for decision-making and productivity improvement. Developers and programmers can rely on the tool to enhance coding practices or incorporate AI functions into their projects. Content creators and analysts may use it for producing high-quality content and analysing data. In addition, DeepSeek serves general users who need fast and accurate AI assistance. Overall, DeepSeek aims to make AI accessible, open-source, transparent and research-friendly.

2. Characteristics and Features

2.1. Core AI Capabilities

- The tool provides strong text understanding and generation capabilities for a broad range of tasks.
- It supports image generation through the advanced Janus Pro model.
- Users can rely on the tool for efficient coding assistance and debugging support.
- The platform also enables data analysis and automation.
- The tool facilitates multilingual communication for users across different languages.

2.2. Key Features and User Interface (UI)

- It offers a clean and simple chat-style interface.
- It generates fast and efficient responses.
- The tool supports text, images, and code.
- It can be accessed through a website or mobile app.
- Users can sign in through Google or email.
- It provides screenshot-based outputs and smooth navigation.
- It also provides code view and structured answers.

2.3. Differentiating Characteristics

1. It is open-source, making it more accessible and adaptable compared with many other AI tools.
2. The system uses advanced architectures like **MoE (Mixture of Experts)** and **FP8** for high efficiency.
3. It is designed to focus on maximum accessibility and transparency.
4. The tool delivers high performance while maintaining a lower computational cost.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

1. A stable internet connection
2. Browser or DeepSeek mobile app or laptop
3. User account registered through Google or an email address
4. Basic knowledge of typing queries or prompts

3.2. Step-by-Step Usage Guide

Example 1: Research Support

1. Visit chat.deepseek.com
2. Type a question (e.g., Explain photosynthesis for Grade 8)
3. Receive a clear explanation suitable for teaching or assignments

Example 2: Coding Help

1. Ask DeepSeek: "Fix this Python error..."
2. Upload or paste code
3. AI explains the error and gives corrected code



Fig. 2 DeepSeek Dashboard

3.3. Tips and Best Practices

- Give clear, specific prompts
- Review results for accuracy, especially in research and coding
- Use follow-up questions to refine answers
- Avoid sharing sensitive personal data

4. Educational Implications and Applications

4.1. Pedagogical Rationale

DeepSeek supports modern pedagogy by enabling personalised learning, providing instant feedback, facilitating self-paced study, and promoting enhanced

creativity. It aligns with 21st-century skills like problem-solving, digital literacy, and critical thinking.

4.2. Impact on Teaching and Learning

- It helps teachers create lesson plans, worksheets, and explanatory notes.
- It assists students with summarising content, completing homework, and preparing for exams.
- It facilitates research through literature review and data support.
- It encourages students to learn independently.
- It reduces teacher workload.
- It saves classroom preparation time.

4.3. Specific Classroom Applications

- It helps in generating MCQs, quizzes, and assignments.
- It creates simplified notes for slow learners.
- It prepares summaries of chapters.
- It designs interactive classroom activities.
- It provides explanations in various regional languages.
- It helps students with research projects and presentations.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- The tool is still under ongoing development, which means it may sometimes produce errors or unclear answers.
- It requires strong internet connectivity for smooth operation.
- There are data safety concerns in some regions.
- There is a possibility of misuse as it is open-source.

5.2. Ethical and Equity Considerations

- The tool must be used responsibly.
- Users must ensure fairness and avoid any form of bias.
- Teachers should guide students to verify the accuracy of information.
- There should be equity in access, as students without devices or internet may be left behind.
- Users should avoid becoming over-dependent on AI to maintain their own critical thinking and creativity.

5.3. Future Outlook and Roadmap

- The tool aims to improve long-context reasoning for complex tasks.
- The platform is expected to broaden its applications across sectors such as education, healthcare, and finance.
- More languages and global availability are part of its future goals.
- It will also integrate more deeply with everyday applications and automation systems.

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DIFFIT

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

In classrooms where students bring different reading abilities, language backgrounds, and learning rhythms, teachers often struggle to prepare lesson materials that can reach everyone equally. Diffit for Teachers is an AI-powered tool created specifically to support differentiated instruction. Instead of relying on lengthy rewriting and manual simplification, teachers can now generate leveled passages, vocabulary lists, summaries, and questions simply by entering a topic, pasting text, uploading a PDF, or linking an online resource.



Fig. 1. Diffit AI Logo

When teachers visit the Diffit homepage, they are welcomed by a simple, teacher-friendly banner stating **'Student-ready resources for...'**, alongside a large input box where they can type what they are teaching. Options such as *'Literally Anything, Books, Text/PDFs/Links, and Vocabulary'* allow educators to choose how they want to begin. A language selector, grade-level chooser, and alignment settings sit just below the input bar, gently guiding teachers toward customised instruction. This clean design reflects the purpose of Diffit to simplify planning, improve accessibility, and help teachers reach every student.

1.2. Brief History and Development

Diffit began gaining popularity around 2022, when many teachers were looking for digital tools that could help them manage different ability levels in the same classroom. It was created by a team of educators and designers who understood the day-to-day challenges of teaching. Their main aim was to make differentiated instruction quicker and more practical, without adding extra work for teachers.

The tool spread rapidly through teacher groups and educational forums because it could take long or complex chapters and turn them into easy-to-read learning materials. What made Diffit stand out was

its focus on classroom needs, especially reading levels, curriculum-linked questions, and clear structure for student support rather than functioning as a general AI platform.

1.3. Target Audience and Scope

Diffit is widely used by:

- Primary and secondary school teachers
- English language learners (ELL) educators
- Special educators and remedial teachers
- B.Ed/M. Ed trainees during lesson planning
- Tutors and curriculum writers

Its scope covers content creation, leveled reading materials, comprehension tasks, inclusive learning support, pre-reading activities, and differentiated worksheets.

2. Characteristics and Features

2.1 Core AI Capabilities

At its heart, Diffit functions as an intelligent text-transformation engine. Teachers can feed the tool any piece of content, from a single topic to a lengthy PDF, and the AI converts it into grade-appropriate learning material. It simplifies vocabulary, restructures sentences, highlights key ideas, and generates questions that match the chosen reading level. These capabilities align with educational principles such as Universal Design for Learning (CAST, 2018) and differentiated instruction (Tomlinson, 2014), making Diffit a supportive companion in promoting learner-centered teaching.

2.2 Key Features and User Interface (UI)

Diffit AI is built around a simple but powerful idea: teachers should be able to turn *any kind of content* into student-friendly learning material within seconds. Its features revolve around this single, clear purpose. One of its most useful abilities is **Text Input**, where teachers can copy and paste any passage from a lesson, article, or story and Diffit immediately rewrites it at the required reading level. For longer or structured readings, the **Books** option allows users to enter the title or upload chapters, enabling Diffit to generate simplified summaries and classroom-ready questions without manually typing the entire text.

The **PDF Upload** feature is another teacher-favourite. Educators can simply upload a worksheet, chapter, or scanned document, and Diffit

extracts the text, simplifies it, and builds questions around it. Along with this, the **Link Input** option works brilliantly with online resources: Teachers can paste URLs from websites, articles, or even **YouTube videos**, and Diffit automatically analyses the content to create comprehension passages, summaries, and question sets.

A standout tool is its **Vocabulary Builder**, which identifies difficult words from the text and produces easy definitions, example sentences, synonyms, and context notes. This helps students understand complex readings without feeling overwhelmed. The generated vocabulary lists can also be adjusted by grade level, making them perfect for mixed-ability classrooms.

Together, these features allow teachers to work with almost any form of content digital, printed, visual, or textual and instantly convert it into accessible learning material tailored to their students' needs.

The tool then presents results in well-organised sections:

- Leveled Reading Passage
- Summary and Key Ideas
- Vocabulary with Student-Friendly Definitions
- Multiple Choice Questions
- Short Answer Questions
- Open-Ended Prompts

Each section can be edited or exported. The simplicity of this display makes Diffit ideal for time-constrained educators.

Another useful feature shown in your screenshot is the **Professional Development Resources** section, where Diffit offers teacher-friendly guides and a one-minute overview explaining the essence of the tool. These PD resources help teachers refine their instructional planning and make better use of differentiated strategies.

2.3 Differentiating Characteristics

Diffit is unique because it is created exclusively for educators, unlike generic chat-based AI tools. It focuses on grade-level readability, curriculum alignment, meaningful questioning,



Fig. 2. Diffit AI

and structured output. It supports inclusion by giving teachers materials suited for English learners, slow readers, neurodivergent learners, and mainstream students alike making it a reliable support system for equitable classrooms.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

Diffit requires no installation, app download, or technical expertise. Teachers only need a device with an internet browser. While signing in is optional, logging in enables saving resources, accessing history, and exporting files more easily.

3.2 Step-by-Step Usage Guide

Using Diffit is quick and easy. Teachers enter a topic, text, PDF, or link, choose the language and grade level, and click Generate Resources. The tool creates a learning pack with summaries, vocabulary help, MCQs, and tasks. Materials can be reviewed, edited, and exported as PDF or Word, saving time and making lesson planning faster.

Scenario 1: Using Vocabulary Builder

- Open Diffit → Vocabulary Builder.
- The tool identifies difficult words from the text.
- Provides easy definitions, example sentences, synonyms, and context notes.
- Adjust the vocabulary by grade level for different students.
- Students can understand complex readings more easily.

Scenario 2 : Using Text Input & Books in Diffit

- Open Diffit → Text Input to copy-paste any passage from a lesson, article, or story.
- The tool rewrites the text at the selected reading level.
- For longer readings, use the Books option to enter a title or upload chapters.
- Diffit generates simplified summaries and classroom-ready questions automatically.

3.3 Tips and Best Practices

Teachers can optimise Diffit by using specific prompts, previewing reading levels, pairing simplified passages with visuals, using vocabulary lists as pre-reading activities, and exploring Diffit's PD

videos for instructional guidance. Saving frequently used topics in the library makes lesson planning even smoother.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Diffit supports differentiation, scaffolding, accessibility and learner engagement. By offering multiple levels of the same content, it ensures that every learner regardless of reading ability can participate in classroom discussions and activities.

4.2 Impact on Teaching and Learning

Diffit has positively transformed classroom practice by reducing teacher workload and allowing students to learn at their own level. Teachers report improved participation among struggling learners, clearer comprehension outcomes, and more confidence in reading-intensive subjects. Because the tool provides ready-to-use worksheets, lessons become more structured and less stressful for both teachers and students.

4.3 Specific Classroom Applications

Diffit is useful for reading comprehension classes, remedial teaching, pre-reading activities, substitute lesson plans, resource room teaching, group differentiation, and creating homework sets. Teachers can also use it to introduce difficult concepts in simpler formats before moving to more complex texts.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Diffit may oversimplify certain academic concepts, and teachers must review AI-generated content for accuracy. It relies on stable internet access and is text-based, limiting visual or diagram-heavy topics.

5.2 Ethical and Equity Considerations

Teachers also need to use Diffit responsibly by making sure that any PDFs they upload are legally allowed to be shared. At the same time, they should avoid relying on AI for every part of the lesson. Diffit can support teaching, but it should not replace a teacher's professional judgment or decision-making (ISTE, 2022).

5.3 Future Outlook and Roadmap

Future versions of Diffit may include multilingual outputs, integration with classroom apps such as Google Classroom, subject-specific templates, improved visual organisers, and expanded grade-band support. The roadmap suggests a shift toward increasingly personalised learning resources.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://www.diffit.com>

Pricing: Currently free for educators.

6.2. Further Reading and Documentation

- Diffit teacher blogs
- PD videos on differentiation
- Inclusive education frameworks and UDL guidelines

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Disprz

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1. Introduction and Tool overview

1.1. Tool Name and Core Functionality

In today's rapidly evolving professional landscape, enterprises across the world are transitioning from traditional training models to dynamic, skills-driven development ecosystems. Digital transformation, automation, and globalised workforces have intensified the need for organisations to continuously upskill and reskill employees. This demand has accelerated the growth of next-generation learning platforms powered by artificial intelligence. Among these, Disprz (disprz.ai) has emerged as a leading global platform that integrates Learning Management System (LMS), Learning Experience Platform (LXP), and AI-powered skilling systems into a single comprehensive solution.



Fig. 1 Logo of Disprz

• Core Capabilities of Disprz

Disprz distinguishes itself through an integrated suite of AI-driven features designed for enterprise-grade learning and capability development. Its core capabilities include:

Learning Experience Platform (LXP)

The LXP enables organisations to deliver personalised, engaging learning experiences. It supports micro-learning, multi-format content, bite-sized courses, and role-based learning journeys. The platform ensures that each learner receives content tailored to their skill level, job role, and professional aspirations.

Learning Management System (LMS)

Disprz incorporates enterprise compliance, role-based access, certification tracking, and evaluation systems required by organisations for mandatory and regulatory training.

GenAI-Powered Content and Assessment Authoring

One of the most powerful features of Disprz is its ability to automatically generate:

- Learning content
- Summaries
- Assessments (MCQs, quizzes, case scenarios)
- Micro-learning modules
- Skill-based instructional material

This dramatically accelerates content production and ensures quality, consistency, and scalability.

Deep Content Search

Unlike standard keyword search, Disprz offers a semantic deep search powered by AI. Learners can find specific knowledge snippets across videos, documents, audio, or courses—without completing entire modules.

Skill Capability and Gap Analysis

Disprz offers sophisticated diagnostic tools to:

- Assess current skills
- Identify skill gaps
- Map gaps with job-role requirements
- Recommend personalised learning pathways
- Track progress and learning growth

Multi-Modal Learning Delivery

The platform supports:

- Videos
- Text
- Audio
- Role-play activities
- Micro-learning cards
- Mobile app delivery
- Gamified learning

- Short “reel-style” learning content

This engages diverse workforce groups, including frontline employees who depend on mobile-first learning.

1.2 Brief History and Development

Founded in 2015 by Heuristix Digital Technologies Pvt. Ltd., Disprz enables enterprises to build a future-ready workforce through personalised learning pathways, GenAI-based content creation, analytics-driven insights, and scalable digital upskilling solutions. With a strong global presence, Disprz has become a trusted partner for organisations aiming to enhance workforce capability and align learning with strategic business outcomes.

Disprz began its journey with the vision of solving one of the most persistent challenges in corporate learning: ensuring that training is engaging, personalised, scalable, and relevant to job roles. Over time, the platform evolved from a traditional learning delivery tool into a full-fledged AI-powered skilling and talent development ecosystem.

A major breakthrough in the platform's evolution occurred with the integration of Generative AI (GenAI). This transformation allowed Disprz to automate content creation, assessment design, learning recommendations, and deep content search—significantly reducing manual workload for Learning & Development (L&D) teams.

In recent years, Disprz has expanded across global markets, including India, Southeast Asia, the Middle East, and the United States, serving millions of learners. Its clientele includes leading enterprises from retail, BFSI, logistics, manufacturing, technology, e-commerce, telecommunications, and service industries.

2. Enterprise Applications of Disprz

Disprz is valuable for organisations that seek to become skills-based enterprises. It supports a wide spectrum of use cases across industries.

- **Employee Onboarding**

New employees can undergo structured, AI-driven onboarding that enhances role clarity, job readiness, and productivity.

- **Upskilling and Reskilling**

With rapidly changing job expectations, Disprz enables continuous capability-building through self-paced, guided, or blended learning pathways.

- **Leadership Development**

Organisations use Disprz to build internal leadership pipelines through competency-mapped learning journeys.

- **Frontline Workforce Enablement**

For distributed and mobile-heavy workforces such as retail, logistics, or hospitality.

Disprz offers:

- Mobile learning
- Bite-sized lessons
- Quick refresher modules
- On-the-job training support

Compliance Training

Enterprises can deliver mandatory learning with automated:

- Certification
- Tracking
- Documentation
- Reminders

Business Performance-Linked Learning

Integrations with HRMS/HCM tools allow organisations to:

- Link learning outcomes with KPIs
- Correlate training with performance
- Measure ROI on learning

3. Distinctive Advantages of Disprz

Disprz stands apart in the enterprise learning ecosystem owing to several unique differentiators:

3.1 AI-First Strategy

The platform is among the earliest enterprise learning systems designed deeply around Generative AI - improving efficiency, reducing dependency on external content creation, and enabling rapid course development.

3.2 Seamless Integration

Disprz integrates smoothly with:

- SAP Success Factors
- Workday
- Oracle HRMS
- Other HRMS/HCM platforms

This enables unified data flow across systems.

3.3 Focus on Skills Over Courses

Unlike traditional LMS platforms, Disprz focuses on role-based skills rather than merely compliance-driven course completion.

3.4 Global Scalability

With multilingual capabilities and mobile-first content delivery, the platform supports both desk-based and frontline teams across countries.

3.5. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Employee Onboarding and Training

Context: A company hires new employees and needs to onboard them efficiently.

How Disprz helps:

- Creates personalised learning paths for each role.
- Delivers training content through mobile-friendly, interactive modules.
- Tracks progress and assessments to ensure employees are job-ready.
- Outcome: Faster onboarding, consistent training quality, and reduced manual effort for HR.

Scenario 2: Upskilling and Reskilling Existing Workforce

Context: Employees need new skills due to changing business needs or technologies.

How Disprz helps:

- Conducts skill-gap analysis to identify training needs.
- Provides customised learning journeys aligned with employees' roles and career goals.
- Offers flexible microlearning modules for easy adoption alongside work.
- Outcome: Employees stay updated with required skills, improving productivity and reducing the need for external hiring.

Scenario 3: Large-Scale Training for Distributed or Frontline Teams

Context: Companies with employees in multiple locations or frontline roles need consistent training.

How Disprz helps:

- Supports mobile-first and offline access for remote or field staff.
- Delivers role-specific, standardised training for compliance, safety, or products.
- Tracks progress and performance analytics across all teams.
- Outcome: Uniform knowledge and compliance, improved operational consistency, and better learning engagement across distributed teams.

4. Advanced Analytics

Dashboard insights help organisations:

- Track learning adoption
- Evaluate employee skill maturity
- Assess team capability levels
- Predict workforce readiness

5. Global Impact and Recognition

Disprz has continuously earned recognition from global analyst firms and industry platforms. Highlights include:

- Recognition in the Atmanirbhar Bharat Innovation Challenge (2021)
- Inclusion in market guides by leading research firms (e.g., Gartner reports on LMS/LXP vendors)
- Rapid growth and funding towards expanding its AI-driven "People Intelligence Suite"

Its expansion has led to widespread adoption among Fortune 500 companies, industry-leading enterprises, and rapidly growing startups.

6. Challenges and Ethical Considerations

Though powerful, Disprz also faces challenges common to AI-driven platforms:

- Ensuring content quality and preventing over-reliance on AI-generated materials
- Addressing AI bias in recommendations or assessments
- Maintaining data privacy and security
- Providing access to employees with limited digital literacy or device availability

Disprz continues to enhance its algorithms, integrate responsible AI practices, and support inclusive learning design to address these concerns.

8. Future Outlook

The future of Disprz is strongly aligned with global shifts toward skills-based hiring, internal mobility, and talent intelligence systems. The platform's roadmap includes:

- Enhanced AI explainability and transparency
- Advanced capability mapping for job-role evolution
- Real-time skills forecasting
- Deeper integration with business performance dashboards
- Global expansion into emerging markets

Disprz is positioning itself as a central component of the future of enterprise learning, bridging the gap between learning, performance, and organisational capability.

9. Conclusion

Disprz represents a pioneering step in transforming how organisations develop their workforce. By integrating GenAI, deep analytics, skill-based learning pathways, and flexible multi-format content delivery, the platform empowers

enterprises to create a highly capable, future-ready workforce. As industries evolve, Disprz stands as a powerful catalyst in enabling continuous learning, scalable upskilling, and strategic workforce transformation. Its comprehensive, AI-driven ecosystem marks a new era in enterprise learning, positioning it as a leader in global digital skilling initiatives.

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"Disprz Continues Growth Momentum with GenAI Advancements and Analyst Recognitions." *BusinessWire / Business Standard* (Oct 29, 2024). Describes Disprz's GenAI-powered features: content & assessment authoring, deep search, AI recommendations, multilingual "Disprz Originals," personalised learning, and global scale (customers, learners, geographies). ([BusinessWire](#))

Disprz official website — for feature descriptions like auto-generated assessments, content summarisation, deep search, multi-modal learning, skills based learning ecosystem, mobile/micro-learning, capability building, learning pathways. ([disprz.ai](#))

"Disprz Raises \$30 M in Series C Funding to Expand Presence" (PR Newswire / *Economic Times* / other media, Aug 7, 2023) — details on funding, global expansion plans, growth trajectory, and strategic ambitions such as integrating GenAI across learning lifecycle. ([PR Newswire](#))

"Disprz: Reducing training content costs" (Microsoft AI First Movers / case-study article) — explains how Disprz uses Generative AI to create and transform content, reducing cost and effort in content creation, enabling scalable, personalised learning. ([Microsoft](#))

"Disprz crosses ₹100 Cr ARR milestone" & "Disprz hits ₹100 crore ARR, sets sights on GenAI-led skilling expansion" (*MediaBrief / Performance Improvement sites*, 2025) — provides data on company's financial growth (annual recurring revenue), client base size, market reach, and evidence of adoption across sectors. ([MediaBrief](#))

Disprz company profile (LeadIQ / business-directory style) — summary of company positioning as GenAI-powered learning & skilling suite (LMS, LXP, FLE), global reach, number of learners, enterprise customers list, and funding background. ([LeadIQ](#))

Industry-analyst / market-research based description of Disprz offerings: combining LMS + LXP + skill analytics + personalised learning, and positioning as a comprehensive enterprise learning solution. ([Business Model Canvas Templates](#))

Recognition as “Enterprise Learning Management System / EdTech Startup of the Year 2022” by an industry magazine (via Disprz’s own blog) — indicates external validation of Disprz’s value proposition and solution maturity. ([disprz.ai](#))

DupliChecker

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

DupliChecker is an AI powered online platform for users to maintain originality, clarity, and linguistic accuracy in their writing. Although it first gained popularity as a simple plagiarism checker, it has since grown into a multi-tool environment offering features such as AI-content detection, paraphrasing, rewriting, grammar checking, summary generation, keyword evaluation, and SEO assistance. This expansion reflects the increasing demands placed on students, researchers, content writers, and educators who need efficient and accessible ways to review, refine, and verify their work.



Fig. 1. DupliChecker
Logo

The central purpose of DupliChecker is to examine text and provide feedback that improves the integrity and quality of written communication. Users can upload their documents, paste text directly into the interface, or link files from their devices. The AI then evaluates the content using natural language processing (NLP) techniques and machine learning models. Whether the goal is to detect similarities, identify grammar errors, or rephrase content, DupliChecker serves as an extensive digital workspace for improving academic and professional writing.

1.2 Brief History and Development

DupliChecker began as a straightforward plagiarism-checking tool targeted mainly toward students and bloggers who needed a free, easy-to-use method of verifying originality. In earlier years, many

plagiarism tools required paid subscriptions, but DupliChecker gained traction because it allowed users to run checks without registration and without strict usage limits. This accessibility positioned it as an essential resource for new writers or learners with limited financial resources.

As advancements in artificial intelligence progressed, particularly with the release of generative AI tools like ChatGPT, Bard, and other large language models, the writing landscape shifted dramatically. Educators and employers became increasingly concerned with distinguishing human writing from AI-generated content. In response, DupliChecker introduced its AI Content Detector, a tool designed to assess whether a piece of writing displays linguistic patterns commonly produced by AI systems. This addition reflects the platform's ability to adapt to emerging concerns in academic integrity and content authenticity.

1.3 Target Audience and Scope

- DupliChecker serves a diverse range of users, each benefiting from different aspects of the platform:
- Students and Researchers use the plagiarism checker and paraphrasing tool to ensure their work meets academic standards.
- Teachers and Academic Administrators use it to verify the integrity of submissions and support instruction around proper citation practices.
- Bloggers, Freelancers, and Content Creators rely on rewriting tools, keyword analysis, and grammar checks to polish articles and improve readability.
- Digital Marketers use SEO-focused tools to enhance visibility and audience engagement.
- Business Professionals use grammar and paraphrasing tools to revise reports, proposals, and presentations.
- Its broad feature set makes DupliChecker a multifunctional tool suitable for both academic and industry-focused writing tasks.

2. Characteristics and Features

2.1 Core AI Capabilities

DupliChecker integrates several AI-driven systems that enhance the effectiveness of its features. Its plagiarism checker compares uploaded text against vast online databases, looking beyond exact matches to

evaluate paraphrased, rearranged, and structurally altered content. Meanwhile, the AI Content Detector analyses sentence patterns, lexical choices, and stylistic markers that often distinguish machine-generated writing from human-authored work.

The platform's paraphrasing tool uses deep-learning algorithms capable of rewriting text while preserving meaning. Instead of simple word swaps, the AI restructures sentences, adjusts tone, and modifies vocabulary to produce a more natural, human-sounding result. This makes it useful not only for avoiding duplication but also for strengthening clarity and fluency.

2.2 Key Features and User Interface

- One of DupliChecker's strengths is how easily users can navigate the interface. Each tool sits in a clearly labelled section on the homepage, requiring only a single click to access. The main features include:
- **Plagiarism Checker:** Supports various file types such as .doc, .docx, .pdf, and .rtf. It also allows scanning in various languages.
- **AI Content Detector:** Estimates the likelihood that a text was created by AI, aiding instructors and employers who want authentic verification.
- **Paraphrasing and Rewriting Tool:** Provides multiple rewriting modes to enhance clarity, simplify text, or shift tone.
- **Grammar Checker:** Identifies errors in punctuation, verb tenses, word choice, and sentence structure.
- **SEO and Keyword Tools:** Help digital creators improve search ranking and content optimisation.

The interface emphasises usability, making the platform accessible even to users unfamiliar with digital writing tools.

2.3 Differentiating Characteristics

DupliChecker stands out for several reasons:

1. **Its Freemium Model:** Many tools are available without cost, making it suitable for students and independent writers.
2. **Integration of Multiple Tools:** Instead of requiring separate applications for plagiarism checking, rewriting, and grammar correction, DupliChecker consolidates everything in one place.
3. **User-Friendly Approach:** Even new users can begin scanning or rewriting text within seconds, with few technical barriers.

This combination of accessibility, functionality, and simplicity contributes to its global popularity.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

DupliChecker requires no installation or software downloads. Users only need:

- A laptop, mobile device, or tablet
- A stable internet connection
- A browser such as Chrome, Firefox, or Safari
- The text they wish to evaluate

Creating an account is optional but offers additional scanning capacity and faster processing.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: A Student Checking Originality

1. Open the plagiarism checker on DupliChecker's homepage.
2. Paste or upload the assignment file.
3. Click 'Check Plagiarism' to initiate scanning.
4. Review the highlighted sections showing matched or similar text.
5. Edit the work to correct or rewrite flagged content.
6. Re-run the scan to confirm originality.

Scenario 2: A Blogger Improving Text Quality

1. Navigate to the paraphrasing tool.
2. Paste the blog post draft into the editor.
3. Select a rewriting style (e.g., standard, creative).
4. Review the rewritten version and adjust for tone and accuracy.
5. Finalise the improved text for publication.

Scenario 3: A Teacher Verifying Multiple Submissions

1. Log into an account for higher usage limits.
2. Upload several student files individually.
3. Download or save each plagiarism report.
4. Use the results to provide targeted writing feedback.

3.3 Tips and Best Practices

- Always review AI-generated suggestions manually. Human judgment remains essential.
- Use paraphrasing tools responsibly. They should strengthen writing and not replace effort.
- Cross-check citations and references. Even original text must be properly sourced. Understand scanning limits. Longer documents may require splitting into sections for the free tier.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

In educational settings, DupliChecker serves as more than a policing tool- it acts as a formative resource. Students learn to refine drafts, correct errors, and understand plagiarism through visible side-by-side comparisons of original and matched text. Instead of punishing mistakes, the tool encourages revision and fosters constructive learning habits.

4.2 Impact on Teaching and Learning

DupliChecker influences learning by:

- Promoting self-editing skills before final submission
- Supporting non-native speakers who need grammar and clarity assistance
- Increasing students' writing confidence through guided revision
- Helping teachers reduce workload, allowing them to focus on deeper feedback
- The tool encourages transparency and reinforces academic writing standards.

4.3 Classroom Implementation Examples

Teachers can integrate DupliChecker into:

- Writing workshops
- Paraphrasing practice exercises
- Draft reviews for research papers
- Academic integrity modules
- Peer editing sessions

These uses cultivate awareness of proper citation, originality, and writing craft.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Despite its usefulness, DupliChecker has some limitations:

- Occasional false positives where common phrases are flagged
- Dependence on internet connectivity
- Lower-quality rewriting in some paraphrasing modes
- Limited word counts for free users
- No plagiarism database covers all global content.
- Absence of a dedicated mobile application and it can be inconvenient for those who prefer on-the-go access through a

standalone app. A dedicated application could streamline the experience, allow offline features, reduce loading times, and provide faster, more intuitive navigation. Without an app, users must rely entirely on browser access, which can make frequent checking, rewriting, or editing less efficient and less user-friendly.

Thus, the tool should serve as guidance, not absolute authority.

5.2 Ethical and Equity Considerations

Ethical use of AI tools requires careful consideration. Students may be tempted to rely too heavily on rewriting tools to disguise copied content. Additionally, not all learners have equal access to reliable internet or digital devices. Privacy is another concern, as uploading sensitive documents to online platforms requires trust in data handling practices. Educators and institutions must therefore establish clear guidelines on how and when such tools should be used.

5.3 Future Outlook and Roadmap

DupliChecker may continue evolving toward:

- Stronger contextual understanding in AI detection
- Multilingual rewriting improvements
- Integration with classroom learning management systems
- Personalised writing feedback
- Enhanced data privacy and ethical AI transparency

Such advancements will increase its relevance in both academic and professional spheres.

6. Supplementary Information and Final Reflection

6.1 Access and Pricing

DupliChecker is available directly through its website. A free tier provides access to scanning and rewriting tools with word and file limits, while premium plans increase capacity and speed. This makes it an accessible option for both casual and heavy users.

6.2 Final Reflection

To conclude this chapter, it is worth considering how our growing dependence on AI rewriting, correcting, and shaping tools affects the nature of authorship. The Ship of Theseus paradox asks whether something remains the same if all its parts are gradually replaced. When applied to writing, the question becomes: If an AI tool rewrites our sentences one by one, at what point is the text no longer ours?

If every paragraph has been paraphrased, every sentence corrected, and every idea reshaped by AI, the final work may meet technical requirements, but it may lose the author's creative identity. This does not mean AI tools should be avoided; rather, they should be used mindfully. DupliChecker can elevate writing, clarify ideas, and prevent accidental plagiarism, but it must serve as an assistant rather than a replacement.

Writers, especially students, must remain active participants in the writing process. Authenticity is a core value in academic environments, and maintaining one's voice ensures that learning, creativity, and personal development are not overshadowed by convenience.

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Easemate AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

EaseMate AI by EaseUS is an all-round academic assistant that helps with reading, learning, and writing. It can summarise PDFs, explain difficult points, create notes, paraphrase content, and support various writing tasks, working like a flexible tutor that adapts to the user's needs.



Fig 1. Easemate Logo

1.2. Brief History and Development

Easemate AI is an all-in-one artificial intelligence assistant developed by EaseUS. Between 2023 and 2025, it expanded from a basic chat tool into a full learning platform that can handle long readings, simplify complex ideas, and guide structured academic work.

1.3. Target Audience and Scope

EaseMate is useful for students, teacher trainees, educators, researchers, and professionals. It helps with quick understanding, assignment preparation, lesson planning, and summarising or paraphrasing tasks, making academic and work-related writing easier.

2. Characteristics and Features

2.1. Core AI Capabilities

EaseMate combines multiple AI models like GPT-4o Mini, Claude 3 Haiku, Gemini 2.5 Pro, Llama, DeepSeek, and creative-focused

models within a single, user-friendly interface. Each model specialises in reasoning, creativity, or summarisation for precise outputs.

Core capabilities:

- Understands natural language
- Simplifies complex academic material
- Summarises PDFs and chapters
- Paraphrases and improves writing
- Creates structured academic notes
- Answers follow-up questions
- Provides explanations at different difficulty levels
- Adapts to learners' needs for quick or detailed responses
- Functions as a versatile, efficient, and personalised learning companion.

2.2. Key Features and User Interface (UI)

EaseMate's interface is designed for simplicity. The homepage is neatly organised, with a left toolbar containing essential tools and a main workspace that encourages smooth interaction. The user can move between reading, writing, and clarifying without losing track.

Key tools include:

- **AI Chat** – Functions like a personal tutor, answering questions, explaining topics, and summarising chapters. It adjusts its tone for simple or detailed explanations, making learning interactive and personalised.



Fig 2. EaseMate AI chat

- **Chat with PDF** – Allows uploading PDFs to generate summaries, extract key points, and answer questions directly

from the document, saving time while retaining essential content.

- **AI Video** – Transforms text or images into videos, enabling educational clips, presentations, and interactive multimedia content.
- **AI Photo (Image & Photo Converter)** – Converts text prompts into creative visuals in styles like Pixar, Ghibli, sketches, and watercolors, helping visualise concepts and enhance projects or presentations.
- **AI Study and Research** – Includes Math, Physics, and Chemistry solvers and AI Scholar, providing step-by-step solutions, formula explanations, and conceptual clarity for easier learning.
- **Math Solver** – Tackles equations step-by-step, showing the method clearly so tricky sums start making sense.
- **Chemistry Solver** – Breaks down reactions, formulas, and numericals in simple language, helping you understand *why* a solution works.
- **Physics Solver** – Explains physics problems with the right formulas and logic, making difficult concepts feel more manageable.
- **AI Scholar** – Great for theory, summarises lessons, clarifies doubts, and provides neat explanations perfect for quick studying.
- **AI Writer** – AI Writer is like your all-in-one writing helper. It shapes your ideas into clear, polished content whether you're working on essays, stories, or professional messages while keeping everything natural and easy to read.
 - **Paraphraser** – Rewrites your text in a fresh, natural way while keeping the meaning intact.
 - **AI Detector** – Checks how “AI-like” your text sounds and guides you to make it more natural.
 - **AI Bypass** – Transforms robotic or stiff writing into smooth, human-sounding text.
 - **Story Generator** – Creates creative stories from your prompts in seconds.
 - **Email Generator** – Drafts neat, professional emails quickly and effortlessly.
- **AI Translator** – Translates text smoothly between languages while keeping the meaning natural and clear.
- **Video Summariser** – The Video Summariser condenses long videos into quick, clear summaries, highlighting only the main points so you can understand the content in minutes.

- **AI Audio Notes** - AI Audio Notes turns voice recordings or lectures into clean, readable text and quick summaries, making note-taking effortless and fast.
- **AI Mind Map** - AI Mind Map turns any topic into a clear visual layout with main ideas and subpoints, helping you plan, brainstorm, and understand content at a glance.
- **AI Prompt Optimizer** - Helps craft precise prompts to ensure accurate and relevant outputs from all AI tools.



Fig 3. AI Detector Feature

2.3. Differentiating Characteristics

EaseMate stands out for three reasons:

1. **Deep PDF Understanding:** It doesn't just summarise; it identifies what the user needs and explains only that part if asked.
2. **Multiple AI Engines:** Users aren't locked into one style of output; they can select the most suitable model for their task.
3. **Balanced blend of academic and creative tools:** Whether it's a complicated theory or a piece of writing that needs polishing, EaseMate adapts with ease.

In short, EaseMate helps learners grow, it's not just a tool it's an adaptable, intelligent companion.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

EaseMate requires a device with internet access and a simple login. Within minutes, users can access all tools without any technical

barriers. Its design supports beginners, ensuring that even those unfamiliar with AI can start learning comfortably.

3.2. Step-by-Step Usage Guide

Using EaseMate AI

Users can access EaseMate AI via its website, where all tools are available on a simple dashboard. AI Chat handles queries, AI Photo/Video and ChatPDF manage media and documents, and AI Writer helps with drafting and summarising. Students can use AI Study & Research for academic help and Translator for languages. Additional features like Video Summariser, Mind Map, Audio Notes, Notebook, Library, and Prompt Optimiser make organising assignments and projects easier.

Scenario 1: Extracting Specific Info from a PDF

- Open EaseMate and select ChatPDF.
- Upload the PDF; a short summary is generated automatically.
- Type your question in simple language about the part you want to learn.
- The tool gives the exact information quickly, without reading the whole PDF.

Scenario 2: Solving Doubts in Maths, Physics, Chemistry

- Open EaseMate → Study & Research.
- Select the subject or tool for your question.
- Get solutions for sums and queries in Maths, Physics, or Chemistry quickly.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

EaseMate naturally fits modern educational approaches:

- **Constructivism:** Learners actively build understanding through questions and tailored explanations.
- **Scaffolding:** Stepwise guidance helps progress from basic to deeper mastery.
- **Differentiated Instruction:** Content adapts to beginners or advanced learners.
- **Self-Directed Learning:** Students study at their own pace and explore independently.

In this way, EaseMate supports both personalised learning and classroom teaching.

4.2. Impact on Teaching and Learning

EaseMate reduces the pressure on both sides of the learning process.

- Teachers save time on explanations, content preparation, and reading-heavy tasks.
- Students receive instant support from their textbooks and notes without relying on external sources.
- B.Ed trainees gain confidence while crafting assignments, presentations, and academic responses.

The tool helps convert information into understanding and understanding into well-written output.

4.3. Classroom Applications

EaseMate is a versatile learning companion for students and teacher trainees, simplifying complex chapters into clear, easy-to-understand explanations. It quickly generates effective revision notes and reads PDFs to provide accurate, context-based answers from textbooks and reference materials. The tool helps learners prepare well-structured answers for exams, supports remedial learning with step-by-step guidance, and assists teacher trainees in organising assignments and academic writing. Overall, EaseMate makes studying smoother, more engaging, and highly effective.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

EaseMate's reliance on internet access may pose challenges in regions with limited connectivity. Like all AI tools, it should be used with teacher guidance so students do not become overly dependent. Users must also cross-check numerical or scientific responses for accuracy.

5.2. Ethical and Equity Considerations

Ethical use requires:

- Verifying content for accuracy
- Preventing misuse for academic dishonesty
- Encouraging learning, not shortcuts

Teachers must guide students to use AI as a support system, not a replacement for critical thinking.

6. Supplementary Information and References

6.1. Tool Access Details

Official Website: <https://www.easemate.ai>

Pricing- EaseMate offers flexible plans for all users: **Basic (\$0/month)** for light study, **Lite (\$7.49/month)** with extra credits and images for steady access, and **Pro (\$16.9/month)** for full research and creative tools. All plans auto-renew but can be cancelled anytime.

6.2. Further Reading

- AI integration in classrooms
- EdTech tools and teacher training
- Generative AI ethics
- AI-assisted learning models

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EdCafe

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1. Introduction and tool overview

1.1. Tool name and Functionality

EdCafe is an educational assistant which is AI – powered to enhance the daily work of the teachers. It helps the teachers to create well planned lesson plans, worksheets, assessments, explanations, and the classroom activities within the stipulated time period. Instead of an educator spending hours for preparing the content, teachers enter their topic or the requirement and the EdCafe generates organised and classroom ready material. It functions as a smart academic companion for the educators that understands teaching patterns, curriculum structure, learning outcomes, and age-appropriate language, making it deeply aligned with today's classroom needs.



Fig 1. EdCafe AI Logo

1.2. Brief history and Development

EdCafe was developed for teachers worldwide when they saw teachers dealing with increase of workload, lack of preparation time, and to meet the rising expectations of the system. Observing the gap between teacher responsibilities and available time, EdCafe was created to help the educators in generating academic resources. As artificial intelligence began influencing the education sector, the creators of EdCafe made a tool that could combine AI technology with real classroom needs. The platform aims to reduce teacher stress, increase creativity, and support the integration of NEP 2020 teaching approaches by providing ready-to-use, adaptable materials.

1.3. Target Audience and Scope

EdCafe is designed for a wide range of users like school teachers, college faculty, academic coordinators, and pre-service educators' programs. Its scope is broad, covering every subject and level from primary classes to higher education. Because of its friendly interface

features, EdCafe provides support in educational settings, making it a perfect tool for teaching, planning and academic documentation.

2. Characteristics and Features

2.1. Core AI Capabilities

EdCafe is an advanced AI with capabilities that allow it to instantly generate academic content. It can create lesson plans, worksheets, project ideas, concept explanations, and simplified summaries. It can also design question banks and suggest creative classroom activities suitable for different grades as a part of the lesson plan. With options of selecting various languages making it easy to use in different countries easily, EdCafe serves as a flexible digital assistant for educators across various disciplines.

2.2. Key Features and User Interface

EdCafe displays a smooth and easy interface for use. The dashboard contains a prompt section where teachers can type their prompts and obtain a structured and formatted output. The platform includes various options like the subject-based templates for lesson plans, worksheets and assessments ensuring consistency. The "Teacher Mode" enhances the academic tone and structure of the generated content. The interface is clear enough for beginners but also provides structured outputs that meet professional academic standards.

2.3. Differentiating Characteristics

EdCafe is different from other AI due to its strong educational focus that is built specifically for teaching and learning. It understands the lesson structures, classroom logic and NEP – aligned competencies. Teachers can rely on it to reduce their workload. EdCafe stands out because it blends AI technology with educational wisdom, making it a dependable tool for academic planning and support of the classroom.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To begin using EdCafe, a teacher only needs a smartphone or laptop with a stable internet connection. After creating an account and logging in, users land on a dashboard where they can quickly enter the prompts for lesson plans, worksheets, explanations or assessments. The setup is minimal and clear making it accessible even for teachers who are new to AI tools.



Fig 2. Login page

3.2. Step-by-step Usage Guide (Scenario - Based)

Teachers use EdCafe by entering their topic of interest and academic details. For example, if a teacher wants a Grade 8 Science lesson plan on "Combustion and Flame," they simply log in using their Gmail account, open the lesson plan generator, enter the topic, specify the grade and duration, and generate. EdCafe instantly produces a complete lesson plan including the objectives, materials required, activities, and assessments. In another scenario, a teacher preparing a Class 6 Mathematics worksheet on fractions can enter the topic and choose the difficulty level. The tool then generates a formatted worksheet ready for printing or digital sharing, demonstrating its convenience and time-saving capabilities of the teachers.



Fig. 3 Create Teaching Resources



Fig 4. Creating a lesson plan

3.3. Tips and Best Practices

To increase the accuracy, teachers should provide specific prompts mentioning the grade level, the required resources like the worksheet, slide decks, articles, or videos. Asking for alignment with Blooms Taxonomy can provide deeper learning-based content. While it generates high quality outputs, educators are encouraged to review the content to match their classroom context and requirement of the students. Saving frequently used prompts can also help to maintain consistency across different topics and units.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

EdCafe supports a wide variety of approaches such as inquiry-based learning, constructive teaching, blended learning and competency-based education. The tool enables teachers to design lessons that promote student participation, and deeper understanding. Since it can simplify or enhance content, EdCafe also assists teachers in differentiating instruction for varied learning levels.

4.2. Impact on Teaching and Learning

Using EdCafe helps to reduce the time teachers spend on preparation, allowing them to focus more on classroom interaction and student mentoring. The structured planning and clear explanations generated by EdCafe help students understand concepts better. Lesson quality improves when teachers have more time to think creatively rather than

struggle with formatting and documentation of the lesson. This leads to better engagement of the students, smoother lesson delivery by the teachers, and more dynamic classroom experiences.

4.3. Specific Classroom Applications

EdCafe can be used to prepare worksheets, tests, MCQs, and revision question banks. Teachers can use it to simplify difficult topics, generate explanations tailored for slow learners, and design project-based activities. The tool also assists with presentations, assessment planning, and homework assignments. Its adaptability makes it a multi-purpose resource for everyday classroom challenges.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

EdCafe's accuracy depends on the clarity of prompts provided by the teacher. A stable internet connection is necessary for smooth functioning, and some advanced features may require a paid subscription. Additionally, if overused, AI tools can reduce teacher creativity, so educators must maintain a balance between AI-generated and personally created content.

5.2. Ethical and Equity Considerations

Teachers must verify EdCafe-generated material before using it in classrooms to maintain authenticity and accuracy. Content should not be copied exactly without modification, as academic integrity must be preserved when using the sources from AI. At the same time, educators must ensure that students from all background receives equal access to learning materials.

5.3. Future Outlook and Roadmap

The future of EdCafe looks promising, with anticipated improvements such as subject-specific templates, voice-based planning, student performance analytics, and AI-integrated classroom tools. The development of a fully NEP-aligned curriculum generator may soon allow schools to manage complete academic planning digitally. These upcoming enhancements will make EdCafe even more beneficial for educators.

6. Supplementary Information and References

6.1. Tool Access Details

EdCafe is accessible through its official website <https://www.edcafe.ai/> where educators can view features, updates, and subscription plans. It offers a free basic version with limited usage and paid plans for extended access. Schools can go for institutional plans for broader implementation.

6.2. Further Reading and Documentation

Teachers interested in AI integration can refer to EdTech journals, research articles on artificial intelligence in education. These resources help educators understand the significance of EdCafe within the modern educational landscape.

6.3. References

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Saleh, S., & Mohamed, T. N. (2025). Interactive tools, engaged minds: The impact of ClassPoint and EdCafe on learning strategies. *Humanities*, 6(2). <https://doi.org/10.58256/xx9v4r62>

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Eduaide

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Eduaide.AI is an online tool that uses artificial intelligence to help teachers and educators create lesson plans, activities, assessments, and different kinds of flow charts (visual aids) more quickly and easily. Think of it like

having a digital assistant that gives you ideas, helps you organise your teaching materials, and saves your time so you can focus on your students and make teaching more interesting, uncomplicated and accessible.

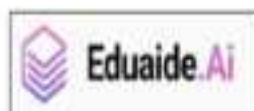


Fig 1. Logo of Eduaide AI

1.2. Brief History and Development

Eduaide.AI was launched in 2023 with a clear purpose: to build an AI-powered workspace made especially for teachers. Co-founded by educator Thomas Thompson, the platform grew out of an honest understanding of the challenges teachers deal with every day—planning lessons, creating resources, preparing assessments, and giving meaningful feedback. It began as a simple lesson-planning helper and soon expanded into a complete teaching assistant offering more than 100 types of resources, standards-aligned content, differentiated learning materials, and automated feedback tools.

1.3. Target Audience and Scope

Eduaide.AI is built mainly for teachers of all grades from K-12. It can also be used by coaches, curriculum designers, school leaders, and many other educational professionals involved in teaching and learning. Its scope is wide, covering almost everything for a teacher's smooth workflow— from lesson planning, assignment generator, assessment, vocabulary, summariser, evaluation, question papers, etc. Edunaide.AI also helps with administrative tasks like drafting communication or preparing documentation, making it a valuable tool

not just for individual teachers but for entire schools and districts as well.

2. Characteristics and Features

2.1. Core AI Capabilities

This AI's main strength lies in helping all levels of teachers and educators simplify, improve, and innovate every part of their instructional work. It can easily create full fledged lesson plans, lesson seeds (outline of the whole lesson), learning activities, worksheets, content in a game format to make the lesson interesting to students. The platform also provides strong assesment tools that generate questions, quizzes, rubrics, and exit tickets that match specific learning goals. Its feedback generator gives students clear, rubric-based comments, which helps teachers cut down on grading time while still offering meaningful guidance. Eduaide.AI becomes a complete, reliable teaching partner that helps educators work smarter and more efficiently.

2.2. Key Features and User Interface

Eduaide's key features include:-

1) Lesson Builder:

The lesson builder includes following features:-

- a. Planning - various tools are there under planning for developing lessons, units, and instructional frameworks.
- b. Presenting - helps in designing instructional materials that explain new concepts, model thinking, and support direct teaching.
- c. Practice - generates student-friendly tasks that reinforce skills, build fluency, and deepen understanding through active application.
- d. Group Activities - generates collaborative tasks that promote discussion, shared problem-solving, and active participation.
- e. Questions - creates prompts that check for understanding, reinforce learning, and guide deeper student thinking.
- f. Assessments - various tools are there to evaluate learning through rubrics, quizzes, exams, and performance tasks with clear criteria.

- g. Feedback - generates specific, actionable responses across grammar, structure, and academic reasoning.
- h. Administrative - generates communications, documentation, and support tools to manage classrooms, teams and student needs.

2) Organizers:

The organisers tool of eduaide consists of various features that includes - generating KWL chart, T-chart, Venn Diagram, Frayer Model, Sequence of Events, Marking the Text, Concept Map, Timeline activity.

3) Games:

The games tool of edunide consists of various game styles that you can conduct with the class in order to make the learning in a more interesting and effective way. It includes- Bingo style, Jeopardy style, Quiz, 4 corners, Battleship Style, Escape Room Outline, Quest based outline, This or That?, Tic Tac Toe, etc.

2.3. Differentiating Characteristics

The main differentiating characteristic of Eduaide that makes it unique from other AI apps is that it truly stands out because it is designed with teachers in mind, focusing on real classroom needs rather than just general AI text creation. Eduaide.AI offers more than a hundred structured resource types, all built on strong educational principles. Its differentiated instruction capabilities enable educators to modify and tailor learning materials to accommodate varying proficiency levels, linguistic backgrounds, and special educational requirements, thereby enhancing the platform's suitability for diverse learner populations.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Eduaide.AI is an AI-driven teaching assistant created to support educators in their daily classroom work. One of its major strengths is the **assessment builder**, which allows teachers to create questions in different formats—such as multiple choice, short answer, or long-form responses. AI also includes a **feedback bot** that uses rubrics to give students clear and meaningful feedback. The platform also provides an **integrated chat assistant** for brainstorming ideas,

revising content, and improving classroom materials. With multilingual support and tools for differentiating content.



Fig 2. Choose from Lesson builder, organizers and games for teaching

3.2. Step-by-Step Usage Guide

- **Select your resource :** Choose from a variety of teaching tools, including lesson plans, graphic organisers, educational games, and more—designed to support different learning needs.
- **Enter a Topic :** Start with a few keywords to shape your resource. You can upload documents, select a website, or attach a standard for personalised and relevant content.
- **Click Generate :** Click the 'Generate' button and wait for the resource to be created. You can refine, edit and export it to text, Microsoft Word, Google Docs, or PDF to use in your classroom.



Fig 3. Can be converted into different formats of preference

4. Educational Implementation and Application

4.1. Pedagogical Rationale

Eduaide provides teachers and educators an easy and a time saving way of preparing teaching aids. The pedagogical purpose behind Eduaide.AI is to help teachers deliver high-quality instruction by taking some of the routine, time-consuming tasks off their plate. It helps teachers by reducing the effort spent on planning, paperwork, and repetitive resource creation, teachers can put more energy into what matters most—engaging with students. Overall, Eduaide.ai aims mainly to boost the effectiveness of teaching, ultimately improving both teaching and student learning outcomes.

4.2. Impact on Teaching and Learning

Eduaide.AI has a very positive and effective impact on both teaching and learning by helping teachers and educators save time and energy while still creating high and best quality instructional materials and teaching aids.

4.3. Classroom Applications

Eduaide.AI offers a very supporting hand in everyday learning by providing or helping teachers and educators to generate quick and effective lesson plans, worksheets and engaging activities. It also allows educators to design differentiated tasks for students with varying ability levels and for multilingual learners, making classroom instruction more inclusive and accessible. Overall, the tool strengthens planning, instruction, and assessment in a practical, classroom-ready way that fits smoothly into a teacher's daily workflow.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Eduaide.AI has a few limitations too. The quality of its output may vary depending on how well and clearly the teachers or the educators provide the prompts, so the generated material often needs to be reviewed and polished before use. It may also miss out on some of the subtle details of a particular topic or a highly specialised curricula.

5.2. Ethical and Equity Considerations

Eduaide.AI brings several ethical and equity considerations that teachers and schools need to think about. Since the platform generates content using AI, there is always a chance that unintentional bias may

appear in lessons, assessments, or feedback. Equity is another concern, especially for schools that may not have consistent internet access or enough devices, which can limit how effectively students and teachers can use the tool.

5.3. Future Outlook and Roadmap

The future of Eduaide AI looks promising as the platform continues to expand its AI features. Upcoming developments are expected to provide even more accurate lesson plans, assessments, and differentiated learning materials. The tool is also likely to strengthen curriculum alignment, improve integration with school systems, and offer enhanced multilingual and accessibility support.

6. Supplementary Information and References

6.1. Tool Access Details

The official URL for Eduaide AI is <https://www.eduaide.ai>

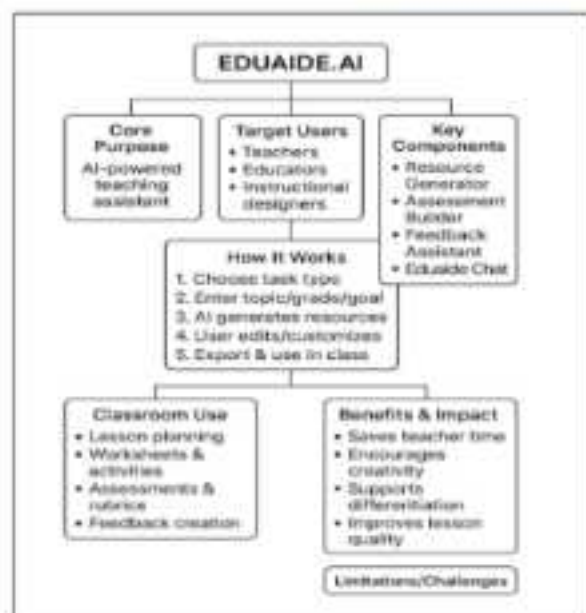


Fig 5: Summary of Eduaide AI

6.2. Future Readings and Documentations

- Teacher Empowerment Toolkit – Clear explanations of Eduaide AI tools and features.
- Tech & Learning Guide – Quick tutorial on how to use Eduaide AI in teaching.
- AI Tools Bee – Easy overview of key features and uses.
- Common Sense Education Review – Independent review for educators.
- Purple AI Tools Review – Brief insights on features, exports, and pricing.

6.3. References:

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Educaplay

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Educaplay is a comprehensive online platform for creating multimedia educational games, featuring the AI assistant Ray. Ray enables teachers to generate quizzes, crosswords, and more activities in minutes by providing intuitive automation and suggestions (Educaplay, n.d.-a). Ray can build a quiz instantly from a title or a block of content, which teachers can then customize for their needs (Educaplay, n.d.-b).



Fig 1. Logo of Educaplay AI

1.2. Brief History and Development

Educaplay was launched in 2010 to meet the growing demand for digital learning resources and interactive content. Its continued development is driven by educator feedback. Recent milestones including the launch of Ray AI features for faster, smarter game creation (Educaplay Blog, 2025).

1.3. Target Audience and Scope

Designed primarily for teachers, trainers, and K-12 students, Educaplay is used globally and integrates with platforms such as Google Classroom, making it ideal for in-person, hybrid, or remote instruction (Educaplay, n.d.-a; Sison 2021).

2. Characteristics and Features

2.1. Core AI Capabilities

Ray, the AI assistant, automatically generates questions and answers, suggests feedback, and guides teachers in game setup, significantly reducing preparation time while increasing personalisation (*Educaplay Blog, 2023*).



Fig 2. AI assistant Ray

2.2. Key Features and User Interface (UI)

Educaplay's user interface is highly visual and easy to use, guiding educators through the process of selecting activity types, entering content, and sharing games via links or codes. Ray is present throughout, offering help and tips; games allow images, audio, and video for more engaging activities (*Educaplay, n.d.-c*).

2.3. Differentiating Characteristics

Unlike other platforms, Educaplay provides a large variety of activities, direct LMS integration, and the flexibility to create games either automatically with Ray or manually, ensuring lessons suit students needs and classroom goals (*Educaplay, n.d.-d; Educaplay, n.d.-a*).

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Teachers only need a browser and an Educaplay account (free or premium). No installation is required, and Ray assists throughout game creation; activities are playable on any device and easy to share (*Educaplay, n.d.-a*).

3.2. Step-by-Step Usage Guide (Scenario-Based)

For example, to reinforce the water cycle in science: The teacher provides keywords or content, and Ray auto-generates a quiz and matching game. The teacher customises content, adds diagrams and media. Students play the games via classroom code or shared link, get instant feedback, and their progress is tracked in the dashboard (*Educaplay Quiz Maker, n.d; Educaplay Blog, 2023*).

3.3. Tips and Best Practices

Combine various game formats, use multimedia to deepen understanding, and thoroughly preview activities for clarity and

accessibility before classroom use (*Educaplay Blog, 2025; Educaplay, n.d.-a*).

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Game-based and interactive learning boosts student motivation, supports differentiated instruction, and enhances retention-reinforced by adaptive AI tools like Ray (*Trunojoyo Journal, n.d.*).

4.2. Impact on Teaching and Learning

Research and classroom practice highlight increased participation, better discipline, and improved assessment outcomes for students using Educaplay activities (*Educaplay Blog, 2025*).

4.3. Specific Classroom Applications

Teachers use Educaplay for formative quizzes, revision crosswords, student-created memory games, custom word searches, and embed games in class websites or LMS platforms. Dashboards provide easy tracking and results analysis (*Educaplay, n.d.-a*).

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Free features are ad-supported, and reliable internet is required. Teachers should ensure all content is appropriate and accessible for their groups (*Educaplay, n.d.-a; ChillTeen English Vibes, 2025*).

5.2. Ethical and Equity Considerations

Students access games via codes-no personal data needed-supporting privacy and reducing digital divide risks; constant attention to accessibility benefits all learners (*Educaplay, n.d.-d*).

5.3. Future Outlook and Roadmap

Planned upgrades include expanded AI-powered features, deeper analytics, and broader integration with educational systems (*Educaplay Blog, 2025*).

6. Conclusion

- Educaplay is a valuable tool for teachers because it allows the creation of diverse and interactive educational activities, such as quizzes, crosswords, and flashcards, which increase student engagement and motivation (*Techdeckr, 2025*).

- Its user-friendly platform enables teachers to customise content easily to fit lesson plans and adapt to different student needs without requiring advanced technical skills (Education Journal, 2025). Additionally, Educaplay supports real-time tracking of student progress, helping teachers identify learning gaps and intervene promptly (*ICT Blog, 2024*).
- The gamification features of Educaplay make learning more dynamic and enjoyable, promoting active participation and collaboration among students while being accessible on multiple devices for both classroom and remote learning (*Educaplay.com, 2025*).
- Overall, Educaplay enhances teaching effectiveness by combining fun, interactive activities with pedagogical value, making it a practical and engaging educational resource for modern classrooms.

7. Supplementary Information and References

7.1. Tool Access Details

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ElevenLabs AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

The platform is named **ElevenLabs AI**. Its central function is advanced **Text-to-Speech (TTS) generation and Voice Cloning**. It utilises sophisticated synthesis technology to convert written text into highly realistic, emotionally nuanced, and contextually appropriate spoken audio.



Fig. 1 Logo of ElevenLabs

Crucially, it offers the ability to generate entirely new synthetic voices or clone existing human voices from brief audio samples.

1.2. Brief History and Development

ElevenLabs was founded in 2022 by Piotr Dabkowski and Mati Staniszewski, with a development focus on creating the most human-like synthesised voice technology available. The initial motivation stemmed from recognising the limitations of existing TTS systems, which often sounded robotic or lacked the subtlety required for long-form content like audiobooks and film dubbing. The company's development sought to bypass these limitations by utilising deep neural networks to synthesise not just words, but the emotional cadence and intonation of human speech, making it indispensable for content creators and media producers.

1.3. Target Audience and Scope

The primary constituency includes **media producers, content creators (YouTubers, podcasters), audiobook publishers, video**

game developers, and language service providers requiring high-fidelity, scalable audio production.

- **Scope:** The tool's application spans creating dynamic voiceovers, generating localised audio for global content, producing audiobooks, developing realistic voices for virtual characters, and providing accessible text narration.

2. Characteristics and Features

2.1. Core AI Capabilities

ElevenLabs employs several cutting-edge machine learning capabilities for high-quality audio generation:

- **Generative Speech Synthesis:** It transforms written input into spoken audio, ensuring natural rhythm, pacing, and appropriate breathing sounds. The model allows control over stability, clarity, and style transfer.
- **Emotional Nuance Generation:** Unlike basic TTS systems, it can interpret punctuation and context to apply appropriate emotional tones (e.g., cheerful, serious, whispering), ensuring the synthesised voice matches the required narrative mood.
- **Voice Cloning and Design:** It provides two primary methods: **Instant Voice Cloning** (creating a synthetic voice from a short sample, often minutes long) and **Professional Voice Cloning** (requiring extensive studio-quality data for production use). It also offers **Voice Design** for creating entirely unique synthetic personas from scratch.

2.2. Key Features and User Interface (UI)

Feature	Description	UI Location
Speech Synthesis	Core interface for converting text to audio using a chosen voice and adjustable settings.	Editor/Generation tab.

VoiceLab	A control panel for creating new synthetic voices via cloning or generating unique voices from adjustable parameters (gender, age, accent).	VoiceLab tab.
Projects	A workflow tool designed for creating and editing long-form content, such as entire audiobook chapters, with chapter management and editing tools.	Projects tab.
Voice Settings	Detailed controls to fine-tune the performance of the chosen voice, including Stability (consistency of voice character) and Clarity/Articulation (pronunciation fidelity).	Generation sidebar controls.

Table 1 Features of ElevenLabs

2.3. Differentiating Characteristics

- **Emotional Depth and Realism:** The key differentiator is the exceptional realism and emotional range of the synthesised voices, which often pass the "Turing test" for speech better than competitors, making them suitable for sensitive narrative contexts.
- **Long-Form Content Optimization:** The specialised 'Projects' feature provides a structured environment for handling large scripts, making it uniquely positioned for the professional audiobook and media production industry.
- **Multi-lingual Capability:** The platform supports over 29 languages, allowing for seamless content localisation where the same synthetic voice can speak multiple languages with native-level accents and intonation.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

1. **ElevenLabs Account:** Requires registration (Freemium or Paid Subscription).
2. **Input Text:** Users must prepare the text script in a digital format.
3. **Voice Selection/Creation:** The user must either select a pre-made voice from the library or upload an audio sample to utilise the Voice Cloning feature.

3.2. Step-by-Step Usage Guide

Scenario 1: Generating Accessible Audio for a Historical Text Access Synthesis:

An educator navigates to the Speech Synthesis tab in the dashboard.

Select Voice:

They choose a clear, neutral voice persona suitable for academic narration from the library dropdown.

Input and Adjust:

The educator pastes the required reading — a complex historical document or lecture transcript — into the text field. They set Stability high (for consistent, steady pacing) and Clarity high (for precise articulation, aiding comprehension).

Generate and Download:

Click "Generate." The resulting audio file is downloaded in MP3 format, ready to be shared with students who require literacy accommodations or prefer auditory learning.

Scenario 2: Creating Role-Play Dialogue for a Language Class

Access VoiceLab and Synthesis:

A student or teacher accesses the VoiceLab to select diverse voice personas (e.g., an elderly man, a young woman) or uses the Voice Design feature to create distinct synthetic voices representing dialogue characters.

Input Script:

In the Speech Synthesis interface, they input the conversational script, using the unique voice setting for each segment of dialogue.

Control Emotion:

For specific lines (e.g., "I lost my passport!"), they adjust the Stability setting low and select a distressed emotional style, ensuring the synthesised voice conveys the required dramatic nuance for effective language immersion.

Generate and Review:

The student generates the audio, reviews the resulting conversation for flow and accent accuracy, and uses the track for listening practice or as the audio component of a recorded presentation.

3.3. Tips and Best Practices

- **Script Formatting:** Use clear punctuation (commas, periods) to guide the TTS model's pausing and intonation. For emphasis, consider using capitalisation or *asterisks* (if the model supports style transfer).

- **Control Sliders:** Experiment with the **Stability** and **Clarity** sliders. A higher Stability setting yields a more monotonous but consistent voice; a lower setting introduces more dramatic emotional variation.
- **Ethical Usage:** Only clone voices for which you have explicit, verifiable consent. Ensure all synthetic audio is clearly labelled as such when distributed to maintain transparency.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

The pedagogical rationale centres on **accessibility and engagement through audio content creation**. The tool significantly lowers the barrier for students and educators to produce high-quality narrated materials, offering an immediate solution for content localisation, providing audio accommodations for diverse learners, and enabling students to experiment with storytelling and presentation without performance anxiety.

4.2. Impact on Teaching and Learning

- **For Teachers:** Facilitates the rapid conversion of reading materials, lecture notes, or quizzes into audio format, supporting students with reading disabilities or visual impairments. It also enables teachers to create consistent, high-quality narrated resources in multiple languages.
- **For Students:** Provides an accessible way to consume class materials and can be used to generate audio for school projects, enhancing presentations or creating dramatic readings without needing a professional recording studio.

4.3. Specific Classroom Applications

- **Language Learning (Localisation):** Teachers can create exercises where text is generated in a target language (e.g., French) using a native-sounding synthetic voice for listening practice.
- **Literacy Support:** Complex texts or required readings can be converted into audiobooks, serving as a powerful accommodation for struggling readers.
- **Creative Writing:** Students can bring character dialogue to life by using different synthetic voices for various fictional characters in a narrated short story project.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Cost and Scalability:** High-volume, professional-grade output (e.g., thousands of words per month) often necessitates a costly subscription tier.
- **Data Security in Cloning:** The process of uploading voice samples introduces data security considerations, requiring trust in the platform's handling of biometric vocal data.
- **Overcoming the Uncanny Valley:** While highly advanced, the technology can still occasionally introduce unnatural intonations or emotional inflections in complex, highly contextual texts, requiring careful manual editing.

5.2. Ethical and Equity Considerations

- **Deepfake Concerns:** The realism of the voice cloning technology raises significant ethical concerns regarding the potential for misuse, such as creating fraudulent or misleading audio ("deepfakes"). ElevenLabs combats this with mandatory ownership verification for cloning.
- **Voice Rights:** Establishing clear protocols regarding the intellectual property rights and use licenses for cloned voices is essential to protect individuals' vocal identities.
- **Accessibility Equity:** By offering high-quality TTS, the tool significantly enhances equity for users requiring audio access to digital information, mitigating traditional barriers.

5.3. Future Outlook and Roadmap

The future development focuses on enhancing the realism and control of the generated speech:

- **Hyper-Realistic Voice Models:** Achieving even higher fidelity, eliminating all traces of synthetic artifacts, and capturing non-speech vocalisations (e.g., sighs, laughs) more accurately.
- **Real-time Voice Conversion:** Allowing users to convert their voice to a target synthetic voice in real-time during live communication.
- **API Expansion:** Broadening integration capabilities for large-scale enterprise deployments in customer service and media localisation.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://elevenlabs.io/>
- **Pricing/License Model: Freemium Model.** Offers a free tier with limited character count and a basic voice library. Paid subscription tiers (Starter, Creator, Pro, Enterprise) unlock Voice Cloning, higher character quotas, and access to the "Projects" long-form editor.

6.2. Further Reading and Documentation

- ElevenLabs Help Center articles on Voice Design and cloning ethics.
- API Documentation for integrating TTS into custom applications.
- Tutorials on using the 'Projects' editor for long-form content.

6.3. References

- ElevenLabs corporate press releases and technology announcements.
- Academic and industry reports on the state of deep neural network voice synthesis.
- User testimonials and case studies from major media and publishing houses.

ElicitAI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Elicit is an AI-powered research assistant that retrieves, summarises, and synthesises academic literature using semantic search. It helps users find relevant research by analysing the meaning of their query, not just keywords. The tool organises extracted data into structured formats such as summaries and tables, making complex research easier to understand and compare.



Fig. 1. Elicit Logo

1.2. Brief History and Development

Elicit was created by Ought to solve the growing challenge of navigating large volumes of academic research. Traditional search engines rely on keywords and require extensive manual reading, which slows down literature reviews. Elicit integrates semantic search and AI summarisation to speed up analysis, making evidence-based research more accessible to students, teachers, and professionals.

1.3. Target Audience and Scope

Elicit supports students by simplifying complex academic content and helping them prepare research-based assignments. Researchers use it to quickly extract methods, sample sizes, and findings from multiple studies. Teachers benefit from Elicit's ability to generate clear explanations and examples for classroom use. Professionals rely on its evidence of summaries for decision-making in fields like health, education, and policy.

2. Characteristics and Features

2.1. Core AI Capabilities

Elicit's semantic search allows it to understand the intent of a research question and retrieve relevant studies even when keywords differ. Its summarisation feature condenses dense academic abstracts into simple, readable explanations. The data extraction ability pulls out key details such as methodology and results, presenting them in clear tables. Together, these features help users compare evidence efficiently and build informed perspectives.

2.2. Key Features and User Interface



Fig. 2. Elicit AI main page

Elicit's search interface provides an intuitive space where users can type research questions and instantly receive a list of relevant papers. Each paper includes the title, author information, year of publication, and a concise AI-generated summary. This reduces the need to read long abstracts or entire papers during the early stages of exploration. The summarisation mode presents key insights from individual papers, making it easier for students and teachers to understand dense academic content. The data extraction mode helps organise methodological or statistical details from multiple articles into comparable tables, which is especially useful for systematic reviews. For users who want structured outputs, Elicit offers synthesis tools that map findings or present organised analysis. Export options allow users to copy tables, summaries, and lists into their assignments, research papers, or lesson plans.

2.3. Differentiating Characteristics

Elicit stands out because its results are grounded in real academic sources, reducing the risk of fabricated information. Its semantic reasoning helps discover studies that may not appear in traditional searches. By combining summaries, extraction, and synthesis, it supports the entire research process. This makes it a reliable tool for academic work compared to regular AI chatbots.

3. Practical Implementation and Usage

3.1. Pre-requisites and Setup

Using Elicit only requires a device with internet access and a browser, as it operates entirely online. Creating an account provides full access to its research tools without installation. Its simple interface allows users to begin searching and summarising research immediately, even with minimal technical skills.

3.2. Step-by-Step Usage Guide (Scenario-Based)



Fig 3. Summary by Elicit AI

Example: Conducting a Literature Review

1. **Enter a Research Question-** Example: "How does early childhood nutrition affect cognitive development?"
2. **Semantic Retrieval-** Elicit scans millions of papers and displays: Titles, Authors, Year, Abstract and AI-generated summary.
3. **Extract Key Data-** Switch to Data Extraction to view: Population ages, Sample sizes, Study methods and Results.

4. **Organise Findings** - Use the comparison table to identify: Trends, Agreements, Contradictions and Research gaps
5. **Export**- Download or copy the table for your report or assignment.

3.3. Tips and Best Practices

Clear and specific research questions lead to more accurate retrieval of studies. Exploring multiple Elicit features—such as summaries, tables, and synthesis—gives a broader understanding of the topic. Users should still verify key details by reading abstracts to ensure accuracy. Combining Elicit's output with textbooks or peer-reviewed sources strengthens the overall quality of academic work.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Elicit encourages inquiry-based learning by giving students direct access to scientific research in simplified forms. It supports critical thinking by helping learners analyse and compare findings instead of memorising facts. The tool also promotes digital literacy, teaching students how to navigate academic databases responsibly.

4.2. Impact on Teaching and Learning

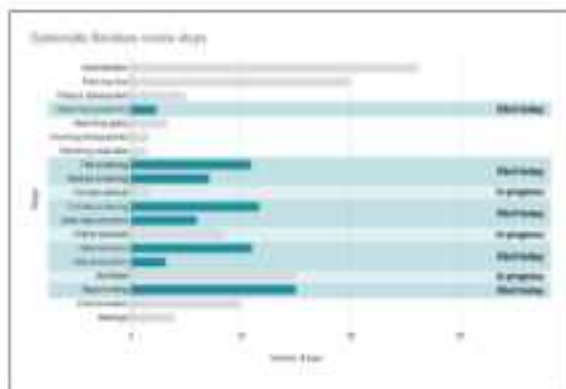


Fig 4 Synthesis Literature Review Note

Using Elicit significantly enhances teaching and learning by providing quick access to accurate, research-based information that teachers can easily incorporate into lesson plans. It helps simplify complex academic studies, allowing students to understand difficult theories in

a clear and student-friendly language. By organising research findings into summaries and tables, Elicit supports differentiated learning and caters to diverse learning styles. Students become more independent as they explore evidence-based sources rather than relying solely on textbooks. Teachers save time during preparation and can focus more on creative instructional strategies. Elicit also encourages critical thinking because learners compare studies, identify patterns, and question evidence. Overall, the tool strengthens research skills, deepens comprehension, and promotes inquiry-driven, meaningful classroom learning.

4.3. Specific Classroom Applications

Elicit can be used in classrooms to simplify complex topics by generating clear summaries that help students grasp difficult concepts quickly. Teachers can use its extracted research tables to compare studies during discussions, making lessons more evidence-based and analytical. Students working on projects or assignments can use Elicit to gather reliable information and support their arguments with research findings. The tool also helps create quick lesson notes, examples, and explanations that teachers can adapt for different learning levels. During group activities, Elicit can provide multiple perspectives on a topic, encouraging collaborative interpretation of evidence. It is also useful for demonstrating how research is structured, which helps students understand methodology. Overall, Elicit supports inquiry-based tasks, project work, and research skill development in everyday classroom practice.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Elicit depends heavily on abstracts and accessible research, so it may miss deeper details found only in full papers. Beginners may find extensive research lists overwhelming without guidance. While Elicit improves efficiency, users must still manually verify extracted data to avoid errors. Some advanced features also require paid access, limiting availability for all learners.

5.2. Ethical and Equity Considerations

There is a risk of academic misuse if students rely solely on AI summaries without understanding the original research. Misinformation can occur if summaries are interpreted without context. Access to reliable internet and paid features may create

inequality among students. Data privacy must also be considered as searches are stored on the platform.

5.3. Future Outlook and Roadmap

Elicit is expected to improve by integrating deeper full-text analysis and enhanced PDF reading abilities. It may introduce stronger citation tools and templates to support academic writing. Future updates may focus on teacher-friendly features such as lesson design aids. Broader multimodal searches, including videos and other resources, could also expand its capabilities.

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(Useful because Elicit uses semantic search + RAG)

OECD. (2024). AI in science: The role of tools such as Elicit in research workflows. OECD Publishing. <https://www.oecd.org>

Perez, S. (2023). Elicit is building a tool to automate scientific literature review. TechCrunch. <https://techcrunch.com/2023/09/25/elicit-is-building-a-tool-to-automate-scientific-literature-review/>

"Citing Elicit, search methodology, and using Elicit's content in your own work" — Elicit Help Center (2025)	Official guidance on how to cite Elicit in academic writing (with example citation). support.elicit.com
"Elicit is building a tool to automate scientific research" — TechCrunch article (2023)	Media coverage of Elicit's goals, background, and approach to automating literature reviews. TechCrunch
"Using artificial intelligence for systematic review: the example of Elicit" — BMC	Peer-reviewed study evaluating Elicit's usefulness & reliability for systematic reviews. SpringerLink

Medical Research Methodology (2025)	
"Elicit — AI Research Assistant for Literature Review & Evidence Extraction" — AI-Find-Tools overview (2025)	Short overview of Elicit's features and scope. AI Finder Tools
"Language models as research assistants today" — Report by OECD (2025)	Broader context: describes how Elicit uses LLMs for research tasks and its place among AI research tools. OECD

Engage

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

This chapter focuses on one of the very advanced AI tools called ENGAGE. The foundation of this tool is Spatial Computing. In simple words, spatial computing blends various aspects of the real and digital worlds and gives people an opportunity to use the digital content as if it is their real/physical space. It is built on the concepts of Augmented Reality, Virtual Reality, Mixed Reality. Thus, it allows users to use and access digital content with real life motions like gestures and commands using eyes and voice.



Fig 1. Logo of Engage AI

The core functionality of ENGAGE is to give an easily accessible space for students and teachers where they can create and learn curriculum content with help of AI and XR technologies. It is one of the leading educational technologies that helps in collaborative learning. This tool aligns well with the philosophy of NEP 2020 that encourages peer and collaborative learning. ENGAGE also makes learning accessible and feasible for students and teachers living in remote areas. One of its main functions is to make learning of any thing, any place and any concept possible at any time. For example, in a regular classroom, it can be difficult to teach school students the biology of a human body visually and give them an all-round view of organs. However, with ENGAGE, it is possible to virtually go inside a human body and understand all the body parts in detail. Another example is learning History. If a student wants to understand the catastrophes like Chernobyl or the Hiroshima-Nagasaki incidents, it might be difficult to physically understand the sites at which they occurred, but with ENGAGE, students can get a similar experience like that of physically visiting the sites, just by using the ENGAGE tool in a classroom or at home. *Watch this video to understand how*

ENGAGE functions and learning happens:
<https://vimeo.com/1091173658?fl=pl&fo=z4>

1.2. Brief History and Development

ENGAGE XR Holdings Plc is the full name of the company who launched ENGAGE a few years before 2020. They are based in Ireland and are listed on the London Stock Exchange. It was previously known as "Immersive VR Education". Engage has evolved from basic VR lessons to a scalable XR ecosystem that supports AI-driven characters, simulations and enterprise classrooms.

1.3. Target Audience and Scope

According to the website, ENGAGE is utilized all over the world by more than 200 Enterprise and Education Clients. The platform's target audience is wide-ranging, ranging from K12 education to specialist education.



Fig 2. Education and Enterprise clients globally

2. Characteristics and Features

2.1. Core AI Capabilities

ENGAGE integrates many AI tools to improve content creation and interaction. Its important features are as follows:

1. Supports generative AI integration
2. Enables AI character creation
3. Allows asset creation
4. Supports creation of AI avatars

2.2. Key Features and User Interface (UI)

- The dashboard is easy to navigate for lessons, assets and classrooms.
- It provides the options of quick access to scenes, environments and editing tools.
- Teachers can control options like mute-all, teleport, spotlight and screen-share.

- Students can control movement, interaction and avatar customisation.
- ENGAGE also offers a scene-creation space with drag-and-drop tools, object placement and scripting option.

The other features are explained in the diagram below:

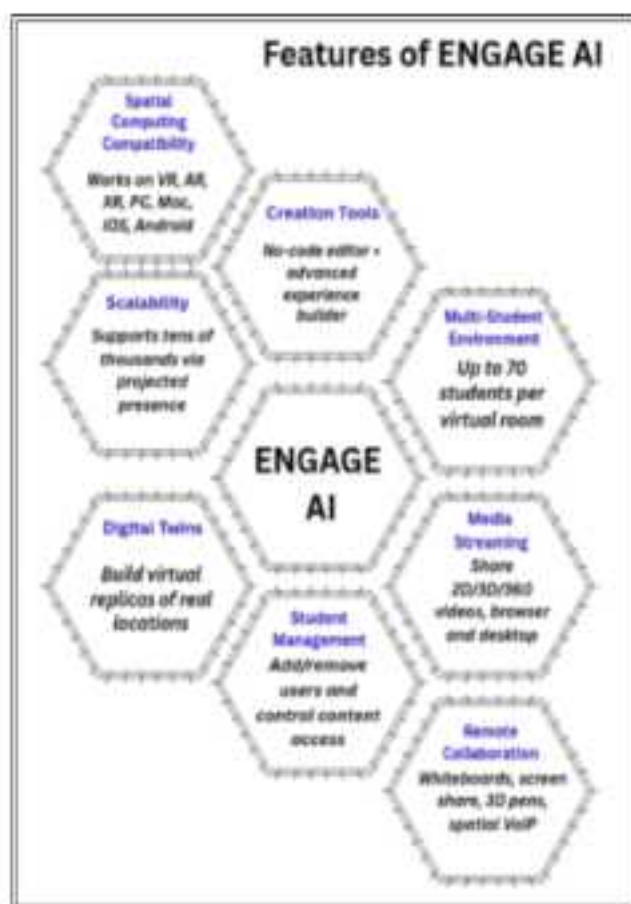


Fig 3. Engage AI features

Teacher Benefits:

- It saves time through ready templates.
- It allows immersive demonstrations of abstract concepts, so it aids the teaching process.
- It makes remote or hybrid teaching engaging and structured.

Student Benefits:

- It enhances retention of learning through 3D interaction with the content and simulations.
- It provides the option of self-paced exploration.
- It helps the students collaborate with each other using shared virtual spaces.

2.3. Differentiating Characteristics

ENGAGE is ISO 27001 security certified and GDPR compliant in Europe. It is equipped with Single Sign-On (SSO), Two-Factor Authentication (2FA) and is Gov Cloud ready. Its feature to completely immerse students and focus their senses helps them create concise yet comprehensive mental maps.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Compatible spatial computing devices (VR/AR/XR) or standard mobile/desktop devices (PC/Mac/iOS/Android).
- An account (Register & log in)
- Organisations can manage user access and content/file permissions independently via the Student Management feature.

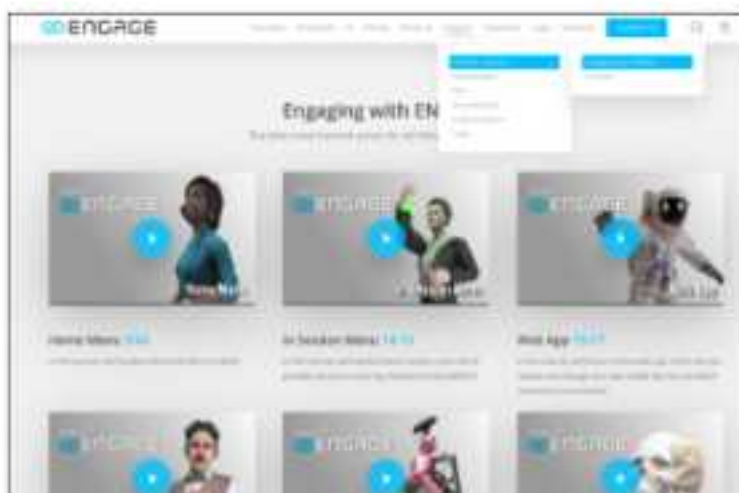


Fig 4. Video tutorials for different features

3.2. Step-by-Step Usage Guide

After making an account and paying the required fee, one can watch the tutorial videos available on the official site: Open the official site →Support tab →Platform tutorials

3.3. Tips and Best Practices

- Teachers should know how to use the tool thoroughly.
- Practice sessions should happen in class so that students can use it at home too.
- Parents should join the practice sessions so that they can guide students at home.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

"I hear and I forget. I see and I remember. I do and I understand." - Confucius. The rationale for using ENGAGE in classrooms is primarily experiential learning. With the help of features like XR and AI, students can get an in-depth understanding of the content they want to learn.

4.2. Impact on Teaching and Learning



Fig 5. Impact on teaching and learning

Virtual reality can improve people's knowledge retention by up to 75%. The official website says that at the University of South Carolina,

the integration of VR was linked to a large reduction in poor grades in introductory biology labs. Specifically, D grades fell between 86.1% and 90%, and F grades decreased between 45.96% and 65.23% across Fall and Spring semesters. A report from the International Society for



Fig. 6 Specific Classroom Simulations

Technology in Education showed that 78% of teachers observed improved student motivation when using augmented learning solutions.

4.3. Specific Classroom Applications

Specific classroom applications of ENGAGE can be demonstrated using pictures. One can explore any place/thing using ENGAGE. For e.g., studying historical places using simulations, understanding how the Titanic sank, having conversations with Shakespeare to understand literature, etc.

Classroom Example of Using ENGAGE: For instance, a history teacher creates a virtual 'Ancient Egypt Exploration Scene'. Students

visit the pyramids, observe the hieroglyphics and listen to a guided avatar explaining cultural artifacts present there. Then, the teacher pauses the scene to have a discussion on the same and asks students to explore different chambers and pyramids. Then, the teacher ends the class with a reflection activity.

ENGAGE and Inclusive Education: ENGAGE supports inclusive education. It offers multilingual captions, adjustable and changeable environments, different sensory modes and accessible navigation. It helps learners with diverse needs. For example, in a Geography class, students with mobility challenges can get a chance to explore and learn about the world in ways that may not always be physically accessible and possible in real life.

5. Challenges, Ethics and Future Directions

5.1. Limitations and Challenges

- It is not cost-effective.
- Requires training to use and teach how to use it.

5.2. Ethical and Equity Considerations

Point 2.3 of this chapter mentions the security measures this tool takes. Point 2.3 also explains the ethics. Other than that, in today's date, as technology and AI bloom, ethical and safety concerns should also be taken care of.

Aspects like privacy, digital divide, consent and safe use should be given importance:

- ENGAGE ensures encrypted data handling and compliance with GDPR(General Data Protection Regulation).
- Schools that use ENGAGE must obtain informed consent from parents before students participate in VR activities.
- Teachers must ensure safe digital practices, especially when very young children use avatars and voice communication.
- The digital divide may limit access for students without high-speed internet or XR hardware, especially in rural areas.

5.3. Future Outlook and Roadmap

ENGAGE is looking forward to leveraging the latest developments in generative AI. According to the website's recent announcements, ENGAGE AI wants to make content more accessible. They are also planning on integrating ChatGPT-5 into their workflow. The official website has blogs that keep users updated on what's new. Check point 6.2 for further reading.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://engagevr.io/>

Pricing/License Model:

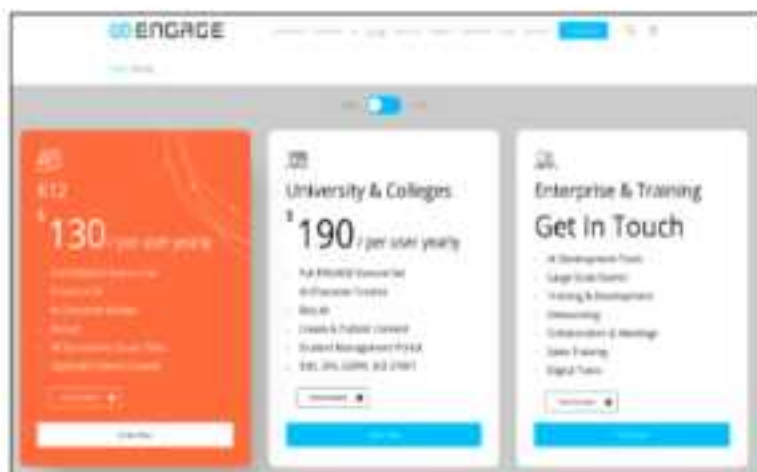


Fig. 7 Pricing plans

ENGAGE provides subscription-based licensing to institutions, with tiered plans for education, enterprises and creators. Their pricing varies depending on the number of users, storage and advanced AI tools. Schools can buy annual packages.

Conclusion:

ENGAGE can be considered a transformative step in immersive education that supports experiential, collaborative and AI-enhanced learning. If teachers mindfully use it in their classroom, it will lead to fun, inclusive and meaningful teaching-learning across disciplines.

6.2. Further Reading and Documentation

- **Multilingual AI in the Character Builder:**
<https://engagevr.io/multilingual-ai-in-the-character-builder/>

- **The Rise of Virtual and Remote Training:**
<https://engagevr.io/company-information/>

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<https://learn.microsoft.com/en-us/entra/identity/enterprise-apps/what-is-single-sign-on>
5. GovFresh. (n.d.). *cloud.gov*.
<https://govfresh.com/research/cloud-gov/>

Excelmatic

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

Excelmatic is an intelligent Excel analysis tool that helps users quickly process and analyse Excel data through natural language interaction. Users only need to ask questions or give commands in simple language and Excelmatic will automatically execute operations and generate results. It supports multiple Excel file formats and can quickly generate visualisation charts, including bar charts, line graphs, and pie charts, helping users understand data intuitively. Excelmatic provides data analysis reports, including key metrics, trend analysis, and data insights, helping users quickly uncover the business value behind the data.



Fig. 1 Logo of Excelmatic

1.2. Brief History and Development:

The AI-powered data analysis tool Excelmatic was initially released on July 9, 2025. Excelmatic is an unfunded company. It operates as a Developer of AI-powered platform for Excel data analysis and visualisation. Excelmatic has not raised any funding yet.

1.3. Target Audience and Scope:

Researchers, Educators, Accounting and Finance professionals, Economists, Business analysts, Marketers, and Managers.

2. Characteristics and Features

2.1. Core AI Capabilities:

- **Multi-Functional:** Whether you need help writing a complex formula, analysing a dataset, building a template, or more - just ask your AI Assistant. Get expert guidance in seconds, right in your spreadsheet.

- **Enhances Efficiency:** AI Spreadsheet Assistant helps you work smarter and faster, so you can get more done in less time.
- **Data Analysis:** Your AI assistant doesn't just answer simple questions - it also analyzes your data, uncovers insights, and suggests the best ways to work with your spreadsheets. Create charts, templates, and more.
- **Tailored to your needs:** This AI Assistant helps you build any spreadsheet from scratch. From formatting to pivot tables, Excelmatic has you covered.
- **Actionable Insights:** It automates data analysis tasks, uncovers trends and anomalies, and generates reports or dashboards without requiring complex formulas or technical skills. This allows users to quickly turn raw data into insights that support better decision-making.

2.3. Differentiating Characteristics:

- **Natural Language Processing (NLP):** Users can interact with their data using plain English questions and commands (e.g., 'Calculate the total purchases for each month') instead of writing complex formulas or code (like VBA).
- **One-Click Automation:** Complex and time-consuming tasks, such as data cleaning, error detection, data structuring, and report generation, can be performed with a single command or click.
- **AI-Driven Insights:** Excelmatic goes beyond basic calculations to provide deep, actionable business insights, trend analysis, anomaly detection, and predictive forecasting.
- **Automated and Smart Visualisations:** The AI automatically suggests and generates professional, dynamic charts (bar, line, pie, etc.) that update in real-time, eliminating the manual design work and trial-and-error needed in traditional Excel.
- **Zero Learning Curve:** The intuitive, conversational interface significantly lowers the barrier to entry for users without professional Excel skills, making advanced data analysis accessible to a broader audience.
- **Versatile Data Handling:** It can handle complex files, multiple sheets, and perform advanced statistical analysis without requiring the user to master specific functions or pivot tables.
- **Image and PDF Conversion:** A unique feature allows users to convert tabular data within images or PDFs into editable Excel files, saving significant manual data entry time.
- **Cloud-Based Operation:** As a web-based platform, it does not require Excel to be installed locally and can be accessed from

any device with an internet connection, facilitating team collaboration without version control issues.



Fig 2 : Excelmatic

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

- **Internet Access:** Excelmatic is a web app and requires internet connectivity to function.
- **A Web Browser:** You access the tool through a web interface, typically at dash.excelmatic.ai.
- **Data Files (Optional):** You can upload your data in supported formats, such as .xlsx or .csv, for analysis. If you want to use the 'Image to Excel' feature, you will need image files (PNG, JPG, JPEG, WebP, etc.) with table data.
- **Payment/Subscription (for full features):** A free plan with limited messages and features is available, but the 'Essential' plan or higher is needed to unlock full capabilities.
- **Natural Language Instructions:** The primary 'prerequisite' is the ability to describe your needs in plain language (e.g., 'Calculate the attendance in Sem I and Sem II,' 'Create a Pie chart of attendance as per the grade').

3.2. Step-by-Step Usage Guide

Scenario: 1 Total GHG Emissions in India by Year

Start by uploading your spreadsheet to the Excelmatic web app at <https://dash.excelmatic.ai>.

Use clear, descriptive commands like 'Calculate Total GHG Emissions in India by Year'

Excelmatic understands context, so specify details like column names or conditions for precision.

Always review the output and iterate if needed by refining your command

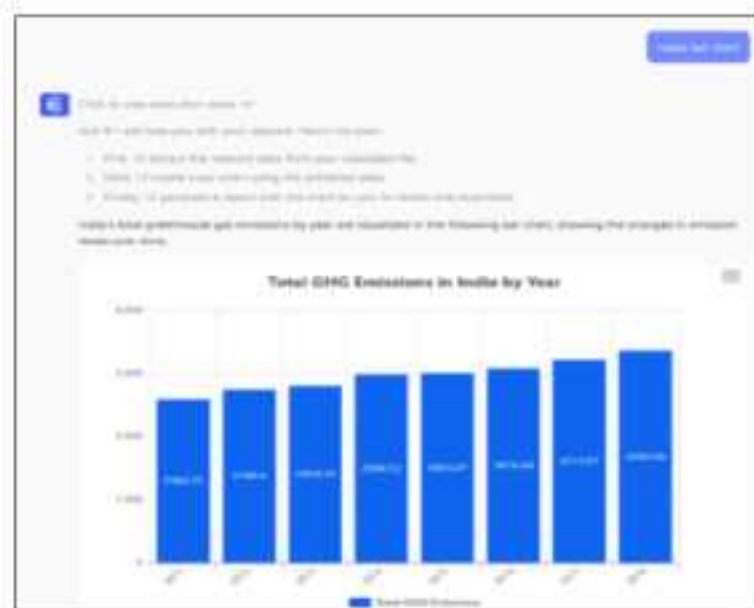


Fig 3. Explanatory

Scenario:2 Construct a Line Chart for India's GDP for the years 2011 to 2018

3.3. Tips and Best Practices:

Be Specific with Prompts: Incomplete instructions like 'Show me revenues' will yield broad results. Instead, use precise commands such as, 'Show monthly revenue by region as a line chart' to get actionable insights.

Ensure Clear Data Headers: This AI tool works best when your spreadsheet has clear, single-row column headers (e.g., 'Revenue' instead of 'Col1'). Avoid merged cells or blank headers.

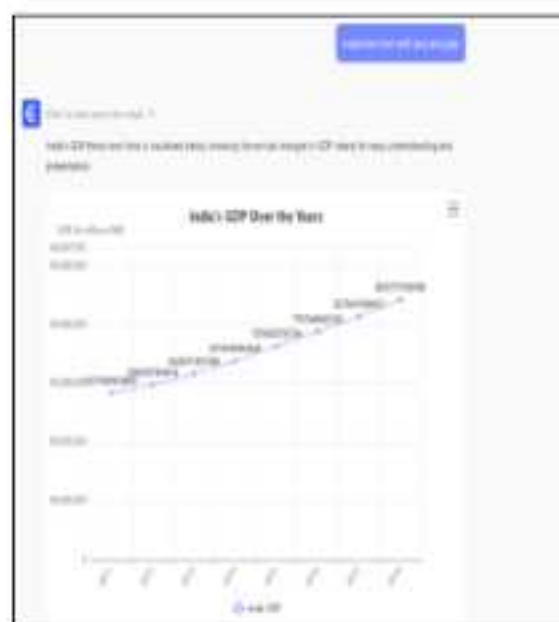


Fig 4. Excelmatic

Iterate and Refine: If the initial output isn't perfect, refine your prompt. You can chain commands, such as asking for a chart and then following up with, 'Add profit margin to the same chart'.

Verify Critical Outputs: While the AI is powerful, always spot-check 3-5 rows or a small data sample to ensure the results are accurate before applying changes to your entire dataset.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

- Excelmatic's primary rationale is to allow users to perform complex data analysis using plain, natural language questions, rather than requiring mastery of formulas or programming languages. This shifts the pedagogical focus from memorising syntax to understanding data interpretation and critical thinking.
- This tool makes data analysis accessible to a wider range of users - regardless of their prior mathematical or technical background.

- The tool instantly delivers charts, summaries, and conclusions based on natural language input, allowing for immediate feedback and exploration of data trends and relationships.
- It automates time-consuming tasks like data cleaning, merging spreadsheets, and generating visualisations, which maximizes the time users can spend on higher-order thinking skills such as evaluation and synthesis of information.
- Students learn valuable lifelong skills in organising data logically, analysing information critically, and presenting insights professionally, which are highly sought after in professional environments.
- The efficiency of Excelmatic supports project-based learning by allowing students to manage data for research projects, track progress, and organise information collaboratively.

4.2. Impact on Teaching and Learning:

Impact on Teaching

- Teachers can use Excelmatic to quickly analyse student records, track attendance, and summarise feedback ratings without needing to manually use complex formulas or pivot tables. This significantly reduces the time spent on administrative tasks.
- By instantly generating tables, charts, and summaries from student data, Excelmatic helps teachers identify trends and patterns, allowing them to adjust lesson plans or provide meaningful interventions based on real evidence.
- With less time spent on data processing and analysis, teachers can focus more on content creation, instructional planning, and developing engaging, high-impact resources.
- The tool aids in streamlining the assessment process, ensuring data accuracy in high-stakes contexts like grade reports and allowing for more efficient monitoring of student progress.

Impact on Learning

- By streamlining administrative work, the tool allows teachers to foster more dynamic and interactive learning experiences in the classroom.
- The time saved can be reallocated to problem-based learning where students are presented with real-world scenarios that require critical thinking.
- Studies have shown that interactive activities, made possible by integrating tools like Excel (and by extension, Excelmatic), can

enhance student engagement, interaction, and academic performance.

- Integrating technology in a meaningful way helps students develop crucial skills such as data literacy, analytical thinking, and collaboration, which are essential for future careers.

4.3. Specific Classroom Applications

What is the trend of pass percentage in Class X and XII across different districts based on Dataset2.xlsx (*Prompt given to Excelmatic*)

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- Excelmatic only supports common file formats like .xlsx, .xls, and .csv, which may not be sufficient for specialised needs.
- This tool can struggle with requests that are unclear or require human judgment and creativity. Users must provide specific, multi-step instructions for complex workflows.
- Excelmatic does not currently offer an API, which limits its ability to integrate with third-party tools like Power BI or Tableau.
- The tool is limited to use within Excel and Google Sheets environments and does not support other spreadsheet software.
- There are limited customisation options for very specific business needs or highly complex, multi-step financial models.
- The application requires an active internet connection for some functionalities.
- While a free trial is available, advanced features and higher usage limits require a paid subscription.

5.2. Ethical and Equity Considerations

Users must ensure that any sensitive or personally identifiable information (PII) uploaded to the Excelmatic platform is handled securely and in compliance with relevant data protection regulations (e.g., GDPR, HIPAA). Excelmatic states that for most operations the data is processed in the browser and not stored on their servers after the session, but users should always review the official Excelmatic privacy policy for detailed information.

While Excelmatic provides smart explanations and insights, the underlying AI decision-making process for generating specific formulas, charts, or trend analysis may not be entirely transparent to the user. The user needs to apply their own domain knowledge to ensure the narrative is accurate and ethical, as the AI is an assistant, not an autonomous analyst.

Although the tool provides powerful assistance, the human user or the organisation using the output remains accountable for any decisions made based on the AI-generated insights. The ease of use can lead to a false sense of security, so users should not blindly accept all results.

AI tools can only work with the data provided. If the input data is of poor quality, incomplete, or flawed, the AI's "instant insights" will be inaccurate. The user has an ethical obligation to ensure data quality and avoid misinterpreting the results, which could lead to misinformed decisions.

Over-reliance on AI for tasks like formula generation or data cleaning might lead to a dilution of essential data literacy and analytical skills. Users should strive to understand the basic principles behind the AI's operations to ensure responsible oversight.

Using Excelmatic ethically requires human engagement, combining the AI's efficiency with critical thinking, domain expertise, and a commitment to fairness and privacy.

5.3. Future Outlook and Roadmap

The future roadmap for Excelmatic AI focuses on enhancing automation capabilities, improving natural language processing for complex tasks, and deepening cross-platform integration. The overall goal is to transition from a manual spreadsheet tool to an intelligent, decision-support platform for all users.

6. Supplementary Information and References

6.1. Tool Access Details



Fig. 6.1. Excelmatic Screenshot

Official URL: <https://excelmatic.ai/>

6.2. References

<https://excelmatic.ai/>

www.google.com

www.linkedin.com

www.youtube.com

<https://excelmatic.ai/help/getting-started/>

Explainpaper.com

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Explainpaper.com is an AI-powered platform that breaks down challenging research papers into easily understood language in order to make complex academic writing simpler. Its primary purpose is to assist researchers, educators, and students in understanding technical jargon by offering clear explanations of uploaded PDFs or specific text.

The tool was created to help students who struggle with reading lengthy academic papers, particularly in disciplines like science, technology, and social science. An approachable way to make research more inclusive and intelligible for a larger academic audience is Explainpaper.com. College students, educators, early-career researchers, and lifelong learners in need of rapid comprehension assistance are among its target users.



Fig 1 . Logo of Explainpaper

2. Characteristics and Features

2.1 Core AI Capabilities

Explainpaper.com uses advanced natural language processing (NLP) to interpret complex academic text, identify difficult concepts, and generate clear explanations. Its AI model is able to identify terminology, comprehend context, and rewrite content in a way that is easier for students to understand while maintaining the original meaning. Additionally, the system automatically highlights challenging passages and offers contextual explanations.

2.2 Key Features and User Interface (UI)

The platform offers a simple and clean interface where users can upload research papers in PDF format or paste specific text for clarification. Once uploaded, the tool highlights challenging portions

and provides instant explanations. It includes a drag-and-drop upload option, a text-selection feature, and a sidebar where simplified explanations appear. The UI is minimalistic, making navigation easy even for first-time users.

2.3 Differentiating Characteristics

Explainpaper.com is unique in that it prioritizes academic clarity over broad summaries. In contrast to conventional summarizers, it makes text readable while maintaining detail by simplifying it line by line. It provides direct explanations of challenging passages rather than generalizing the content. Supporting deep learning as opposed to superficial summarization is its special strength.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

The tool requires no installation. Users only need an internet connection and a research paper in PDF format or digital text. Creating an account is optional, though logging in allows saving previous work.

3.2 Step-by-step Usage Guide

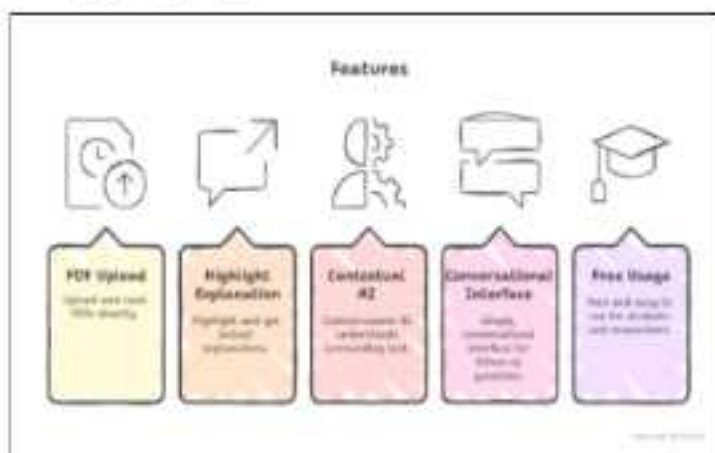


Fig 2 . Features of explainpaper.com.ai

3.3 Tips and Best Practices

Using high-quality PDFs with selectable text instead of scanned images is crucial for getting the best results from Explainpaper.com, because the AI can read and interpret digital text more accurately. The tool can produce more focused and accurate explanations for lengthy

research papers without being overloaded if the document is divided into smaller sections, such as abstract, introduction, methodology, results, and discussion. To ensure accuracy and prevent any misinterpretations, users should always double-check important points, data, and interpretations against the original paper after the AI has provided simplified explanations. This approach improves the user's comprehension of the subject matter while also upholding academic integrity.



Fig 3 . Dashboard for research paper

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Explainpaper.com encourages inclusive education by making difficult academic language easier for all learners to understand. It offers simple explanations that support students who face challenges with research-based reading. This helps them improve comprehension and slowly become more confident in studying research articles on their own. In this way, students develop independence and feel more comfortable engaging with advanced academic content.

4.2 Impact on Teaching and Learning

Explainpaper.com helps teachers manage their workload more effectively by turning difficult academic writings into simple and understandable study notes in a short time. This quick conversion allows educators to spend their energy on creative teaching methods, classroom discussions, and student guidance rather than rewriting complex content themselves. It also supports inclusive teaching, as

students with different learning speeds can understand the content without struggle.

From the students' perspective, learning becomes less stressful when tough concepts are explained in clear and easy language. They feel more confident while reading research-based content and are willing to participate more in classroom tasks. When anxiety about difficult vocabulary decreases, students become more focused on understanding the concepts deeply. This leads to improved learning outcomes, better involvement in academic activities, and gradual improvement in both reading and writing skills.

4.3 Specific Classroom Applications

The use of Explainpaper.com helps teachers work more efficiently by transforming highly complex academic material into simplified learning resources in just a few minutes. Instead of spending long hours rewriting research content, educators can quickly prepare clear notes, summaries, and explanations that support student learning. This allows them to devote more time to engaging classroom strategies such as discussions, activities, and personalized support.



Fig 4. Researched papers

For students, the tool creates a more positive learning experience. When difficult readings become easier to understand, learners feel more motivated and less fearful of academic texts filled with technical language. As comprehension improves, students actively participate in lessons, ask more questions, and build a stronger foundation of

concepts. This ultimately leads to better academic performance, enhanced confidence in reading challenging material, and gradual improvement in their overall academic writing skills.

Example Scenarios

Scenario 1: A student struggling with scientific terminology uploads a biology research paper and receives simplified explanations for complex methods.

Scenario 2: A teacher preparing lesson notes uses the tool to break down dense theoretical concepts for classroom presentation.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Explainpaper.com has a few limitations and challenges. Sometimes the simplified explanation may miss important details or slightly change the meaning of the original content, so users must verify accuracy. The tool works best with clean, text-based PDFs, which means scanned or low-quality documents may not be processed properly. It may struggle with highly technical subjects, data interpretation, or figures such as tables and graphs. Additionally, students might become too dependent on simplifications instead of building their own critical reading skills. Internet access is also required, which can be a barrier in areas with limited connectivity.

5.2 Ethical and Equity Considerations

Users must avoid over-reliance on AI-generated interpretations.

Academic integrity requires students to understand original texts, not replace them entirely. Ensuring equitable access to such tools is also vital.

5.3 Future Outlook and Roadmap

Benefits

Benefit	Description
 Save Time	Expedits content analysis.
 Improves Understanding	Translates dense text into simple language.
 Boosts Productivity	Helps users finish assignments faster.
 Encourages Accessibility	Makes learning easier for all users.
 Encourages Self-Learning	Allows independent exploration of content.
 Lowers Reading Stress	Breaks down difficult texts.
 Builds Confidence	Helps learners feel more capable.

Fig. 5. Benefits of Explainpaper.com AI

Explainpaper.com is anticipated to improve its ability to interpret intricate research components like tables, graphs, and mathematical formulas in the future. Additionally, it might provide better integration with academic tools like citation managers, deeper context-based explanations, and more robust multilingual support. Features that assist with literature reviews and enable explanation levels to be customized according to learner needs are probably going to be added to the platform. Overall, its roadmap indicates that it will become a more dependable and all-encompassing aid for academic reading and research for both instructors and students.

6. Supplementary Information and References

6.1 Tool Access Details

Official URL: www.explainpaper.com

Pricing/License: Currently available for free basic use; premium features may be introduced in future versions.

6.2 Further Reading and Documentation

Users can explore online blogs, tutorials, and academic writing guides related to AI in education and NLP-based text simplification.

6.3 References

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EXTRAMARKS

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

- **Extramarks Learning App:**

The primary interface for students, offering access to all learning modules, practice questions, and progress tracking on mobile devices.



Fig 1 Logo of Extramarks AI

- **Smart Class Plus/Interactive**

Flat Panels (IFP): Hardware

and software solutions for physical classrooms that feature interactive whiteboards, multi-touch displays, and pre-loaded digital content to facilitate dynamic lessons.

- **Teaching App / Platform:** A dedicated portal for educators to plan lessons, manage classes, assign homework, conduct assessments, and gain insights into student performance.
- **Extra Intelligence (AI Suite):** A set of advanced AI tools including the Teacher Assistant (for lesson/content generation), Student Co-pilot (for doubt solving and hints), Power Questions (for generating unlimited question variations to prevent cheating), and engagement tracking tools (EngageMeter).
- **Career Assessment Program (CAP):** A psychometric testing and counseling service for students in grades 9–12 to help them identify strengths and choose appropriate career paths.
- **Lil One by Extramarks:** A game-based learning app specifically designed for pre-school children (ages 1–5) to develop foundational skills through interactive activities.

1.2. Brief History and Development

- **2007:** Extramarks is founded by *Atul Kulkarni* in Noida, India, as an education technology company.
- **2011:** Reliance Strategic Investments acquires a 38.5% stake in the company. Extramarks wins its first government project in Uttar Pradesh.
- **2012:** The company develops its first vernacular (local language) content.
- **2016:** Extramarks reported being profitable and having over 1,100,000 students.
- **2017:** The company launches test preparation and coaching centers for exams like JEE and NEET.
- **2018:** Extramarks launches its retail learning app, which surpasses 6 million downloads.
- **2022:** The company redesigns its logo. Extramarks has partnered with more than 15,000 government and private schools.
- **Present:** Extramarks continues to develop AI-based solutions and operates in several countries, including India, Singapore, Indonesia, and Ghana.

2. Characteristics and Features

2.1. Core Functions

- **Learning & Content Delivery:** Extramarks provides curriculum-aligned digital resources, including 2D and 3D animated video lessons, simulations, and e-books, to make complex concepts engaging and easy to understand.
- **Personalized Learning:** The platform uses adaptive learning technology and AI to create customized learning paths based on individual student needs, progress, and learning pace, suggesting relevant resources and practice materials.
- **Practice & Assessment:** It offers a vast question bank and an Assessment Centre that allows for the creation of tests (both online and scannable offline), automated grading, and detailed performance analytics (including Bloom's Taxonomy-based reports).
- **Doubt Resolution:** Students have access to instant doubt-solving assistance, including an AI "Co-pilot" (chatbot) that provides step-by-step hints and concept-based support for questions, along with scheduled live classes for real-time

interaction.

- **Classroom & School Management:** The system streamlines administrative tasks such as attendance tracking (using facial recognition), timetable generation, parent communication, and record maintenance, freeing up teacher time for instruction.
- **Parent-Teacher Collaboration:** Dedicated apps and portals facilitate seamless communication and progress tracking for parents, who can monitor their child's grades, attendance, and overall growth.

3. Practical Implementation and Usage

3.1. For Teachers & Students

Extramarks empowers teachers with tools to streamline administrative tasks and deliver personalized instruction.

- **Smart Class Plus:** In the classroom, teachers use the interactive whiteboard and pre-made lesson plans from the Smart Class Plus solution to deliver engaging, media-rich lessons.
- **AI-Assisted Lesson Planning:** The "Extra Intelligence" suite includes tools like the Lesson Planner and Activity Generator to instantly create customized, curriculum-aligned lesson decks and collaborative activities, saving significant preparation time.
- **Efficient Assessment and Feedback:** Teachers can easily create, administer, and automatically grade tests using the Assessment Centre's extensive question bank. Performance analytics provide data-driven insights into student progress, allowing for timely intervention and targeted support.
- **Parent Collaboration:** The platform facilitates regular communication with parents regarding student progress, attendance, and assignments, fostering a strong home-school partnership. Students use the Extramarks Learning App for self-paced study and concept mastery.
- **Visual Learning Journeys:** Students learn complex concepts through engaging 2D and 3D animations and graphics that make textbook material interesting and easy to understand and retain.
- **Self-Study & Practice:** The platform offers a vast repository of curriculum-aligned resources, including digital textbooks, unlimited practice questions, chapter-wise worksheets, and previous years' papers for various boards (CBSE, ICSE, state boards) and competitive exams (JEE, NEET).
- **Adaptive Testing:** Students can take adaptive tests with

progressive difficulty levels. AI-backed performance reports and analytics help them identify their strengths and weaknesses, enabling focused preparation.

- **24x7 Doubt Resolution:** The "Student Co-Pilot" feature offers an AI-powered chatbot and video-assisted solutions for instant doubt clearing, reducing dependency on tutors, and promoting independent learning.

4. Educational Implications and Applications

4.1. For Schools and Teachers

- **Interactive Classrooms:** The Smart Class Plus platform provides interactive and game-based content, interactive whiteboards, and ready-to-use lesson materials, which can be used in conjunction with online and offline assessments.
- **Personalized Learning:** Extramarks helps create custom batches and mentorship for students based on their learning levels.
- **Performance Analytics:** Teachers can track student performance through dashboards and reports, identifying areas where students need extra support.
- **Smart Assessment Tools:** The Assessment Centre allows teachers to create and manage both online and offline assessments, with options for instant or manual grading to provide targeted feedback.
- **Teacher Support:** The TeachingApp allows individual teachers to create and conduct classes online, while training courses are offered to help educators effectively use the digital tools.
- **Content Alignment:** The platform offers a comprehensive content plan that is regularly updated to align with curriculum and policy changes, such as those in the National Education Policy (NEP) 2020.

4.2. For students

- **Mobile Learning:** The Learning App provides students with a mobile platform to access materials, complete assignments, and continue learning outside the classroom.
- **Engaging Content:** Extramarks uses interactive and gamified content to keep students interested and involved in their learning.
- **Conceptual Understanding:** Features like "Power Questions" help students understand concepts thoroughly rather than just memorizing answers, while also enabling personalized testing.

- **Flexible Access:** Students can access learning materials and complete assessments both at home and at school, depending on the school's implementation.

4.3. For parents

- **Parent App:** Custom apps for parents provide a way to stay informed about their child's progress and participate in their educational journey.
- **Progress Tracking:** Parents can track their child's progress and performance through the Extramarks Platform.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Extramarks, like the broader EdTech sector, must address several key challenges:

- **Mindset Shift:** Overcoming traditional rote learning practices and encouraging a shift towards critical thinking, holistic development, and hands-on learning.
- **Accessibility and Equity:** Ensuring all students, regardless of location or economic background, have access to necessary devices and fast internet for inclusive learning.
- **Teacher Training and Adoption:** Providing extensive training and support for educators to effectively integrate technology into their teaching methods, rather than it becoming a burden.
- **Infrastructure and Cost:** Managing the substantial initial investment required for software, hardware, and training, which can be a barrier for many institutions.
- **Work Culture (Internal):** Some employee reviews mention a lack of cohesive work culture and poor management, which could impact product development and service quality.

5.2. Ethical and Equity Considerations

Extramarks emphasizes a strong ethical framework, particularly regarding the use of AI in education, built on the following principles:

- **Transparency:** Clearly explaining to students, parents, and teachers how AI tools function and arrive at their conclusions or recommendations.
- **Privacy and Data Security:** Implementing strict policies for the collection, storage, retention, and sharing of sensitive student data to prevent breaches or misuse.
- **Fairness and Inclusivity:** Designing AI systems that are

trained on diverse data to avoid bias and ensuring tools support multiple languages, devices, and students with varying needs.

- **Accountability (Human Oversight):** Maintaining that the ultimate responsibility for educational outcomes remains with educators, allowing them to override AI decisions and provide necessary human context and empathy.
- **Academic Integrity:** Providing clear guidelines on acceptable AI use in assignments and employing features like question randomization to deter cheating.

5.3. Future Outlook and Roadmap

- The future direction for Extramarks is heavily focused on leveraging artificial intelligence to transform the educational experience. Key initiatives include:
- **"Extra Intelligence" Suite:** The global unveiling of a comprehensive, AI-first platform featuring a Teacher Assistant, Lesson Planner, Instant Doubt Solver, and more to make learning personalized and efficient.
- **Personalized Learning:** Utilizing AI to create custom learning journeys based on individual student performance data, strengths, and gap areas.
- **NEP 2020 Alignment:** Continuing to align products with the National Education Policy, focusing on holistic development, critical thinking, and learning experience over rote memorization.
- **Expansion of Digital and Smart Classrooms:** Further integrating technology into physical classrooms and expanding their reach to rural and semi-urban areas through blended learning models and digitally accessible lectures.
- **Innovation in Assessments:** Developing advanced, cheat-proof assessment tools with features like AI-generated "Power Questions" and automated subjective paper evaluation to provide real-time insights to teachers.

Extramarks aims to use technology to empower all stakeholders in the education ecosystem, ensuring no learner is left behind.

6. Supplementary Information and Reference

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All information is derived from Google and Extramarks' official website.

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Fireflies AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

Tool Name: Fireflies.ai
(commonly known as Fireflies AI)

Core Functionality: This is an AI-driven meeting assistant that automatically records, transcribes, summarizes, and analyzes spoken conversations across major video-conferencing platforms (such as Zoom, Google Meet, Microsoft Teams, and Webex). Its primary purpose is to establish a centralized knowledge repository for all academic and administrative discussions.



Fig 1. Logo of Fireflies AI

1.2. Brief History and Development

The development of Fireflies.ai began around 2015-2016, co-founded by Krish Ramineni and Sam Udotong. The initial goal was to address the widespread difficulty of accurately recalling meeting details and retrieving the significant knowledge embedded within spoken conversations. The founders recognized that advancements in AI would soon make it possible to automatically capture, index, and organize this conversational data. This capability was intended to provide users with a "perfect memory" of their discussions, thereby allowing participants to concentrate fully on the dialogue rather than on rote note-taking.

1.3. Target Audience and Scope

The primary users of this tool in an educational context are **educators, administrators, student researchers, and study groups**. Specific roles include Department Heads (for faculty meeting records); Student

Support Services (for documenting advisory sessions), Research Teams (for interview transcription), and Student Groups (for project collaboration). The tool's scope is dedicated to **Conversation Intelligence (CI)**, converting unstructured discussion data into actionable, structured insights.

2. Characteristics and Features

2.1. Core AI Capabilities

- **High-Accuracy Transcription:** The platform provides transcription services both in real-time and post-meeting, featuring speaker separation and supporting over 100 languages.
- **AI Super Summaries:** Immediately after a meeting or lecture concludes, it generates concise, five-part summaries. These include an overview, bullet-point notes, identified action items, keywords, and a meeting outline.
- **AskFred (AI Assistant):** This is a conversational search feature that allows users to query the recording content using natural language (e.g., asking "What was the assignment deadline mentioned?" or "What feedback did the professor give on the thesis?").
- **Conversation Intelligence (CI):** It analyzes metadata, including Speaker Talk-Time (to identify participation levels in seminars), Sentiment Analysis, and Topic Trackers (to identify key themes across a semester).

2.2. Key Features and User Interface (UI)

- **AI Notetaker Bot ("Fred"):** This is the core component that attends sessions. It can be configured to automatically join scheduled calendar events or can be manually invited via its email address, fred@fireflies.ai.
- **Searchable Knowledge Base:** All audio/video recordings and transcripts are stored in a centralized location that is fully searchable. Users have the ability to search by speaker, keyword, or topic.
- **Soundbites:** This feature allows users to easily clip short, shareable audio excerpts from a lecture or meeting for quick reviewing.
- **Channels:** A collaboration feature that allows users to organize and share related recordings (e.g., all lectures for

"History 101" or all meetings for "Thesis Committee") into specific groups.

- **Integrations:** The platform offers extensive connectivity with applications used in education, including Project Management tools (Asana, Trello) and Communication applications (Slack, Microsoft Teams).

2.3. Differentiating Characteristics

- **Extensive AI App Ecosystem:** Fireflies provides tailored AI Apps that can be adapted for educational use cases (such as extracting dates/deadlines or flagging specific questions).
- **Enterprise-Grade Security:** The platform places a strong emphasis on compliance with standards such as SOC 2 Type II, GDPR, and HIPAA-BAA. It also offers features like Private Storage options and Zero Data Retention policies, which are essential for protecting student privacy.
- **Flexibility in Capture:** The tool provides comprehensive coverage for various formats: via the bot for online classes, a Chrome extension for browser-based meets, or a mobile application for recording in-person seminars.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Account Creation:** Users must register on the official Fireflies.ai website.
- **Calendar Integration:** To allow the bot to identify scheduled classes or meetings, Fireflies must be connected to the user's Google or Outlook calendar.
- **Video Conferencing Authorization:** Access must be granted to the conferencing platform (Teams, Zoom, Google Meet) for the bot to join calls.
- **Meeting Rules Configuration:** Users can define settings (such as "Automatically join meetings" or "Exclude internal office hours") to manage when the AI notetaker participates.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario: Documenting a Collaborative Student Group Project

1. **Schedule the Session:** A student group leader schedules a Zoom session to plan their semester capstone project. They ensure the Fireflies bot is invited.

2. **The Bot Records:** Fireflies joins the call (appearing as "Fireflies.ai Notetaker") and silently transcribes the brainstorming session, distinguishing between different student voices.
3. **Review the Super Summary:** Minutes after the call, the group receives a link. The **AI Super Summary** lists the agreed-upon topic, the division of labor, and the timeline.
4. **Extract Specific Details:** One student forgets which part they were assigned. They use **AskFred** to ask, "What task was assigned to Sarah?" and get an immediate answer from the transcript.
5. **Integrate and Apply:** The group uses the integration with **Trello** to automatically push the "Action Items" identified by Fireflies (e.g., "Draft the literature review") onto their project board as tasks.

3.3. Tips and Best Practices

- **Pre-configure Rules:** Use the rules engine to ensure the bot captures lectures and group work but excludes private advising sessions or sensitive faculty discussions unless explicitly invited.
- **Utilize Topic Trackers:** Teachers can set up **Topic Trackers** for terms like "Exam," "Deadline," or "Homework" to help students quickly find administrative details in lecture transcripts.
- **Speak Clearly:** Encourage students and faculty to speak distinctly and reduce cross-talk to ensure the transcript serves as an accurate study guide.
- **Leverage Integrations:** Connect Fireflies to the school's project management tools to turn meeting discussions directly into tracked assignments.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Fireflies support a pedagogical shift by moving the student's primary cognitive effort away from mechanical transcription (note-taking) and toward active listening and synthesis. By providing a reliable record of the lecture or discussion, the tool acts as a cognitive offload and a significant accessibility resource.

4.2. Impact on Teaching and Learning

- **Improved Accessibility:** The tool offers immediate transcripts for students with hearing impairments, auditory processing disorders, or non-native English speakers, ensuring equitable access to course content.
- **Enhanced Review:** Students can review complex parts of a lecture by searching for keywords rather than listening to the entire hour again.
- **Focus on Engagement:** In seminars, students can engage in debate and discussion without the fear of missing key points, knowing the conversation is being documented.
- **Resource Creation:** Recorded lectures and transcripts become a reusable learning object for current and future cohorts.

4.3. Specific Classroom Applications

- **Scenario 1: The Accessible Lecture**
Application: A professor uses Fireflies to record a complex biology lecture. Afterwards, students use the transcript to copy-paste accurate definitions of "Mitosis phases" directly into their study notes.
- **Scenario 2: Faculty Department Meetings**
Application: During a curriculum review meeting, the department chair uses Fireflies. The summary automatically captures the vote counts on new textbook adoptions and the list of faculty members who volunteered for the sub-committee.
- **Scenario 3: Qualitative Research Interviews**
Application: A PhD student uses the mobile app to record interviews for their dissertation. The automated transcription saves them dozens of hours of manual typing, allowing them to move straight to data coding and analysis.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- **Free Tier Constraints:** The free plan limits storage and features, which may be insufficient for a full semester of classes without an institutional license.
- **Contextual Understanding:** The AI may struggle with highly technical academic jargon or distinct dialects unless specific vocabulary is consistent.

- **Audio Quality Dependence:** Large, echoing lecture halls or classrooms with poor acoustics can significantly degrade transcription accuracy.

5.2. Ethical and Equity Considerations:

- **Data Privacy:** Compliance with FERPA (in the US) and GDPR is critical. Fireflies' security measures are robust, but schools must verify they meet institutional standards.
- **Consent to Record:** Ethical usage requires transparently informing all students and staff that AI is recording and transcribing the session.
- **Bias in Analytics:** Sentiment analysis should be used with caution in educational settings to avoid misinterpreting student engagement or tone.

5.3. Future Outlook and Roadmap

The future roadmap focuses on deeper Conversation Intelligence:

- **AI Tutors:** Future iterations could potentially act as active participants, answering student questions in real-time based on the lecture content.
- **Advanced Analytics:** Analyzing student participation trends over a semester to identify those at risk of disengagement.
- **Customization:** Creating custom vocabularies for specific subjects (e.g., Medical or Legal terminology) to improve transcription accuracy in specialized courses.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://fireflies.ai>

Pricing/License Model: Tiered Subscription Model (As of late 2025 - subject to change):

- **Free:** \$0/user/month (Limited storage/features).
- **Pro:** Approx. \$18/user/month (Billed monthly) - Unlimited transcription, AI summaries.
- **Business:** Approx. \$29/user/month (Billed monthly) - Unlimited storage, advanced analytics.
- **Enterprise:** Custom Pricing (Highest security, SSO).

6.2. Further Reading and Documentation:

The official [Fireflies.ai](https://fireflies.ai) website offers a **Help Center** and **Blog** with guides on:

- Integrating with educational platforms like Zoom and Google Meet.
- Using "Channels" to organize class recordings.
- Case studies on using AI for research and productivity.

6.3. References

- Official Fireflies.ai Website and Help Documentation.
- Company Profile and Funding information from business databases.
- EdTech reviews comparing AI meeting assistants.

Formative AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Formative AI is a modern educational technology system that uses artificial intelligence to give teachers and students continuous evaluation, adaptive instructional guidance, and real-time feedback. Unlike traditional assessment systems that simply assess learning at the end of a unit or term, Formative AI focuses on the learning process itself, providing ongoing insights into student development and helping teachers detect learning gaps early. Formative AI's primary features are its capacity to review student answers, provide customized feedback, offer ideas, modify the difficulty of questions, and monitor overall class performance. It helps teachers by lessening the burden of physical assessment while also enhancing the level of student feedback. Different types of questions are supported by the application, such as multiple-choice questions, brief answers, numerical puzzles, and open-ended writing assignments.



Fig 1. Logo of Formative AI

1.2. Brief History and Development

Formative AI evolved during the global shift to digital education, especially in the years 2020–2022 as remote and hybrid learning environments became more common. Teachers had to maintain rigorous education and monitor students' comprehension in the absence of face-to-face interaction. As a result, tools that could automate feedback and offer real-time insights were developed.

Formative AI was influenced by educational psychology studies emphasizing the importance of formative assessment—assessment for learning rather than evaluation of learning. The tool's creators wanted to enable teachers to give timely, useful feedback and motivate students to engage in reflective learning. Over time, the platform has incorporated a number of capabilities, including learning dashboards,

adaptive questioning, predictive analytics, and interface with popular learning management systems (LMS).

1.3. Target Audience and Scope

Formative AI can be used by educators to assess students' comprehension, automate feedback, and adjust education in various learning scenarios. To enhance learning results, students should practice skills, get prompt feedback, and study at their own speed. AI-assisted instruction should be used by colleges and universities to monitor student development and uphold learning standards. Formative AI can be used by training facilities for competency-based



Fig 2. Real time insights of scores

assessment, corporate training, and skill development. Science, math, languages, business education, and professional skill development are just a few of the many topics covered by the application. It is adaptable enough to facilitate both the development of fundamental skills and complex conceptual thinking.

2. Characteristics and Features

2.1. Core AI Capabilities

Several cutting-edge AI mechanisms are integrated by formative AI:

- **Natural Language Processing (NLP):** To produce feedback that resembles that of a human by interpreting open-ended student responses.
- **Pattern Recognition:** To find learning gaps and frequent errors.
- **Adaptive learning algorithms** are used to modify the difficulty of questions in response to student performance.
- **Predictive analytics:** To predict performance in the future and recommend specific learning paths.

Feedback Optimization: To produce short clues and justifications right for the needs of each student.

2.2. Key Features and User Interface (UI)

The platform's UI is clear, simple, and easy to use. A well-structured dashboard allows teachers to design assignments, track student progress, and analyze metrics. Students engage with a straightforward interface that prioritizes instant feedback, step-by-step instructions, and clarity.

Important UI-based characteristics consist of:

- Dashboard for insights at the individual and class levels
- Instant feedback and grading system
- Multiple question formats in an assignment builder
- Panel for error analysis
- Monitoring progress in real time
- LMS interaction with Canvas, Google Classroom, and other platforms
- Reports with exportable data



Fig 3. Building lesson blocks

By presenting information in an aesthetically pleasing and easily accessible way, the user interface (UI) aims to reduce teacher workload and increase student engagement

2.3. Differentiating Characteristics

The distinctive feature of formative AI is its emphasis on ongoing learning as opposed to summative assessment. Compared to most conventional assessment tools, its tailored feedback method is more advanced. Other distinguishing characteristics include of:

- Supports a wide variety of grade levels and disciplines.
- Creates comments based on particular student mistakes
- Gives quick insights into learning
- Meshes well with current educational technology
- Promotes regular practice and revision

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Formative AI requires an internet-connected device and a verified account. By manually adding lists or syncing via an LMS link, teachers construct their classrooms. Students join using a class code. After everything is set up, teachers can choose question forms, activate feedback options, schedule exams, and explore the assignment builder. Even instructors with little computer experience can use it because the setup process is simple and takes only a few minutes.

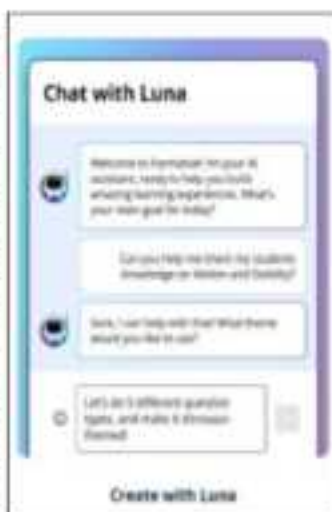


Fig 5. Formative AI assistant "Luna"

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1:

- Open the Formative AI website and log in.
- Choose "Create New Assessment."
- Select the question types: graphs, short responses, multiple-choice questions, etc.
- Turn on automated feedback and hints produced by AI.
- Check the assessment's complexity and clarity by previewing it.
- Distribute the evaluation to the class or specific students.
- Use the analytics page to track students' progress in real time.



Fig 6. Customizing assessments

Scenario 2:

In a different situation, a comprehension passage is given by a language teacher. Formative AI uses NLP to assess the written responses that students submit. The system offers comments when it finds missing components, inaccurate explanations, or poor language. Students' reading analytical abilities and linguistic accuracy both improve as a result of this instant reflection opportunity.

3.3. Tips and Best Practices

By developing tests with conceptual and application-based questions and regularly assessing metrics, educators may maximize Formative AI. Teachers should urge pupils to carefully consider comments and try modifications for understanding rather than emphasizing speed. By regularly utilizing formative AI, educators and students may foster a culture of ongoing learning that is centered on skill development, introspection, and growth.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

The idea of formative assessment, which encourages development during rather than after the process, is closely related to formative AI. According to pedagogical studies, prompt feedback is one of the most powerful components of good instruction since it enhances students' motivation, comprehension, and long-term memory. Formative AI improves the speed, consistency, and specificity of this input, increasing the effectiveness of teaching strategies while preserving student autonomy.

4.2. Impact on Teaching and Learning

Formative AI is strongly associated with the concept of formative assessment, which promotes development during rather than after the process. Prompt feedback improves students' motivation, comprehension, and long-term memory, making it one of the most effective elements of effective education, according to pedagogical studies. By improving the speed, consistency, and specificity of this input, formative AI increases the efficacy of instructional tactics while maintaining student autonomy.



Fig 7. Reviewing the answers

4.3. Specific Classroom Applications

Numerous academic settings can benefit from the application of formative AI. In academic courses, it can be applied to assess conceptual diagrams and reasoning problems. Pupils receive thorough mathematical training that enhances their capacity for problem-solving. While social science educators use it for reflective inquiry and short-answer analysis, language teachers use it to evaluate grammar, vocabulary, and comprehension exercises. Formative AI becomes a universal tool for improving academic achievements because it is adaptable across courses.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

While Formative AI is highly advantageous, it does have limitations. AI-generated feedback may occasionally misread unclear or innovative answers, needing teacher control. Access to gadgets and dependable internet can sometimes be a hurdle, especially in remote or under-resourced schools. The transition to digital assessment may be difficult for some teachers at first, and it takes time for them to get used to AI analytics.

5.2. Ethical and Equity Considerations

Appropriate use of student data is essential. Strict data protection regulations are crucial because Formative AI gathers and keeps private data. Fairness, transparency, and privacy must be guaranteed in schools. Monitoring AI bias is necessary to guarantee that no student group is unintentionally disadvantaged. Equal utilization is also essential; all students, regardless of financial status, should be able to take advantage of the tool.

5.3. Future Outlook and Roadmap

More advanced feedback systems, increased engagement with augmented or virtual reality, improved predictive analytics, and more easily available offline capabilities are all anticipated to be features of Formative AI's future development. Formative AI will continue to change assessment as technology advances, increasing the effectiveness, personalization, and engagement of learning.

6. Supplementary Information and References

6.1. Tool Access Detail

Official URL: <http://www.formative.com/>

Pricing/License Model: Free basic version for schools, with premium institutional plans for greater analytics.

6.2. Further Reading and Documentation

To gain a deeper knowledge of the theoretical foundations of formative AI, educators should investigate research on formative assessment methodologies, AI-enabled learning environments, personalized learning, and adaptive education systems.

6.3. References

Academic & Industry References on AI and Formative Assessment

Articles:

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3. Fuentes-Nieto, T., et al. (2025). Artificial Intelligence and Formative and Shared Assessment in Teacher Education.
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5. Stokkink, P., et al. (2025). The Impact of AI on Educational Assessment.
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GAMMA

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1. Introduction and Tool Overview

1.1. Tool Name and Functionality

Gamma is an AI-powered presentation that creates content, merging the features of slides, documents, and web pages into one flexible format. Unlike other traditional tools, Gamma focuses on automated design, responsive layouts, enabling users to create professional presentations fast and with minimal effort. It makes the creation process smooth and effective for teachers, students, or professionals who want to build a full presentation, document, report, or portfolio.



Fig 1 Logo of Gamma

1.2. Brief History and Development

Gamma was founded in 2020 to help invent a new way for people to share ideas. It was invented by **Jon Noronha, Grant Lee, and James Fox**. Gamma emerged during a period when digital presentations were becoming essential in education, business, and communication, yet existing software was often time-consuming, rigid, and heavily dependent on design skills. The tool was developed to address this gap by offering an intuitive, AI-enhanced experience that simplifies content creation. The platform was conceptualized to solve two major issues users faced that is the difficulty of creating aesthetically pleasing presentations without design knowledge and the slow mechanical process of aligning text, images, and graphics manually. Gamma's creators harnessed advancements in AI, especially natural language processing and design automation, to build a platform that could generate entire presentations from a single prompt. Its growth aligns with the increasing global shift towards digital literacy and efficiency in both educational and professional environments.

1.3. Target Audience and Scope

Due to Gamma's versatility, its audience spans across multiple disciplines. Teachers who want visually appealing, interactive lessons without spending hours, academic researchers preparing conference papers and visual summaries, students making assignments, etc. Because it requires no installation and works entirely online, Gamma is accessible to users across different age groups, technical skills, and professional contexts. Its scope extends from academic use to corporate communication, demonstrating its flexibility and universal appeal.

2. Characteristics and Features

2.1. Core AI Capabilities

- Gamma uses AI to simplify the entire creation process.
- It generates a complete presentation from a short prompt.
- Suggests suitable layouts and visual organization.
- It contains automatic formatting, spacing, and alignment.
- You can switch style.
- It has a responsible design that fits mobile, laptop, computer, or tablet.

2.2. Key Features and User Interface

- Gamma offers a clean, modern, and intuitive interface where users can create, edit, and design effortlessly. Its main features include:
- **AI-Powered Presentation Creation:** When you enter a prompt/topic, it automatically creates a full presentation. It saves time.
- **Smart Layouts:** This feature automatically arranges text, images, and design elements, which makes our slides look neat and professional.
- **Clean & Modern Interface:** It is simple, user friendly that makes creating and editing easy for everyone.
- **Embedded Media Support:** It allows us to add images, videos, or charts and external links directly without any issue.
- **Real-Time Collaboration:** It is very useful for group projects, as many people can work on the same presentation together.

- **Web-Based Access:** It works on any device. Does not require any installation

2.3. Differentiating Characteristics

As platforms like PowerPoint or Google Slides require manual formatting, Gamma intelligently arranges content, selects spacing, aligns elements, and ensures visual designs automatically. It also produces presentations much faster because the AI can turn a simple idea or outline into multiple pages of structured content instantly. Gamma's design style is modern, clean, and consistent, which creates a polished and uniform appearance across the entire presentation. This makes the tool especially suitable for academic and professional settings where time is limited and visual quality matters a lot.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Device Requirement:** A laptop, desktop, or mobile device with internet access is needed because Gamma works entirely online.
- **Internet Connectivity:** A stable internet connection is essential since Gamma uses cloud-based AI features for generating and saving presentations.
- **Account Setup:** Users must visit <https://gamma.app> and create an account using an email ID or Google sign-in. The sign-up process is simple and quick.
- **Browser Requirement:** Gamma works best on updated browsers like Google Chrome, Microsoft Edge, or Safari to ensure smooth design and AI functionality.
- **No Installation Needed:** Gamma does not require downloading or installing software, making it easy to access from any device.

3.2. Step-by-Step Usage Guide

Step 1: Visit the Gamma Website. Log in to your account. The dashboard will show options for creating a new Gamma.

Step 2: Choose your starting method on the homepage, users can choose:

- (i) Start with an AI-generated



Fig 2. Steps to Use and Generate Gamma

presentation

(ii) Use a blank template

(iii) Import an existing PPT for redesign

Step 3: Use AI to create content.

For example, type a prompt such as "Create a presentation on Classroom Management for B.ED students." Gamma will instantly generate an outline and slide structure.

Step 4: Customise the content that is users can edit text, add images, insert videos, rearrange sections, and apply a theme. Gamma automatically adjusts layout and spacing.

Step 5: Choose a Theme or Style. You can select from different professional themes. A single click updates the entire presentation to match the selected style.

Step 6: Add interactive elements. Users can include charts, links, embedded videos, or expandable sections to enhance learning and engagement.

Step 7: Save and Preview. Gamma auto-saves the presentation. The preview mode allows users to check how the Gamma will appear on laptops, mobiles, or tablets.

Step 8: Lastly, Present or Share. You can directly present from Gamma using full-screen mode or share the Gamma through a link. Users may also export it as a PDF or PPT if needed.

3.3 Tips and Best Practices

Using Gamma effectively involves making full use of its AI capabilities while ensuring that the final output reflects the user's intention. If we start with AI, it will be helpful because it produces a quick draft that can be improved and personalised. Adding visuals, charts, and images enhances clarity and engagement, especially for academics. Trying multiple themes helps maintain a professional look suited to the topic. Users should also remember that simple, concise content works best with Gamma's design system. Reviewing and editing AI-generated text is important to ensure accuracy and academic integrity, particularly in educational settings where clarity and correctness are essential.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Gamma supports modern teaching approaches such as learning, digital pedagogy, interactive learning, and constructivist learning environments. Educators and Teachers can create rich lessons that help students grasp difficult concepts. Its clean and minimalistic design improves and maintains students' attention.

4.2. Impact on Teaching and Learning

- Gamma has a strong impact on both teaching and learning by improving efficiency and the quality of presentation materials.
- For teachers, it reduces time and allows them to create professional-looking lessons without extra effort.
- This leads to clearer explanations, better visual support, and improved classroom engagement.
- Students benefit from receiving structured and visually appealing learning materials that support comprehension.
- They also gain skills in using modern tools for academic and professional communication.
- Gamma's adaptability ensures that learners can view presentations comfortably on any device, making it useful in hybrid and remote learning environments.

4.3. Specific Classroom Applications

By using Gamma, teachers can use it to prepare lesson presentations, digital portfolios, concept explanations, skill-based assignments, class newsletters, workshops, and seminar visuals. Students can use Gamma for group projects, research presentations, subject portfolios, and event reports. Across the curriculum, its flexibility makes it a valuable tool.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Gamma's accuracy depends on internet connectivity.
- Some advanced features may require a paid plan.
- Excessive AI use can reduce student originality if it is not monitored.
- It requires users to verify AI-generated information for accuracy.

5.2. Ethical and Equity Considerations

By editing AI-generated content, teachers must ensure academic honesty. Students should be guided to use the tool for assistance, not plagiarism. Schools must work to reduce the digital divide so that all learners have access. AI-based tools should be used responsibly and with transparency.

5.3. Future Outlook and Roadmap

Gamma's future developments may include more subject-specific templates, increased educator-focused features, voice-controlled AI content creation, enhanced analytics for learning insights, and integration with LMS platforms. As AI develops further, Gamma may become a central tool in digital learning ecosystems.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://gamma.app>

- Gamma is available on its official website, where users can log in using an email or a Google account.
- The tool works completely online, so no installation is needed.
- A free version is provided for basic use, while paid plans unlock more themes, AI features, and export options.
- Each sign-up has 400 credits. One can edit and generate as many presentations as they want, but after the credit limit is crossed, they ask for an upgrade.
- It can be accessed on laptops, tablets, or mobile phones, making it easy for teachers and students to use it anywhere.

6.2. Further Reading and Documentation

To learn more about Gamma and AI tools in education, users can refer to EdTech articles, online tutorials, and research papers on digital learning. These resources explain how AI improves presentations, supports teaching, and enhances classroom engagement. Gamma's help centre and educator blogs also offer simple guides and examples that help beginners understand the tool better.

6.3. References

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6

GEMINI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Gemini AI is a powerful system with multiple modes designed to understand and generate text, images, audio, video, and code within one unified platform. Launched in 2023, Gemini marks Google's major step



Fig 1 Logo of Gemini

into advanced generative AI. Gemini is a versatile tool capable of reasoning, analysing, and creating content. Its core functions include text generation, coding assistance, data interpretation, image understanding, translation, and real-time problem solving. Since it is multimodal, it can analyse uploaded files, interpret visuals, and provide detailed insights.

1.2. Brief History and Development

Developed by Google DeepMind, combining Google's extensive AI research and DeepMind's advanced reasoning advancements, its main aim of the development was to create an AI system that could rival or surpass existing models while prioritising safety, usability, and real-world application. The first release, Gemini 1.0, introduced Ultra, Pro, and Nano versions. In 2024, Google released Gemini 1.5, which expanded its context window dramatically, allowing the model to handle extremely long documents, full books, and hours of video. Gemini has become thoroughly integrated into Google Search, Workspace, Chrome, Android, and YouTube, demonstrating Google's goal of AI as an everyday assistant across tasks, professions, and learning environments.

1.3. Target Audience and Scope

- Educators- creation of lesson plans, image generation, assessments, and classroom materials.
- Students- learning support, concept explanation, research help, and creative projects.
- Professionals - journalism, design, data analysis, drafting, and automating workflows.
- Developers – coding and debugging

2. Characteristics and Features

2.1. Core AI Capabilities

Gemini is excellent in natural language processing, advanced reasoning, and multimodal understanding. It can read long texts, summarize them and generate new material, and analyse concepts with high accuracy. It has the ability to work with multiple content types, making it suitable for everything from academic support to creative tasks, research analysis, and technical problem solving.

2.2. Key Features and User Interface



Fig. 2 Features of Gemini

2.3. Differentiating Characteristics

Differentiating Characteristics of Gemini	
Feature	How It Makes Gemini Different
True Multimodality	Processes text, images, audio, video, diagrams, and long documents in one model, unlike many AI tools that rely mainly on text.
Advanced Multimodal Reasoning	Can analyse complex inputs (like graphs, videos, code, and long documents) and generate structured, logical responses.
Large Context Window	Allows uploading long research papers, lesson plans, or entire project files without losing coherence.
Real-Time Updates	Benefits from continuous improvements and updated datasets, giving more current and accurate insights.
Safety & Bias Reduction	Includes built-in safety checks, fact verification, and reduced hallucination compared to traditional models.
Simplifies Complex Concepts	Can break down large or difficult topics into simple, easy-to-understand explanations for learning and teaching.

Fig. 3 Characteristics of Gemini

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Gemini effectively, users only need a Google account and internet access. The tool can be accessed through the Gemini website, mobile app, or integrated Google platforms such as Search or Workspace. No installation is required, making setup quick and straightforward.

3.2. Step-by-Step Usage Guide

Scenario 1: Creating a Lesson Plan

A teacher can begin by opening Gemini and typing a prompt such as: "Create a 40-minute Grade 5 lesson plan on the water cycle." Gemini then produces learning objectives, teaching activities, materials needed, assessments, and possible extension tasks. The teacher can refine the plan by adding constraints or asking for alternative versions. Once finalized, the plan can be exported to Google Docs.

Scenario 2: Analysing an Image for Classroom Use

By uploading a historical photograph, a user can ask Gemini to explain its context, identify key elements, and create discussion questions. This makes visual-based learning more interactive and informative.

3.3. Tips and Best Practices

- Users should phrase prompts clearly and specifically for the best results. Breaking large tasks into smaller parts helps Gemini maintain accuracy.
- When using AI for academic or professional work, it is important to verify information and cross-check sources when necessary.
- Combining text with images or files results in more accurate and context-aware responses.
- Educators should guide students to use Gemini as a learning support tool rather than a shortcut.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Gemini enhances digital literacy and prepares students for AI-enriched workplaces. It aligns with differentiated learning by adjusting explanations to each learner's level. It also supports modern teaching frameworks by helping students build knowledge through interactive exploration.

4.2. Impact on Teaching and Learning

Gemini dramatically decreases teachers' effort by creating lesson materials, worksheets, quizzes, and feedback in minutes. It assists teachers in developing inventive, individual activities for varied classrooms. Gemini may condense issues into child-friendly explanations, thus it accommodates learners with varied academic levels a requirement.

4.3. Specific Classroom Applications

Gemini can make worksheets, explain textbook chapters, construct project themes, produce comprehension questions, and plan debate or group discussion topics. It can also help you visualise complicated concepts by creating diagrams or concept maps. Gemini offers grammar instruction, vocabulary activities, translations, and conversation suggestions in language courses. In coding or STEM classrooms, it generates exercises, solves equations and clearly explains technical concepts.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges



Fig. 4 Limitations

5.2 Ethical and Equity Considerations

Ethical use of Gemini is critical in educational contexts. To avoid plagiarism, misuse, and excessive dependency, schools must encourage appropriate use. Data privacy should always be considered, particularly when dealing with student information. To prevent the digital divide from expanding, it is critical to ensure access for learners from low-income families. Educators should educate AI literacy so that students can discern between AI-generated content and validated academic sources.

5.3 Future Outlook and Roadmap

Google is continuing to extend Gemini's capabilities with the goal of improving multimodal understanding of reasoning accuracy. Future versions are intended to provide longer context windows, more languages, advanced tutoring possibilities, and deeper integration with digital technologies.

6. Supplementary Information and References

6.1 Tool Access Details

Gemini can be easily accessed via the official website or mobile app. Users can choose between the free and paid versions based on their needs.

6.2 Further Reading and Documentation

Additional resources include Google DeepMind research articles, Google Workspace documentation, AI ethics frameworks, and educational case studies on the use of generative AI in classrooms.

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GOBLIN TOOLS

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Goblin Tools is a set of AI-powered micro-applications created to make daily chores easier, particularly for people with executive functioning issues. There are seven interconnected features. Every module has a distinct function, from simplifying complex assignments to modifying the tone of written communication. Goblin Tools is well known for its simple layout, user-friendly features, and capacity to assist neurodivergent users, especially those with autism or ADHD. It emphasizes single-purpose tools that can be utilized right away, instead of confusing users with numerous options or interfaces.



Fig 1 Logo of Goblin Tools

1.2. Brief History and Development

Goblin Tools is created and maintained by **Bram De Buyser**, an AI, software, and data engineer from Belgium. He developed the free tool, which is specifically designed to assist neurodivergent people with tasks related to executive function, to help with organization and communication. The purpose of making this AI tool is to provide a collection of simple tools to help neurodivergent individuals with tasks, like breaking down complex to-do lists, understanding, and managing their communication. Bram is the founder of Arcology, a new AI and data company doing R&D, bespoke engineering, and consultancy. Arcology is currently developing a set of smart tools for teachers, tutors, and educators over at Teacher Tools. Bram never stops building new things. He is available for consulting or custom development.

1.3. Target Audience and Scope

Goblin Tools provides services to several groups:

- Students who require assistance in organizing their assignments

- Professionals in the workforce who wish to estimate time or improve the tone of emails
- Neurodivergent users in need of assistance with executive function
- Teachers creating a detailed lesson plan
- General users in need of quick, easy help with productivity
- It covers a wide range of activities, including home management, professional communication, academic scheduling, and daily personal planning.

2. Characteristics and Features

2.1. Core AI Capabilities

Goblin Tools uses natural language processing and generative AI to:

- Divide up the work into logical steps.
- Change the printed text's tone
- Amount of time required for each task.
- Create logical plans by combining chores or notes.
- Create meals depending on dietary requirements or the ingredients that are available.
- Because of these fundamental features, Goblin Tools is a flexible tool that can be used in both straightforward, and complicated situations.

2.2. Key Features and User Interface (UI)

There are seven primary tools in Goblin Tools:

- Magic To-Do: Uses AI thinking to break down a big assignment into smaller parts
- Formalizer: Modifies writing style and tone (e.g., courteous, aggressive, professional).
- Judge: A handy tool for Complex communication, it can identify the emotional tone of a text.
- Estimator: Estimates how long a task might take to finish.
- Compiler: Integrates several inputs into a single plan or checklist.
- Chef: Develops dishes based on ingredients, dietary restrictions, or tastes.
- Goblin Mode: A fun, vibrant UI option that gives the tool a unique look.

With clear text boxes, color-coded outputs, and few distractions, the interface is incredibly straightforward.

2.3. Differentiating Characteristics

- Goblin Tools stands out due to:
- Neurodivergent accessibility is a major concern.
- A no-data-tracking, no-login strategy
- One tool for one purpose is the micro-tool Logic.
- A browser-friendly, lightweight experience
- Mobile apps that are inexpensive and don't require regular subscriptions

Because of this emphasis, even those who are unfamiliar with AI techniques may easily navigate the platform.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

For online use, Goblin Tools doesn't need to be installed; users can visit the website using any browser. Mobile apps for iOS and Android are available for a small one-time cost.

The setup is nearly immediate because no accounts, passwords, or saved data are required.

3.2. Step-by-Step Usage Guide

Scenario 1: Using Magic To-Do to Break Down a Study Task

- A task like "Finish my Economics project" is entered by the user.
- It is divided into smaller phases by the AI:
- Examine the task instructions.
- Perform preliminary investigation
- Draft outline
- Write sections
- Final proofread
- Each step expands when you click "Power Up."
- The list can be exported into a planner or copied by the user.

Scenario 2: Using the Formalizer to Polish a Business Email

- A rough statement such as "Send me that file soon" is entered by the user.
- The Formalizer offers a variety of tone choices, including casual, forceful, professional, and friendly.
- "Could you please send me the file at your earliest convenience?" would be the output.

- Clarity and professionalism are maintained by the well-written language.

3.3. Tips and Best Practices

- Use Magic To-Do sparingly initially, adding more details only when necessary.
- To prevent accidentally harsh messages, use Judge.
- Use the Compiler to combine several work lists for weekly planning.
- To prevent misjudging workload, combine the Estimator with academic planners.
- Use Chef with grocery lists to plan meals and simplify household chores.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Goblin Tools is consistent with scaffolding ideas and cognitive load theory. By externalizing task structure and assisting students in comprehending sequences, tone, and time constraints, it lessens mental strain. In inclusive classrooms, where children may require different degrees of assistance, this is very helpful.

4.2. Impact on Teaching and Learning

Goblin Tools are capable of:

- Encouraging student independence
- Boosting academic communication's lucidity
- Assisting students in organizing long-term tasks
- Decreasing the anxiety brought on by big tasks
- Helping educators organize multi-step teaching activities
- It is appropriate for all grade levels and disciplines due to its straightforward interface.

4.3. Specific Classroom Applications:

- Dividing research projects into phases
- Using the Formalizer to teach email etiquette
- Organizing the everyday tasks in the classroom
- Assisting students in making accurate study time estimates
- Creating recipes for culinary classes

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Task breakdowns may vary in detail and accuracy
- Time estimation should not be seen as exact
- Risk of dependency for basic task organization
- No advanced integration with productivity apps like Notion or Google Calendar
- Works only with internet access

5.2. Ethical and Equity Considerations

- User text is nevertheless momentarily handled on servers even though no login is necessary.
- The accuracy of tone analysis can be impacted by cultural differences in communication.
- Some people might not have access to reliable smartphones or the internet.
- Strengthening privacy guarantees is necessary.
- Both professional and educational settings require an understanding of these elements.

5.3. Future Outlook and Roadmap:

Possible developments consist of:

- Syncing calendars for automated planning
- Customized AI models for various communication and learning modalities
- Improved estimating algorithms
- For increased accessibility, use offline mode.
- Extended modules with a teaching focus

Goblin Tools may develop as a fundamental support tool for executive

functioning and productivity as adoption rises.



Fig. 2 Tools of Goblin

6. Supplementary Information and References

6.1. Tool Access Detail

Official URL: <https://goblin.tools>

Pricing/License Model

- Free online version
- Mobile apps: one-time fee
- No subscription or storing of personal data

6.2. Further Reading and Documentation

- Articles about productivity and AI
- Studies on neurodiversity and executive functioning
- NLP tone analysis publications
- Public declarations and documentation made by the developer

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Grammarly

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Grammarly is a writing assistance software that reviews spellings, grammar, tone, and style. It checks for possible instances of plagiarism, and suggests tonal and stylistic changes. With its Artificial Intelligence-powered chat, it can generate texts based on prompts. Initially operating in American English, Grammarly currently also includes British English, Canadian English, Australian English, and Indian English. The software aims to help students improve their language skills.



Fig. 1. Grammarly Logo

1.2. Brief History and Development

Released in 2009, Grammarly was founded by Max Lytvyn, Alex Shevchenko, and Dmytro Lider, all based in Ukraine. It was originally a subscription-based service to improve students' spelling and grammar, eventually evolving into a writing assistant that includes tone detection and style recommendations, with a freemium model, allowing free use of Grammarly's basic features, while advanced features are behind a paywall. In 2015, it became available as a browser extension for Firefox, Google, and Safari, and an add-on for Google Docs.

Grammarly launched its AI-driven features in 2023, built on the GPT-3 large language models. The software can now generate prompt-based texts, topic ideas, and outlines, and change the tone and style of a text.

1.3. Target Audience and Scope

Though developed for students, Grammarly can be used by various audiences requiring a writing software, such as teachers, writers, editors, content creators, and corporate workers. With spellings and grammar checkers, it is a useful tool for students to help improve their English skills, while the plagiarism checker allows teachers to verify

the authenticity of their students' work. The AI-based topic generator is especially beneficial to both students and teachers alike for brainstorming and planning.

2. Characteristics and Features

2.1. Core AI Capabilities

Developed by language experts, Grammarly's AI features offer accurate and precise assistance in thinking and writing, both in one place. The software can tailor a piece of writing to various contexts, change its style to match the purpose, and generate texts based on prompts. The citation finder and AI grader aid students to streamline their work, while the reader reaction feature can help teachers prepare thorough lesson plans.

2.2. Key Features



Fig. 2 Tools of Grammarly

Tool Name	Function
AI Chat	Generates ideas and topics, and helps with writing well-crafted content
Proofreader	Checks for spelling errors, grammatical mistakes, clarity, and structure
AI Detector	Checks the text for AI-written content, pointing exactly where edits might be needed
Humanizer	Paraphrases AI-generated text to sound more human and natural
Paraphraser	Adapts the given text to a specific tone and style based on the context provided
Expert Review	Provides subject-matter experts inspired feedback, helping perfect the text
Reader Reactions	Predicts reactions an audience might have to the text and gives tips on how to improve it
Citation Finder	Finds and generates citations as the text is being written
Fact Checker	Checks and verifies factual claims in the text
AI Grader	Grades the given text based on rubrics provided to it, estimating a probable grade and suggesting reviews
Plagiarism Checker	Verifies the originality of the given text, scanning for instances of possible plagiarism

Table 1 Grammarly Functions

2.3. Differentiating Characteristics

As an AI tool, Grammarly is different from other writing assistants due to its numerous features, which were developed by language experts to aid students. Unlike most other writing softwares, Grammarly's features provide accurate language-related suggestions and offer services like Reader Reactions and Expert Review. It is a software that supports both, the planning stage and the writing stage, making it stand out compared to other writing tools.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Grammarly requires an internet-connected device (mobile phone, laptop, desktop, etc.) to function. The user must have a registered Grammarly account. Since it is a web-based software, no installation is needed.

3.2. Step-by-Step Usage Guide

- Scenario A: Using the Reader Reaction feature:
 - a. Log in to Grammarly.
 - b. Click on "New Doc" to open a new document.
 - c. Type or paste your text into the document.
 - d. Click on "Reader Reactions" on the right side toolbar.
 - e. Select your preferred audience.
 - f. Make any necessary changes as per Grammarly's suggestions.
- Scenario B: Using the Citation Generator:
 - a. Log in to Grammarly.
 - b. Click on "New Doc" to open a new document.
 - c. Type or paste your text into the document.
 - d. Click on "Citation Generator" on the right side toolbar.
 - e. Click on the highlighted sections of text to see the source.
 - f. Click on "Insert In-Text Citation" to cite the source.

3.3. Tips and Best Practices

Some useful tips for optimum utilisation of Grammarly are:

- Use multiple tools on the same text to enhance quality.
- Create your own voice and save it for quick paraphrasing to rewrite the text in your style while the meaning remains constant.
- Accept changes and edits only after thoroughly reading them.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Grammarly provides real-time, immediate feedback, which helps students refine their writing. It enhances the learning process through self-correction, resulting in improved language skills over time. It can serve as a learning aid for non-native English speakers by teaching

them the mechanisms of language. The recommendations feature encourages revision of the text, and the user-friendly interface is accessible for all. With the automated proofreading, students can focus more on the content. For teachers, Grammarly's Expert Review and Reader Reactions features can help them create well-rounded lesson plans tailored to the students.

4.2. Impact on Teaching and Learning

With its language improvement tools, Grammarly is an excellent tool for teaching and learning, enhancing students' and teachers' writing skills. Students can take a more active role in the editing process of their works, and teachers can save time on evaluation and grading. The support Grammarly offers can be especially helpful for learners with special needs, simplifying the language and making it easier to learn. The software also enhances students' digital literacy and prepares them for the modern workspace where technology is deeply ingrained.

4.3. Specific Classroom Applications

Grammarly can be used to conduct workshops on common writing errors students often make and promote learning. The paraphrasing suggestions given by Grammarly can be used to teach tone and style to students. The software can also be used as a writing improvement tracker, where students can see their progress over time.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

While one of the most helpful writing softwares, Grammarly has a few limitations that users need to take into consideration. Due to being an Artificial Intelligence-powered tool, Grammarly can make errors, especially in texts that are heavily influenced by context and nuance. Being a general writing tool, Grammarly can struggle to assist in niche genre-specific writings. It is not a substitute for a human editor, only an aid. Some of Grammarly's features, such as Plagiarism Checker, are on a subscription basis.

5.2. Ethical and Equity Considerations

Grammarly collects user data to improve its services, raising privacy concerns. The software, like various other AI tools, might exhibit bias based on the data it was trained on, affecting its suggestions. This could lead to inequitable outcomes for users with diverse writing styles. Another equity consideration is the subscription model, where a few features are behind a paywall. Users from financially

compromised classes may be unable to properly utilise Grammarly. Over-reliance on Grammarly may hinder the user's own writing capabilities. The software only supports five varieties of English, making it inadequate to cater to non-English speakers.

5.3. Future Outlook and Roadmap

Classrooms continue to become more and more integrated with Artificial Intelligence, and tools like Grammarly can become an integral part of classroom learning, especially with its immediate feedback.

6. Supplementary Information and References

6.1. Tool Access Details

- Grammarly Official URL: <https://www.grammarly.com/>



Fig. 3 Grammarly Landing Page

- **Pricing/License Model:**
Grammarly offers a free model, with limited features and 100 prompt-based text generations. The premium model for individuals and small teams is priced monthly (₹2,499/month), quarterly (₹1,633/month), and annually (₹984/month). For large organisations and corporations, Grammarly offers a custom plan service.

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GROK AI

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1. An Overview of Tools for Teachers

1.1 Groks Functionality

Like other AI conversational assistants, Grok is designed to serve as a very sophisticated question-and-answer partner that operates on your computer or phone screen. Developed by xAI,



Fig. 1 Logo of Grok

Grok has an especially close integration with the social media platform X (formerly known as Twitter). Once typed into the application by a user (or teacher), the program will read, interpret, and generate a response through simple and understandable language.

For educators or B.Ed students, Grok may:

1. Explain complex topics using plain language.
2. Provide plans, handouts, and textbooks.
3. Support and encourage essay writing, reflection writing, and teacher notes.
4. Offer basic coding assistance and/or technical support when performing ICT tasks.

As an example in an education setting you may ask Grok "How would I teach fractions?" Grok will respond by providing you with many options for how to facilitate a class on fractions, as well as activity ideas you can try in your classroom.

1.2. History and Development of Grok (when and why)

The Grok project (which has now been released) began late in 2023, during an incredible wave of development with regards to Artificial Intelligence chatbots. The initial goal behind Grok was to develop an AI Assistant that would not only have access to a repository of information, but also utilize the most current and relevant information available to users via Twitter.

Grok was created for the sole reason of building an AI that could analyze, reason about, and give insight into real-life issues while presenting its answers in a humorous, conversational style that is slightly more relaxed than traditional academic sources of information and methods of communication have provided. For instructors, Grok provides an opportunity to connect with students in an informal, engaging manner through the artistry of humorous illustration and a supportive tone.

In providing a lighter form of interaction between instructors/learners and AI's, Grok can provide both excitement and enrichment for students, while providing the instructor with opportunities to guide and structure their experiences through appropriately humorous, supportive, and informative channels while remaining appropriate and respectful.

1.3. Audience by Scope of Application

Users of Grok include individuals who already have an account with Twitter (X) and require assistance with finding information, writing content for multiple purposes (business, school, personal uses), and/or performing analysis of existing text documents. But the market for Grok may be much larger than simply that user group; Grok can be of value to content creators, professionals, students, and teachers, as well as anyone needing text-based assistance with information acquisition to support their decision-making processes.

Grok's scope of application in the educational market is:

To support students enrolled in the Bachelor of Education (B.Ed) with completing assignments, developing lesson plans and producing instructional tools for the classroom;

To assist school teachers in creating notice to parents/guardians, developing assessments for students, and producing resources for student remediation;

To provide support for students from the upper primary level through post-secondary with explanations, summarization of reading materials, and practice tests/assessments for the material they have been studying (when done under the direction of their school teachers).

For example, an intern in the B.Ed program at a public school could quickly create three short paragraphs based upon the selected topic of "Cleanliness and Hygiene" that include content aligned to the Swachh Bharat movement theme. The intern will then adapt the passages based upon the level and language of the students.

2. Grok Character, Features and Functionality

2.1. Key AI competencies:

The central focus of Grok consists of an extensive, trained language model and a multitude of training sets containing large quantities of textual material on many distinct topics. The understanding of text has led to Grok being able to discern linguistic trends and generate intelligent responses to a broad range of user-submitted prompts. Core competencies of Grok include:

Natural Language Understanding: The ability of Grok to interpret non-standard (e.g., slightly ungrammatical) language that users frequently use to communicate via text messages.

Conversational Context Awareness: The comprehensive recall capability of Grok enables it to build responses based on the totality of the conversation to-date and not solely the last response from the user.

Text generation and transformation: Grok is capable of producing written outputs in a variety of formats (i.e., letters, questions, dialogues, short books), and is also capable of modifying existing written outputs to conform to simpler language and/or formal style.

Reasoning and Problem Solving: Recent developments in Grok software enable the model to conduct step-by-step logical reasoning and solution generation in an acceptable manner for many mathematical, logical or scientific question types.

For example, in mathematics methods courses, students often request assistance in answering questions in written format. A student may ask "Please solve the following word problem step-by-step, and demonstrate to me a method for explaining it to a student who is not likely to fully grasp the topic." Grok will generate a process to obtain the answer and then explain the answer in a simple manner, suitable for classroom demonstration.

2.2 Key Features and User Interface (UI):

Grok can typically be accessed via either the X website, or X's mobile app. The user interface resembles that of a standard text messaging (chat) application. Users can enter prompts into the prompt box at the bottom of the page while viewing conversation dialogue as a history of exchanges in the upper portion of the interface.

Important features of the Grok UI include:

Prompt box and suggestion prompts: On the inside of the prompt box, new users find suggestions to help them begin. These might be things like, "Summarize ...", "Explain... like I would to a five-year-old.", etc.

Different Tone/Style Options: Depending on what version of Grok the user is interacting with, he/she can ask Grok to respond in a normal, professional or playful tone/style of voice. If the user is a teacher and wants to ensure that the tone/style of voice is neutral and respectful, they can indicate as much in the prompt.

Buttons for user actions: When Grok returns an answer, users have access to various action buttons which allow them to regenerate an answer, copy an answer, and/or share the answer with others in the form of a post on X. This feature can be particularly useful for teachers who wish to share an explanation or infographic formatting for explanations with their students, and/or with other teachers via an electronic medium.

Example: A [B.Ed](#) student goes to the library at college, opens up Grok's webpage or app interface on their laptop, and enters the following prompt: "Develop a reflective journal entry of three hundred (300) words discussing my first day of teaching practice in a rural environment." Once the student has received the answers from Grok, he/she can use the generated text to create a journal entry and alter certain details in order to accurately reflect his/her lived experience.

2.3. Unique Features of Grok:

Grok's real-time awareness means that Grok has access to the latest conversation threads, hashtags, and news articles that appear in real time because of its connection with X. This feature makes Grok a valuable tool for educators teaching about current events in relation to media literacy and social issues.

Grok was designed to have a witty, bold, and somewhat sarcastic personality. While this type of personality can have a positive impact on student engagement, it is important for educators to remain vigilant to ensure that the material is appropriate for students and the learning environment.

Example: For instance, a B.Ed instructor teaching a course called "Education and Society" could use Grok to create a summary of a live television debate regarding education policy that was trending on X. Students would then evaluate the summary and be asked to determine if the summary appears impartial; if there are voices missing; and what other ways can they confirm the information with other sources. Students will learn about artificial intelligence and develop critical skills to evaluate the media.

3. Implementation and Use

3.1. Requirements and Preparation:

To implement Grok in a school or educational establishment, there are three main requirements.

User Account: Users (teachers or students) must have an X-account that was set up using either a phone number or email, and they must meet the age limit and follow the guidelines outlined in the terms of use for the app.

Access Plan: In many situations, you will find that only subscribers to the paid version of Grok have access to the majority of Grok's features. For instance, a college could elect to purchase institutional-level access, or an individual could obtain access through their own subscription.

Devices and Internet: Users need to have a smartphone, tablet or computer, as well as an adequate, stable internet connection. In situations where resources are scarce, shared computer labs or teacher devices could be utilized at specific times.

A specific example of how to incorporate Grok into a practical "ICT in Education" class might involve a teacher booking a computer lab to demonstrate Grok using projectors while students provide prompts. After the demonstration, small groups of students may create their own prompts and engage in critical discussions around the outputs generated by Grok.

3.2 Usage Guidelines – Example-Based

Example of the Sub-Section: Scenario: A teacher wanting to use Grok as a source of information on current global news for use during a social studies lesson.

The teacher accesses Grok prior to class typing the following command: "Summarise the most important pieces of international news that occurred today. Provide a 150-word general overview of each story aimed at Class 9 students in India".

Grok returns several very brief overviews on some of the biggest stories of the day.

The teacher reads each overview carefully; uses at least one trusted news source to verify the information included; and makes any changes necessary (i.e. wording, a heavier emphasis placed on certain parts of an overview).

While teaching, the teacher uses these brief overviews as introductory material and encourages students to share their ideas; stating that any content produced using AI is a starting point and should not be viewed as the complete or accurate version of the events.

Example of the Sub-Section: Scenario: A B.Ed Student developing an Activity in English as a Second Language.

While preparing for a teaching practicum, A [B.Ed](#) student asks Grok the following question: "Can you create a pair activity for Class 8 ESL students to practice using the past tense based on the topic, 'My Childhood Memories'."

Grok creates an activity involving students working in pairs to interview each other regarding childhood memories, then reporting back to the class.

3.3. Recommendations and Recommendations:

For your prompts, be as specific as possible. It is better to say "Explain photosynthesis" than to say "Explain photosynthesis in 5 simple steps for Class 7 with an example activity using plants found in your area." The more specific you are with your prompt, the better the answers will be for you.

You should view Grok's output as a draft and not the finished product. Always check the facts of the output against what you have learned from the curriculum, and adjust the examples included based on the local context.

Encourage students to think critically about the information that they receive from Grok, and to be academically honest in their use of that information. Students should not simply copy and paste the information that they receive from Grok; they should ask questions about it, understand its meaning, and write about it in their own words.

Grok can be used to accommodate differentiated instruction. For example, you can request Grok to provide an explanation of a concept at a basic level, an intermediate level, and an advanced level so that all students in the same classroom can have material that is suitable for their specific level of learning.

4. Educational Implications/Applications

4.1. Pedagogical Rationale

Grok serves as an always available assistant who can respond to any queries or recommend activities and/or reword/explain anything at any time. When students engage with Grok, they are participating in a form of 'conversational' learning which is consistent with constructivist and inquiry approaches when students ask questions, search for answers, and clarify their ideas.

Furthermore, by having thoughtful use of Grok, B.Ed students have opportunities for application of education theory principles including scaffolding and ZPD. For example, by having Grok provide a complex explanation to a teacher first, then by providing a simple explanation to the teacher, and finally providing accompanied guiding questions for students to transition from their prior knowledge to new knowledge through gradual development. This aligns with the modern understanding of teaching as a facilitator of students' learning with the aid of a variety of tools to aid in individualised learning rather than simply delivering "content".

4.2. The Effect of Grok on Teaching and Learning:

When used appropriately, Grok can ultimately save teachers a lot of time in terms of routine work and tasks, such as creating worksheets, and writing sample questions. Teachers can complete those types of tasks in a matter of minutes as opposed to hours. Therefore, this frees up more time and energy for teachers to focus on observing students, providing them with feedback, and planning engaging and interactive lessons. Even though the teacher's ability to use his or her own judgment is essential, using Grok will enable a teacher to better handle their load.

With Grok, students can receive help and assistance after school hours whenever they are struggling with a concept that they are unable to understand. For example, if a student is struggling with a particular concept, they may ask Grok for a different way to explain it to them, or for an example of how the concept works. However, the impact of Grok on students' ability to learn will only be positive once teachers set specific guidelines and expectations for submitting assignments. For example, teachers can encourage students to explain their answers using their own language or comparison to a textbook, and promote critical thinking skills to minimize reliance on Grok.

4.3 Specific Applications to the Classroom

In an actual chapter, you would probably present screenshots of the Grok chat window showing Grok's response to teacher prompts, but it is also possible for teachers to use Grok in practical ways even without these images. For instance, a Science teacher might enter the prompt "Please create a simple experiment using materials that can be found around the house to show 7th grade students about air pressure." Grok may then generate ideas such as conducting experiments with syringes or balloons that the teacher can use to illustrate this experiment, and then discuss the results during class. A second example would be if a language teacher used Grok with the prompt "Using mainly vocabulary from 5th grade, please write a short story about the theme of honesty and create five comprehension questions." The language teacher may then use what Grok generated by printing or projecting out the story and using the comprehension questions for pair work or written practice. Examples of how Grok responded to

these prompts should be included in the training materials for future teachers to help them see examples of how prompts are phrased and how outputs are modified.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges.

There are several limitations associated with Grok that B.Ed students should be made aware of despite Grok's capabilities as an AI technology. The first limitation is that like every other AI language model, Grok is limited by its capacity for generating responses based on previous data; therefore, Grok will sometimes provide responses to a question that may lead a reader to believe that the information contained within that response is correct, when, in fact, it is not. By not verifying the corrected response with appropriate literature, such as textbooks or reference books or credible websites, an educator may inadvertently provide students with incorrect information regarding some topics.

The second limitation of Grok is that the responses provide scope for bias and subjective interpretation of specific topics due to the fact that they are connected to live social media and thus rely on user-generated content. Due to this aspect of Grok, whenever a sensitive or contentious topic to the educator's geographical location is posed to Grok, the answer cannot be completely trustworthy, as it is based on the opinions of other social media users. Consequently, educators should be cautioned against treating Grok's responses as the definitive answer to the topic in question and should disseminate through multiple sources and solicit thoughtful analysis of each of those sources on behalf of their students.

5.2 Ethical & Equity Concerns in Using Grok

The ethical ways to utilize Grok raise issues around privacy, academic integrity, and fairness for all users. When teachers or students use Grok, some of their inputs will be stored on the Grok servers and could be reviewed by either the teaching staff or the Grok company for various purposes. Thus, it is important that teaching staff do not inadvertently share any personally identifiable information about their

students or any sensitive data held by their schools (e.g., exam questions) when using Grok. Educators should teach their students about responsible online behavior and that there are specific types of information they should never enter into an online tool. Another equity concern is that Grok is only accessible through a subscription model (i.e., people who pay for it) or through a reliable Internet connection. Consequently, students living in low-income or remote rural areas may not have as much access to Grok as students attending well-funded private schools, therefore increasing the disparity between these students and those attending wealthier schools. Additionally, teacher education programs should explore ways to provide students with access to both high-tech and low-tech tools so that students do not have to rely solely on technology that they cannot purchase themselves. Examples of ways to help alleviate inequity would be through group demonstration activities, sharing devices, and establishing access policies at the school level for all students.

5.3. Future Outlook and Adoption

AI tools such as Grok and many others will evolve into powerful tools that will be integrated into Educational Platforms, Learning Management Systems (LMSs), and Digital Textbooks. It is anticipated that as AI technology becomes increasingly accessible to educators, evidence suggests that AI Literacy for new B.Ed Graduates will become as important as Basic Computer Literacy. The use of AI tools will not only require Digital Literacy Skills, but Educators will be expected to develop pedagogical experiences that incorporate these tools into the student learning process. Future adoption of AI tools will be dependent on establishing a framework of standards and regulations by Education Boards, Institutions, and Government Agencies on how and when to use AI within assignments, assessments, and classroom activities. Educators will feel more confident and competent using AI tools within their respective classrooms and will know without a doubt how to leverage these tools effectively within their curriculum and lesson plans. Another avenue for research is for B.Ed and M.Ed Students to study around topics like: "How does the use of Grok as a Homework Tool impact a Student's Conceptual Understanding?" and "What Teachers need to Learn to Integrate AI into the Classroom Ethically?" Both studies'

findings should establish an evidence base to improve practices and support the positive utilization of AI Pressures on Teaching and Learning.

6. Supplementary Information and References

6.1. Tool Access and Pricing

Access to Grok can be obtained from the xAI website, xAI Product Support (Grok) entry within the X platform, or by going to the Grok landing page via the link provided on the landing page of the X platform. A screenshot of the landing page in a chapter would typically provide an example of the Grok logo, a short description of Grok, and the button that users can click to initiate a Grok chat. Teachers may demonstratively project this page when working with students in a classroom setting and guide their students through all relevant information located on the Grok landing page including: how to sign into Grok, how to initiate a chat with Grok, and where to find information related to help or settings in Grok.

Grok is licensed by subscription models such that the access to Grok varies by plan tier. Some of the basic elements in Grok may be included with various levels of membership for X, while advanced features or more significant amounts of usage will generally be permitted with higher-level plans or through agreements with other educational institutions/instructors. For B.Ed classes, the specific pricing for usage is not as significant as the anticipation and planning of schools and colleges for budgeting for official access to Grok. Planning for official use of Grok can also generate discussion as to whether schools and colleges should invest in such technologies, and how to guide the funds used for purchases toward maximum return on investment for teaching and learning (versus purchasing technology just for the benefit of purchasing technology).

6.2. Further Reading and Documentation:

For those who wish to gain more insight into Grok, there are three different categories of additional materials available. One category includes official xAI documents that discuss the basic functions, most

common questions and answers, and acceptable usage of Grok; these documents demonstrate what xAI perceives as the capabilities of Grok. A second category consists of independent technology articles and analytical reviews that discuss both positive and negative aspects of Grok and compare them with other technologies, thus providing readers with enough material to develop an informed opinion about Grok. The third category includes academic articles and educational technology studies that investigate the effects of AI chatbots on student learning, motivation, and assessment.

Teachers can create small-group reading assignments for their B.Ed. students and assign each group to read from one of the three types of resources. Each group's task would be to present the information it gained from its reading assignment, along with both possible benefits and potential drawbacks of Grok. Through this activity, teachers promote students' critical reading skills and discourage reliance on promotional information from xAI.

6.3. References:

Source: Grok <https://share.google/VjBu90znAWtHIAuXv>
Grok (chatbot) - Wikipedia <https://share.google/2YAGtHs99EGGcYR>
AI Humanize: Free Humanize AI Text & AI Humanizer Online <https://share.google/N8qWCP3YVY4BiOgK7>

HiPDF

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1. Introduction and Tool overview

1.1 Tool Name and Core Functionality

HiPDF is an online, cloud-based PDF management tool to simplify all work-related PDFs'. You can convert Word files, compress large files in bulk, combine documents, add a digital signature to the PDF, convert PDF into JPG, use AI feature for summarizing the PDF, can use OCR (Optical Character Recognition) to convert scanned documents into editable documents. It is an easy-to-use tool with an easy-to-use interface and drag-and-drop support.

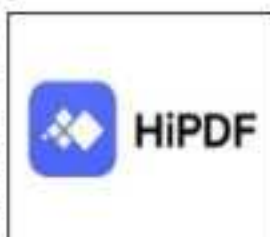


Fig 1 Logo of HiPDF

1.2. History and Development

HiPDF was made by Wondershare Technology, a company that creates easy-to-use software for everyday work. The idea for HiPDF came from Wu Taibing, the founder and CEO of Wondershare. He wanted a tool that lets people work with PDF files online without having to install big or complicated programs. Because of this vision, HiPDF was created as a simple, fast, and user-friendly way to handle PDF documents.

1.3 Target Audience and Scope

HiPDF can be used by a wide range of people

- Students can convert their assignments.
- Teachers can add notes and comments to students' assignments.
- Corporate workers can arrange their data
- Research Scholars can summarize a research paper PDF and ask questions about it.

2. Characteristics and Features

2.1. Core AI Capabilities

HiPDF has a feature of AI, which is smartly used for processing the documents. It has AI tools like Chat with PDF, AI PDF Translator, PDF Proofreader, AI Detector, AI Read, AI Rewriter, AI Explain PDF, and AI Ask PDF. It can organize PDFs by compressing,

2.2. Key Features and User Interface (UI)

The Homepage has clear categories in which we have -

Edit PDF

- Edit PDF - Add text, images, highlights, notes
- Rotate PDF - Rotate any page in PDF
- Crop PDF - Trim and resize PDF
- Replace PDF - Replace text with a new one

Convert to PDF

- Word to PDF - Convert your Word file to PDF
- JPG to PDF - Convert the JPG file to PDF
- Excel to PDF - Convert your Excel Sheets into PDF
- PPT to PDF - Convert your PowerPoint presentation slides to PDF
- PUB to PDF - Convert your PUB files to PDF
- Files to PDF - Convert files into PDF

Convert from PDF

- PDF to Word - Convert PDF to Word
- PDF to JPG - Convert PDF to JPG image
- PDF to Excel - Convert PDF to Excel sheets
- PDF to PPT - Convert PDF to PPT slides
- PDF to HTML - Convert PDF to an HTML file
- PDF to Files - Convert PDF to Files

Organize PDF

- Merge PDF - Combine multiple PDFs into one
- Compress PDF - Reduce the size of PDF
- Split PDF - Split one PDF into many
- Extract images - Extract all images from PDF
- Rearrange PDF - Reorder the pages of the PDF

Protect PDF

- Protect PDF - Encrypt your PDF with a password
- Unlock PDF - Remove the password from PDF
- Redact PDF - Remove sensitive content in a PDF
- Sign PDF - Sign your PDF with E-Signature
- Share Document - Share your PDF via email, link, or QR code

Image Tool

- Compress Image - Reduce the size of the image
- Crop Image - Crop your image free and fast
- Resize Image - Resize the image by any ratio
- Convert from Image - Convert JPG images to other files
- Convert Image - Convert files to images

2.3. Distinguishing Features

Several factors make HiPDF distinct from other PDF-style platforms:

It works completely online, but it has optional desktop software that we can use offline as well.

- They integrated PDFelement for advanced offline tasks.
- To save time, we can do batch processing of the files.
- Files get deleted automatically after using it, which is good for users.
- AI tools are not usually found in PDF Editor apps or tools.

3. Practical Use and Implementation

3.1. Prerequisites and Setup

HiPDF is easy to work with because it just needs a device with a web browser and the internet. It's available on most of the browsers, i.e., Chrome, Edge, Firefox, and Safari. Creating an account is an optional thing, but it makes it work smoothly.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1:

- Convert Word File to PDFOpen HiPDF website.
- Click Word to PDF from the Tool menu.
- Drag the document into the box or manually select it for upload.
- Press Convert, and the system starts processing it immediately.

- Download your complete PDF when you have finished.
- Especially good for students doing homework or teachers standardizing documents.

Scenario 2 :

- Ask AI Questions from a PDF
- Pick the Chat with PDF tool from the AI menu.
- Upload the PDF on which you wish to analyze.
- Ask such a question as **“Summarize the research paper?”** from the PDF file.
- helps students, teachers, and research scholars.
- The AI scans the document and gives a clear, direct answer.

And here are a few more AI Tools which you can use:



material

Fig. 2 Differentiating Characteristics

Handwritten
should be clear

enough to scan to use OCR. To save time, use the batch processing feature, which can convert multiple documents together. Chat with PDF is the key feature of an AI tool, which saves time by summarising data in PDF and also gives answers to precise questions, so we don't have to read the whole PDF.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Teachers can save time by reducing manual tasks and managing and organizing their documents. An AI feature can summarise a PDF for the students who find long documents time-consuming.

4.2. Impact on Teaching and Learning

Teachers can create lesson plans by shortening, merging, and abstracting huge content from papers. Managing documents online can promote environmentally friendly, paperless teaching systems.

4.3. Specific Classroom Applications

Teachers can combine several readings in one PDF, and can turn textbook images into editable documents. Using AI chat tools can summarize complex lessons and research papers.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Though HiPDF is extremely diverse in its capabilities, there remain limitations and a few potential paths forward: Premium features require a paid membership. Online tools depend on a reliable internet connection. The quality of OCR can vary depending on the clarity of the image. It may take longer to upload larger documents to process.

5.2. Ethical and Equity Issues

This tool deletes all the uploaded documents after work, but we need to be cautious with sensitive information.

5.3. Future Outlook and Roadmap

The plan of Wondershare's HiPDF is to incorporate new AI tools into it for smoother and better use of the tool.

6. Supplementary Information and References

6.1. Tool Access Detail

URL: <https://www.hipdf.com>

HiPDF is directly accessible through its website. The tools offer a free version and an advanced version. For the paid version, we have two options: 7-Day Advanced Access is for US\$1.99, and the Basic yearly plan is for US\$39.99, in which you can do unlimited batch processing, have full access to the AI PDF tool.

6.3. References:

Adhatarao, S., et al. (2021). Robust PDF Files Forensics Using Coding Style. *arXiv preprint*

Souifi, L., et al. (2024). Towards the Use of AI-Based Tools for Systematic Literature Review. [Conference paper / technical report PDF]

Liu, M. X., et al. (2024). Selenite: Scaffolding Online Sensemaking with Proceedings of an ACM conference. (References include HiPDF as an example of document-interaction tools.)

Humy

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1. Introduction and Overview of a Tool

1.1 Tool Name and Main Features

Humy AI is a platform created to improve education in the classroom through its AI Tutor service and through the creation of lesson plans and conversations with historical figures using AI technology.

A few Examples of the Core Services That Humy AI Provides

- The Ability for Students to Work with an AI Tutor, by Using Humy AI's AI Technology
- The Ability to Talk with Historical Figures Using Humy AI's AI Technology
- The Ability to Automatically Create Lesson Plans and Assignments
- The Ability to Receive Real-time Feedback and Assessments of Their Work



Fig.1 Humy AI Logo

1.2 Short History and Development

Humy AI Has Been Developed as Part of an Increasingly Interesting Relationship Between Generative AI Technology and K-12 (and/or) Higher Education. Since 2022, Humy AI Developed Out of Teachers Asking for Tools to Help Students Learn Better In Fun (Creative) Ways and Save Time to Develop Lesson Plans/Assignments.

1.3 The Audience and Scope of the Tool

Teachers at All Levels (K-12), College Educators, Students, Parents, Tutors, as Well as Curriculum Design Firms and Training Institutes Performing Curriculum Design and Delivery. The Subject Area Scope of Humy AI Covers History, Social Studies, Language Arts, and

Humanities. Humy AI Also Provides General Academic Support (e.g., Assignment Development) and Personalized Tutoring and Coaching Services.

2. Characteristics and Applications of the Tool:

2.1 Core Applications of AI Technology

- Students Will Interact with an AI Tutor In Natural Language.
- Students Will Receive Context and Relevant Connections in Their Work and Ask AI Questions.
- Students Will Learn From and Interact with AI Personas of Historical Figures.
- Students Will Access Generative AI to Generate Worksheets and Quizzes.

2.2. Key Attributes and User Interface (UI)

- Elegant user interface (UI) with a dashboard designed for teachers
- Create AI tutors simply and efficiently.
- Pre-assembled archive of historical AI characters
- Assignment builder that provides prompts to guide assignment creation
- Secure access for students with no login requirements
- Multilingual capabilities

2.3. Key Features That Differentiate Product

- Offering instructions for creating lessons in an educational context, not just with general artificial intelligence (AI).
- Ability for an educator to create immersive learning experiences through simulation of historical figures.
- Ability for educators to have control over privacy and safety filters in all tasks.
- Creating an AI-based instruction module does not require an educator to have technical expertise.
- Saves educator's time in preparing for lesson planning and assessment.

3. How To Implement And Use The Product

3.1. Prerequisites And Setup

- Internet connection
- Available device (laptop, mobile device or tablet).

- Users must have a teacher account with Humy AI (free or paid).
- Users must be familiar with the basic structure of lesson plans.

3.2. How To Use The Product Step By Step

Example Scenario One: Creating An AI Tutor For A Chapter.

- Sign into Humy AI
- Click on Create Tutor
- Enter in the chapter topics (e.g., French Revolution)
- Complete the learning objectives.
- Click Generate Tutor - Click Review - Click Publish.
- Share the tutor link with your student.

Example Scenario Two: Automatically Generating Assignments.

- Select the grade level.
- Input the title of the chapter, or paste in your own text.
- Indicate which type of assignment you want created.
- Worksheet.
- Multiple Choice Questionnaire (MCQ)
- Open-ended question responses.
- Review all suggested assignments from Humy AI for your selected chapter.
- Download the assignment(s) to your computer or save them to a shared folder accessible by your students

3.3. Additional Hints And Best Practices

- Clearly define your lesson outcomes before creating any content.
- Review all AI-generated content for both content accuracy and instructional appropriateness.
- Encourage a more engaging and interactive experience by allowing learners to engage in dialog-based conversations (e.g., chatbots) that reflect real-life interactions with other individuals, such as their friends.

4. Education Uses and Applications

4.1. Educational Philosophy

Humy AI has a constructivist pedagogy (students build their own knowledge) and supports inquiry-based and personalized pedagogical approaches by providing opportunities for students to interact with their learning material in a dynamic way. This encourages students to

develop skills in critical thinking, curiosity and independent exploration.

4.2. How Humy AI affects the teacher and the learner

- Reduces teacher workload
- Provides individualized explanations of content for learners
- Encourages active and immersive learning experiences
- Creates a deeper historical and conceptual understanding for learners
- Provides learners with instantaneous feedback

4.3. Examples of Classroom Use

- History classes: Virtual encounters with historical figures
- Language classes: AI tutors for grammar and writing assistance
- Social Science classes: Conversations through scenarios/situations
- Assessment and assignment: automatically generated worksheets from Humy AI
- Project-based learning: AI-assisted research projects

5. Challenges, Ethics and Future of Humy AI

5.1. Limitations and challenges

- Requires stable internet access
- May present inaccurate information
- Over-dependence on AI-generated content
- Teachers must monitor Humy AI usage by students

5.2. Ethical and equity related to Humy AI

- Classroom responsibilities associated with Humy AI
- Representation of students' equitable access across all types of schools
- Verification of information through teacher verification process
- Student information/data privacy

5.3. How Humy AI can grow and develop

- Links to Learning Management System
- Increased subject area coverage, such as STEM and arts
- Teacher customization of AI tutor personality
- Voice-activated assistant(s) for students
- Gamified Learning Modules

6. Additional Materials and References

a. Additional Resources Related to the Tool

- Official Website
- (Insert screenshot of the homepage)
- <https://www.humy.ai>
- Pricing / Licensing Information
- Free tier (basic features)
- Pay-per-use with added tutors, more assessments, and advanced analytics.

b. More About the Tool

- The Humy blog
- Teacher's guide to the implementation of artificial intelligence within the classroom environment
- Articles relating to the use of artificial intelligence and education, including literacy in artificial intelligence.

c. References :

- Source: [Humy.ai](https://www.humy.ai) <https://share.google/svNmfxy3p59QVDTId>
- Source: EdTechImpact <https://share.google/gUAzVInZwrYfIKI9Y>.
- <https://share.google/JzBMeUFIzahan0kp>

HyperWrite AI

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality:

HyperWrite AI is a modern *AI-powered writing assistant* designed to help users with different types of writing such as academic work, office tasks, and creative projects. It is based on Large Language Models (LLMs) which understands user instructions and generates meaningful content. The tool can write full documents, improve sentences, give ideas, and summarise text, making it a complete end-to-end writing solution. It also adjusts the writing according to the user's *tone* and purpose, ensuring the content sounds natural and relevant. Through automation and smart suggestions, it saves time and improves writing quality.



Fig 1 Logo HyperWrite

1.2 Brief History and Development:

HyperWrite AI was created by OtherSideAI to improve *productivity* and reduce the effort involved in writing tasks. It was first launched in 2020 as a simple *rewriting tool* that helped users correct and improve text. As artificial intelligence developed and demand increased, new features like creative writing tools, templates, and browser support were added. In later years, advanced tools such as Auto Write and HyperChat made it more powerful. By 2024–2025, HyperWrite evolved into a highly accurate and fast *AI writing platform* used by students and professionals worldwide.

1.3 Target Audience and Scope:

- Students and Educators

Students benefit from HyperWrite when preparing assignments, writing essays, creating presentations, or summarising lessons. Teachers use it to prepare lesson plans, worksheets, academic notes, and explanations. The tool saves time and encourages clarity.

- **Professionals and Researchers**
Professionals use HyperWrite for emails, reports, proposals, and presentations. Researchers rely on it for paraphrasing, summarising research papers, simplifying complex ideas, and organising material for academic writing.
- **General Users**
HyperWrite is also helpful for everyday users who need assistance with grammar, vocabulary, communication, and idea development. Even those who are not confident writers can use the tool to express their thoughts more effectively.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Natural Language Understanding**
HyperWrite can read user instructions and interpret the tone, style, and structure required. This ability—called natural language understanding—allows it to respond in a way that feels natural and human-like. Because of this, even complex writing tasks become manageable.
- **Content Generation Abilities**
The tool can generate long-form content such as essays, reports, articles, stories, and explanations. Instead of writing from scratch, users can rely on HyperWrite to create structured paragraphs that maintain clarity and flow.
- **Tone and Style Adaptation**
HyperWrite can adjust its output based on the user's tone preference—formal, informal, creative, academic, friendly, or professional. This ensures that the final text matches the user's personality or the assignment's demands.

2.2. Key Features and User Interface (UI)



Fig no. 2 Hyperwrite

- **Dashboard**

The Dashboard is the main homepage of HyperWrite, displaying frequently used tools, recent documents, and available templates. It provides a clean and organized layout to help users access features quickly. This central space improves convenience and makes navigation simple for all users.

- **Auto Write Tool**

The Auto Write Tool allows users to generate complete documents by entering only a topic or short prompt. It expands the idea into clear and structured paragraphs automatically. This tool is helpful for users who need quick drafts for essays, reports, or articles.

- **Rewrite Panel**

The Rewrite Panel improves existing text by enhancing clarity, tone, and sentence structure. Users paste their content, and HyperWrite produces a more polished version without changing the meaning. It is ideal for refining academic, professional, or personal writing.

- **Templates Library**

The Templates Library contains ready-made structures for academic, business, and creative documents. Users can select formats for essays, resumes, letters, reports, and more. These templates make writing faster and ensure proper organisation and layout.



Fig. 30.3 Hyperwrite

- **HyperChat Window**

The HyperChat Window acts as an interactive space where users can ask questions and generate ideas. It provides real-time suggestions and explanations, similar to an AI tutor.

This feature helps users think clearly and develop better writing content.

- **Browser Extension Sidebar**

The Browser Extension Sidebar offers real-time writing assistance across different websites. It suggests improvements in grammar, tone, and clarity while the user types. This makes writing easier and ensures support is available everywhere online.

UI Benefits:

- Easy navigation for beginners and experts
- Organised content creation tools
- Fast, responsive generation
- Minimal learning curve

2.3 Differentiating Characteristics:

- **Personalisation Features**
One of HyperWrite's strongest qualities is its ability to match the user's preferred tone and writing style. Over time, it learns patterns and produces content that feels more personalised and natural.
- **Template Library**
The tool includes a collection of ready-made templates for essays, emails, reports, resumes, lesson plans, and more. These templates help users who struggle with formatting or structural organisation.
- **Browser Extension Integration**
HyperWrite's Chrome extension offers live suggestions while users type across websites. This feature makes writing more efficient and ensures that help is available exactly when it is needed.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup:

Using HyperWrite is extremely simple, requiring only basic digital access.

Requirements:

- Internet connection
- HyperWrite account
- Google Chrome (recommended for extension use)
- Browser Extension (optional but highly beneficial)

There is no software installation apart from the extension.

3.2 Step-by-Step Usage Guide:

Example: Creating an Academic Essay

Step-by-Step Process

1. Go to Auto Write Module
2. Enter Essay Topic and Length
Example: 'Write a 1,000-word essay on the importance of renewable energy.'
3. HyperWrite Generates Content
The output includes:
 - o Introduction
 - o Body paragraphs with examples
 - o Conclusion
4. Refine Using Rewrite Tool
Improve vocabulary, clarity, or structure.
5. Save or Export
Users copy it into Word/Docs for submission or editing.

3.3 Tips and Best Practices:

For Best Output:

- Use precise prompts (topic + tone + purpose).
- Combine Auto Write + Rewrite for highly polished documents.
- Edit manually to maintain academic integrity.
- Use summaries for revision and concept clarity.
- Save templates for repetitive writing tasks.

4. Educational Implications and Applications

4.1 Pedagogical Rationale:

- **Support for Constructivist Learning**
HyperWrite aligns with constructivist principles by allowing learners to explore, create, and refine their own ideas. Instead of simply providing answers, the tool helps students build understanding through guided writing support. This encourages active learning and strengthens conceptual clarity.
- **Promotion of Digital Literacy Skills**
The use of HyperWrite familiarises students with modern digital tools and improves their ability to navigate online learning environments. It teaches them how to use AI responsibly, evaluate generated content, and integrate technology into academic tasks. These skills are essential for success in contemporary education.

- **Enhancement of Language and Writing Abilities**
HyperWrite helps improve vocabulary, sentence structure, coherence, and overall writing quality. By comparing their original text with the improved version generated by the tool, students learn how to refine their own writing. This supports long-term skill development in both academic and professional communication.

4.2 Impact on Teaching and Learning:

HyperWrite enhances classroom efficiency and student performance.

Impact on Teaching:

- Faster lesson planning
- Pre-designed templates for worksheets
- Ready-made explanations for complex topics
- **Impact on Students:**
- Better understanding through summaries
- Structured guidance for essays
- Exposure to professional writing models
- Improved clarity and organisation in assignments

4.3 Specific Classroom Applications:

- **Creating Simplified Notes and Study Material**
Teachers can generate simplified versions of difficult topics, making it easier for learners to understand complex concepts. These notes help students revise faster and grasp essential points without feeling overwhelmed. It is especially helpful in subjects requiring detailed explanations.
- **Supporting Project-Based Learning**
During projects, students can use HyperWrite to brainstorm ideas, structure reports, and prepare presentations. The tool helps them plan their content clearly and ensure that their work is organised and meaningful. This improves the overall quality of project submissions and fosters creativity.
- **Enhancing Creative and Language Learning Activities**
HyperWrite can generate story starters, dialogues, reading passages, and writing prompts, assisting in creative classroom activities. Language teachers can use it to develop grammar exercises, vocabulary lists, or comprehension tasks. This makes lessons more engaging and supports skill development.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges:

- **Risk of Overdependence on AI Tools**

One significant challenge is the possibility that students may become overly dependent on HyperWrite for completing their assignments. If learners rely too heavily on AI-generated content, their independent thinking and writing skills may weaken over time. It is important for educators to promote balanced and responsible usage.

- **Restricted Access to Premium Features**

While HyperWrite offers a wide range of free tools, some advanced features are available only through paid subscriptions. This may create inequality, especially for students from low-income backgrounds who may not be able to access premium tools. Such limitations can affect the level of support available to different users.

- **Occasional Inaccuracies in Content**

Although HyperWrite is highly advanced, it may occasionally generate information that is inaccurate or incomplete. Users must carefully review the content before using it for academic or professional purposes. Critical reading and verification remain essential to ensure quality and correctness.

5.2 Ethical and Equity Considerations:

- **Academic Integrity Concerns**

There is a risk that some students may misuse HyperWrite to complete assignments without contributing their own ideas. This raises concerns related to plagiarism and academic honesty. Schools should guide learners on how to use AI ethically while maintaining originality.

- **Privacy and Data Protection Issues**

Since HyperWrite operates online and uses cloud-based AI systems, users must be cautious about the type of information they share. Sensitive or personal data should never be entered into AI tools. Promoting digital safety helps protect users from potential misuse of data.

- **Inequality in Technology Access**

Not all students may have access to reliable internet or modern devices needed to use AI tools. This creates a digital divide, where some learners benefit from advanced technology while others struggle. Schools and institutions must address these inequalities to ensure fair learning opportunities.

5.3 Future Outlook and Roadmap

- **Integration of Fact-Checking and Evidence Support**
Future versions of HyperWrite are expected to include built-in fact-checking features that verify information automatically. This will help ensure that the content generated is accurate, reliable, and academically sound. Such tools will make AI-generated writing even more trustworthy.
- **Expansion of Multilingual Support**
HyperWrite is likely to expand its language capabilities, allowing users to write and translate content in multiple languages. This will benefit learners and educators from diverse linguistic backgrounds, making the tool more inclusive and globally accessible.
- **Enhanced Personalisation and Learning Analytics**
Upcoming updates may include deeper personalisation, where HyperWrite can track writing progress and offer targeted suggestions. It may also provide analytics to help users understand their strengths and weaknesses. These features can transform HyperWrite into a powerful learning companion.

6. Supplementary Information and References

6.1 Tool Access Details

Official Website: [HyperWrite | AI Writing Assistant](https://hyperwrite.ai)



Fig. 4 Hyperwrite AI

Pricing:

- Free Plan
- Premium Plans with unlimited writing, style personalization, and advanced tools

6.2 Further Reading and Documentation

- HyperWrite AI Blog and Help Centre
- Articles on AI in Education
- Research on AI-Assisted Writing Tools
- Studies on LLM-based writing models

6.3 References

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Ideogram.ai

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1. Introduction and tool overview

1.1. Tool Name and Core functionality

Among the growing number of AI-based image generators, Ideogram AI has emerged as a standout tool known for its fast, precise, and visually appealing outputs. It is especially valued for producing images with cleanable text, making it ideal for posters, logos, banners, and other design-heavy content. The platform enables users to create professional-quality visuals with ease and without advanced technical knowledge. From branding to creative experimentation, Ideogram seamlessly supports a wide range of design needs.



Fig. 1 Logo of Ideogram

1.2. Brief History and Development

Launched in 2023 by a team of former Google brain researchers, Ideogram AI quickly gained attention for overcoming one of AI's long-standing limitations: accurate text generation within images. The platform dance forms are written into sharp, meaningful visuals within seconds. Its intuitive design allows both beginners and experts to express their ideas creatively and efficiently.



Fig. 2 of Ideogram

1.3. Target Audience and Scope

Ideogram AI serves a wide audience, including:

- Students preparing presentations or assignments
- Teachers designing learning resources
- Graphic designers and illustrators
- Businesses creating brand visuals

- Creators exploring artistic concept
- Its application spans educational projects, digital marketing, advertising, visual storytelling, social media, and classroom innovation.

2. Characteristics and features

2.1. Core AI Capabilities

Built on a diffusion-based generative model, Ideogram AI specialises in converting text into detailed, expressive images.

Features	Benefits
Advanced Text-to-Image	Quickly converts written input into vivid, high-resolution visual art.
High-Quality Typography	Produces striking, integrated typographic elements.
Versatile Style Generation	Enables a range of creative themes (watercolor, anime, minimalist, etc.)

Fig. 3 Features

- Ideogram AI provides different model versions that improve image quality, speed, and text clarity over time.
- Ideogram 3.0 is the latest and most advanced model with the best text accuracy and realistic visuals
- Ideogram 2.0 added new styles and improved text inside the image
- Ideogram 1.0 was the first stable model with features like magic prompt
- Early beta models were initial test versions, but are now discontinued
- These versions help users choose between quality, speed, and cost depending on the type of project.

2.2 Key Features and User Interface

The platform's clean interface includes:

- A straightforward prompt box
- Style and theme selection options
- Magic formed, which enhances short prompts automatically
- A Canvas for editing and touch-up

- Community page showcasing public creations

2.3 Differentiating factors

Ideogram AI outperforms competitors due to its exceptional text clarity and unique Magic Prompt system. It is optimised for poster-style outputs with a professional layout and consistently renders characters and objects across multiple images. It makes it a reliable tool for users seeking quick and polished results without a steep learning curve.

3. Practical implementation and usage

3.1 Prerequisites and Setup

Ideogram AI operates completely online, making it accessible without software installations or advanced technical skills. To begin, users need:

- A device with internet connectivity
- An ideogram account
- Basic ability to write a descriptive prompt



Fig. 4 Logo of Ideogram

3.2 Step-by-Step usage guide

- Open the ideogram AI website and login.
- Type a prompt like:
 - *Poster for 'College Cultural Fest 2025,' large bold text, neon colors, modern graffiti style."*
- Choose a style or allow magic prompt to refine your text.
- Generate the image, browse the variations, and download the final output.

3.3. Tips for Better Results

Provide descriptive prompts, clearly mention the text you want included, and try multiple variations to choose the best design. Magic Prompt can expand simple instructions and help achieve richer results. Note on Free Credits:

The free plan gives users 12 credits, where each prompt produces 4 images at once, allowing multiple attempts and comparisons.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Ideogram.ai encourages creativity, media literacy, and imaginative thinking in modern classrooms. By simplifying visual creation, it makes learning more engaging and widens access to high-quality digital content.

4.2. Impact on Teaching and Learning

It helps teachers produce appealing teaching materials and enables students to create posters, concept diagrams, and visual projects. The tool strengthens conceptual understanding and supports innovation while reducing time spent on manual designing.

4.3. Classroom Applications

Humanities: comic strips, storyboards, visual timelines

STEM: infographics, charts, labelled diagrams

School Events: posters for competitions and functions

Student Clubs: logos, banners, and digital identity

Portfolios: unique visuals for project submissions

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Though powerful, Ideogram AI may have limitations in complex text placement or fine details. The free version has credit limitations and requires stable internet access. Overuse may reduce student practice of manual creative skills.

5.2. Ethical and Equity Considerations

- Possible replication of copyrighted artistic styles
- Risk of AI-generated visuals being used for misinformation
- Digital divide affecting students without access to devices or paid plans.
- Need for awareness around the responsible fair use of AI tools

5.3. Future Outlook and Roadmap

Upcoming developments may include:

- Improved text precision
- Enhanced character consistency
- More editing and customisation tools
- Potential support for animations or 3D visuals

These improvements are expected to broaden creative possibilities significantly.

6. Supplementary information and references

6.1. Tool Access and Details

Ideogram AI can be accessed on its official website;

<https://ideogram.ai>

6.2. Pricing and Licensing Methods

The free plan includes 12 credits with limited features, while paid plans such as Basic Plus and Pro offer priority generation, private images, enhanced editing, and better export quality. Pricing begins at USD 7 per month, which is approximately rupees 600 and goes up to USD 42 per month, which is approximately rupees 3450.

6.3 Further Reading and Documentation

For future details, explore:

- Ideogram AI help centre
- Research on AI image generation and diffusion models
- Studies on AI integration in education

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Inciteful

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Inciteful is an AI-powered research discovery tool designed to help students, educators, and researchers quickly find relevant academic papers using citation networks and smart recommendation algorithms. It acts as an intelligent literature exploration assistant that shows how research papers are connected, which studies influenced others, and what emerging themes exist within a topic.

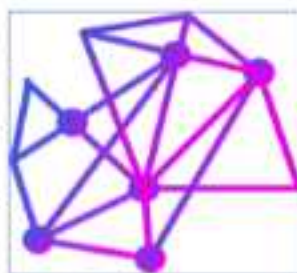


Fig 1 logo of Inciteful AI

The core functionality of Inciteful lies in its ability to analyze citation patterns across thousands of academic publications. Instead of traditional keyword searches, it provides **context-based discovery**, allowing users to upload a paper or enter a research topic and instantly receive a map of closely related studies. This feature supports a deeper understanding of the literature landscape and helps identify meaningful connections between authors, papers, and research domains.

Inciteful also offers tools such as **Paper Discovery**, **Literature Connector**, and **Publication Graph**, which visually organize research papers so users can explore literature clusters, find influential works, and uncover research gaps. This visual and citation-based exploration is especially useful for preparing literature reviews, proposals, or theoretical frameworks.

By simplifying the search process and presenting research connections visually, Inciteful reduces the time and effort needed to build a strong literature foundation. It helps researchers move beyond surface-level searches and develop a deeper, more comprehensive understanding of their topic—making it an invaluable tool for academic writing, dissertation preparation, and evidence-based teaching.

1.2. Brief History and Development

Inciteful was developed in response to the growing need for faster and more intelligent ways to explore academic literature. Traditional search engines often depend on keyword matching, which can make it difficult for researchers—especially beginners—to find deeply connected or highly relevant studies. Around 2022–2023, when artificial intelligence tools for research began expanding, Inciteful emerged as a solution that uses **citation networks** rather than simple keyword searches.

The platform was created with the intention of helping students and researchers understand how academic papers relate to one another. Many users found it challenging to identify influential papers, major authors, or emerging research patterns within a topic. The creators of Inciteful designed the tool to visually map these relationships, making the literature review more intuitive and structured.

From its early stages, Inciteful focused on **visual discovery**, allowing users to see clusters of related papers and identify research pathways. Over time, the tool added features such as the *Paper Discovery Tool*, *Literature Connector*, and *Publication Graph*, each improving how users explore, organise, and interpret academic sources. Its development reflects a shift toward AI-enhanced research methods that support efficient and meaningful knowledge building.

Today, Inciteful continues to evolve with enhancements that make literature review faster, smarter, and more accessible, especially for students working on dissertations, action research, or academic proposals.

1.3. Target Audience and Scope

Inciteful is designed to support a wide range of users who engage with academic literature, making it a versatile tool in educational and research settings. Its easy-to-use interface and visual discovery features benefit individuals at different levels of academic experience.

- **Students (Undergraduate, Postgraduate, Ph.D. Scholars)**
Students working on assignments, research proposals, dissertations, or thesis writing can use Inciteful to quickly find relevant studies and understand how research in their topic area is connected. The visual maps help beginners navigate complex literature more confidently.
- **Teachers and Teacher-Educators**
Educators can use Inciteful to build reading lists, identify recent studies, and support evidence-based teaching. Teacher-educators can also introduce the tool to students as part of research methodology courses to strengthen literature review skills.
- **Researchers and Scholars**
Inciteful is especially useful for researchers exploring new areas or preparing comprehensive literature reviews. The tool identifies influential papers, highly cited works, and emerging research clusters, saving significant time compared to manual searches.
- **Academic Writers and Curriculum Designers**
Those involved in developing educational content, study materials, or curriculum frameworks can use Inciteful to gather updated research trends and support content with credible academic sources.

Scope of the Tool

The scope of Inciteful extends across multiple areas of academic research and knowledge-building. It assists users in:

- discovering relevant research papers through citation-based recommendations
- exploring literature networks visually to understand research depth and direction
- identifying influential authors and landmark publications
- building strong literature foundations for proposals, dissertations, and journal articles
- recognizing research gaps and emerging themes in a field
- organizing papers into collections for ongoing reading

Overall, Inciteful enhances the process of literature review by making it more systematic, insightful, and efficient. It supports learners and educators in developing a deeper understanding of their research topic while saving valuable time in the early stages of research design.

2. Characteristics and Features

2.1. Core AI Capabilities

Inciteful uses artificial intelligence to make literature exploration faster, deeper, and more meaningful. Its core capabilities focus on understanding research connections and recommending relevant papers based on citation patterns rather than simple keyword matching.



Fig 2. Search option in Inciteful AI

1. AI-Driven Citation Analysis

Inciteful analyses large networks of citations to identify which papers are closely related. Instead of searching only by words, it studies how authors cite each other, which helps users discover research that is genuinely connected to their topic.

2. Smart Paper Recommendations

The tool provides AI-generated suggestions for papers that users may not find through traditional search engines. These recommendations are based on relevance, influence, and research proximity, helping users build a stronger literature

3. Visual Mapping of Research Networks

Using AI, Inciteful creates visual maps showing how papers, authors, and research themes are linked. This visual representation helps users

quickly see research clusters, major contributors, and the flow of ideas within a field.



Fig. 3 Searchbar of Inciteful AI

4. Automatic Identification of Influential Works

Through its algorithm, the tool highlights the most influential and highly cited papers in a research area. This helps users focus on studies that shape the theoretical and empirical foundation of their topic.

5. Relationship Tracking Between Papers

Inciteful uses AI to trace academic relationships such as “papers that cite this,” “papers cited together,” or “papers that build on this idea.” This helps users understand the development of a concept over time.

6. Quick Topic Expansion and Literature Discovery

If users upload one paper or type a research topic, the tool instantly expands it into multiple connected papers, enabling broader exploration and helping users identify research gaps or new angles.

2.2. Key Features and User Interface (UI)

1. User-Friendly Search and Discovery Features

Inciteful allows users to start their literature search by entering a topic, paper title, or DOI in a clean and simple search bar. The system immediately generates a list of relevant papers through its Paper Discovery feature. The interface is minimal, easy to navigate, and suitable even for beginners who are exploring research literature for the first time.

2. Interactive Visual Maps for Literature Exploration

One of the most important features of Inciteful is its visual representation of research connections. The citation network map and Literature Connector tool help users see how papers, authors, and ideas are linked. These interactive maps allow zooming, clicking, and exploring pathways, making complex literature structures easy to understand.

3. Easy Access to Paper Details and Research Organization Tools

Inciteful provides one-click access to abstracts, citation data, and metadata for each paper. Users can also save important studies into collections, helping them organize their literature systematically for writing proposals, dissertations, or reviews. This combination of detail panels and saved lists enhances both efficiency and clarity in the research process.

2.3. Differentiating Characteristics

Inciteful stands out from other research tools because of its unique approach to literature exploration and its emphasis on visual understanding. Unlike traditional search engines that rely mainly on keyword matching, Inciteful uses citation-based relationships to uncover deeper and more meaningful research connections. This makes it particularly valuable for users who want to build a strong and well-connected literature foundation.

- First, Inciteful provides an interactive visual network of research papers, allowing users to see how studies are linked through citations, influences, and shared themes. This network-style representation makes it easier to understand the development of a topic over time and identify important clusters or emerging research areas.
- Second, the tool allows users to trace academic pathways between papers using its Literature Connector feature. This helps researchers understand how ideas evolve, how one study leads to another, and how different authors contribute to the same topic. Such a feature is not commonly found in standard academic search engines.
- Third, Inciteful focuses on finding papers that are contextually relevant rather than popular or widely searched. This enables users to discover hidden, high-quality studies that might not appear in keyword-based tools. This approach supports richer literature reviews and more accurate identification of research gaps.
- Overall, Inciteful emphasis on citation networks, visual discovery, and contextual relevance makes it a distinctive and

powerful tool for academic research, especially for users working on dissertations, proposals, and evidence-based studies.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Basic prerequisites for using Inciteful include:

a stable internet connection, any device with a web browser (laptop/desktop/tablet), a clean and well-labelled dataset or research paper title/DOI, access to the official website, and a basic understanding of the research topic.

3.2 Step-by-Step Usage Guide

Scenario: Using Inciteful to Build Literature for the Study on Yoga Education for School Children

This scenario explains how Inciteful can help you collect, analyse, and organize literature for the study. The tool helps identify studies related to yoga education, training, enhancement & development in school students.

Step 1: Opening the Inciteful Website

The researcher begins by visiting the Inciteful website.

On the homepage, a simple search bar appears.

Ex. Type keywords related to your study, such as:

“Yoga education program school students”

Inciteful immediately analyses the topic and begins retrieving connected research papers.



Fig. 4 Homepage of Inciteful AI

Step 2: Discovering Relevant Studies (Paper Discovery)

Inciteful displays a list of research articles related to your Yoga Education variables, such as:

- meditation-based school interventions
- yoga for emotional regulation in children
- classroom-based yoga and academic outcomes

These papers help you build the foundation for your **related literature**, showing what has been studied and what gaps still exist.

Step 3: Viewing the Citation Network Map

Inciteful then generates a visual citation network connecting all the papers.

In your topic, clusters may appear showing:

- studies on yoga and emotional well-being
- self-awareness development in school-age children
- psychological outcomes of classroom-based yoga

These connections help you understand how yoga practices influence various psychological and academic variables.

Step 4: Using Literature Connector to See Concept Links

By selecting two papers, for example:

- meditation-based programs in schools
- another on yoga's impact on stress and emotional balance
- Inciteful shows the chain of studies connecting these ideas.

It also helps you identify theoretical linkages common themes bridging constructs (e.g., attention regulation, emotional stability)

100

100

Most Important Papers

These are the "Most Important" papers in your topic. These are the top 10 papers in your topic.

paper title year citations published year

1	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
2	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
3	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
4	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
5	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
6	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
7	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
8	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
9	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
10	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021

Review Papers

These are the "Review Papers" in your topic. These are the top 10 papers in your topic.

paper title year citations published year

1	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
2	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
3	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
4	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
5	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
6	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
7	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
8	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
9	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021
10	Inciteful AI: A Deep Learning Framework for Document Classification	2020	10	2021

Fig. 5 Papers of Inciteful AI



Fig. 6 Mapping of papers

Step 5: Reviewing Abstracts and Paper Details

Whenever you click on a paper in Inciteful, it shows:

- abstract
- study design
- sample characteristics
- intervention details
- outcomes measured

This helps you design your intervention structure, tools, and methodology.

Step 6: Creating Collections for Organized Review

Inciteful allows you to categorize papers based on themes. Organizing literature this way simplifies Chapter writing and helps you identify strong citations for your proposal.

Step 7: Identifying the Research Gap

After exploring the papers, you will notice:

Less explored / missing areas

This gap directly supports the **need and significance** of your study.

3.3 Tips and Best Practices

- Use Clear and Focused Keywords
- Inciteful works best when keywords are short and specific.
Example: Search for “*yoga for school children*” instead of “studies about yoga for all ages.”
- Explore More Than One Paper Connection don't rely on a single paper. Check how different papers are linked.
Example: Explore connected papers on different variables.
- Use the Literature Connector to Link Concepts This tool helps you understand how two ideas connect through research.
Example: Connect a paper on *meditation training* with one on *student motivation* to see how improved attention leads to better motivation, supporting the topic
- Save Papers into Thematic Collections
- Organize papers based on research variables.
- Example: Create collections like:
 - *Yoga in the classroom*
 - *Yoga for a calm mind*
 - *Meditation*
- Read Abstracts Before Adding Papers
- Always check if a recommended paper is truly relevant.
- Example: A yoga study may focus on physical flexibility, not mental well-being
- Combine Inciteful with Other Tools for Depth
- Use other platforms to double-check or extend your findings.
- Example: Use Google Scholar to verify citations or use Julius AI to later analyze the study
- Identify the Research Gap Through Clusters. Look at clusters to see which areas are well studied and which are not.
Example: find many papers on given variables, but very few on a structured Yoga Education. This gap justifies your research.
- Keep Notes While Reviewing Literature
- Write down useful patterns you notice while exploring papers.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Inciteful supports modern educational practice by strengthening teachers' and researchers' access to academic literature. Pedagogically, the tool enables educators to design learning activities, interventions, and instructional strategies that are supported by research rather than intuition alone.

Inciteful also helps users visualize trends in education research, such as mindfulness practices, motivation strategies, inclusive education models, or digital pedagogy—supporting reflective teaching and continuous professional development.

4.2 Impact on Teaching and Learning

Using Inciteful can positively influence both teaching practices and learning outcomes in several ways:

- **Strengthens Evidence-Based Teaching**

Teachers can access credible research on instructional strategies, enabling them to apply methods that have been proven effective.

- **Encourages Reflective and Informed Practice**

Educators learn to interpret research networks, compare interventions, and evaluate which strategies best suit their learner group.

- **Enhances Professional Research Skills**

Teacher-educators, pre-service teachers, and scholars build stronger skills in literature review, research synthesis, and academic writing.

- **Improves Learning Outcomes**

When teachers adopt research-supported practices, students benefit through improved engagement, motivation, and learning quality.

Example: Research findings showing that yoga activities improve students' concentration can guide teachers to incorporate short breathing exercises during class transitions.

- **Supports Curriculum Development**

Curriculum designers can use Inciteful to gather evidence for integrating practices such as SEL, mindfulness, technology integration, or project-based learning.

4.3 Specific Classroom Applications

- **Designing Evidence-Based Lesson Plans**

Teachers can search for literature supporting a specific instructional practice.

Example: A teacher planning a unit on emotional regulation may explore studies on mindfulness strategies for children.

	2010-2019 (n)	2020-2029 (n)	2030-2039 (n)
Research results of experiments Thomas H. Doherty	1,000	1,000,000	1,000
The Impact of Social Media on Education Michael J. Smith	10	10,000,000	1,000
Research Results: Improving and the Effects of the Education Thomas H. Doherty, J. Thomas H. Doherty	100	1,000,000	1,000
A 100-Year History of Education in the United States James H. Doherty, J. Thomas H. Doherty	100	1,000,000	1,000
Research Results: Improving and the Effects of the Education Thomas H. Doherty, J. Thomas H. Doherty	100	1,000,000	1,000
Research Results: Improving and the Effects of the Education Thomas H. Doherty, J. Thomas H. Doherty	100	1,000,000	1,000
Research Results: Improving and the Effects of the Education Thomas H. Doherty, J. Thomas H. Doherty	100	1,000,000	1,000

Fig. 7 Citation of Paper

- Selecting Activities or Methods Aligned with Research**
 Inciteful helps teachers compare multiple studies to choose classroom practices that match learning goals.
Example:
 A teacher wanting to improve classroom motivation may identify research-backed activities such as short yoga breaks, collaborative learning, or reflective journaling.

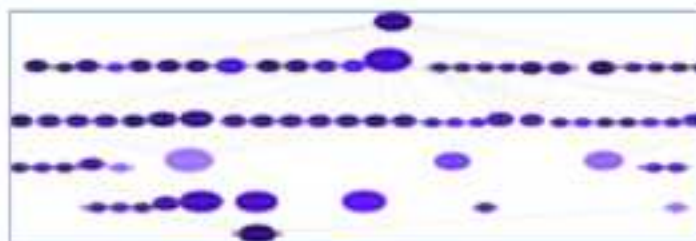


Fig. 8 Overall Mapping of Papers

- **Application: Supporting Action Research and Small-Scale Projects**

Pre-service or in-service teachers conducting action research can quickly access related studies, compare interventions, and justify their project design.

Example:

A pre-service teacher conducting a project on the *effectiveness of meditation training in improving self-care* can gather supporting literature through Inciteful.



Fig. 9 Opened Paper

4. Creating Reading Lists for Teacher Training

Teacher educators can prepare curated reading collections for their students, helping them learn research methodology, thematic analysis, and academic writing skills.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

Although Inciteful is highly useful for research discovery, it also comes with several limitations that users must be aware of:

- **Limited Access to Full Papers**

Inciteful shows connections and abstracts, but it does not always provide direct full-text access. Users may need Google

Scholar, ResearchGate, or institutional access to download complete articles.

- **Highly Dependent on Citation Networks**

The tool works best when papers are part of strong citation networks. New, emerging, or uncited studies may not appear in the results even if they are relevant.

- **Requires Clear and Focused Keywords**

Broad search terms may produce scattered or less relevant results. Users must refine searches and try multiple keywords.

Example: “Mindfulness in schools” gives better results than “mental health education.”

- **Visual Maps Can Be Overwhelming for Beginners**

The citation maps contain many nodes and links, which may appear confusing to first-time users or students unfamiliar with research diagrams.

- **Free Version Has Feature Limitations**

Some analytic functions, visual expansions, or detailed network interactions may be restricted. Users relying only on the free version may need to complement Inciteful with other tools.

5.2 Ethical and Equity Considerations

Using Inciteful for research requires attention to ethical and equitable practices.

- **Responsible Use of AI-Generated Suggestions**

Users should not rely blindly on every recommendation. They must read abstracts, evaluate relevance, and ensure papers align with academic integrity standards.

Example: A paper may appear in a cluster but may not support your research variables.

- **Equity in Access to Research Tools**

Not all students have equal access to devices, time, or internet connectivity needed to use AI-based tools. Teachers should provide alternative ways to support literature review for those without reliable digital access.

- **Transparency and Academic Honesty**

If Inciteful helps generate visual networks or identify literature clusters, researchers should acknowledge the tool appropriately in their methodology or references sections.

- **Data Privacy and Safe Searching**

Users should avoid uploading private documents or unpublished manuscripts. Searches should be limited to publicly accessible bibliographic information.

5.3 Future Outlook and Roadmap

Looking ahead, Inciteful has strong potential for continued development, especially as educational research becomes more interconnected and technology-driven.

One major direction for growth is the expansion of its database coverage. By integrating larger academic sources such as ERIC, PubMed, and Scopus, the tool could offer a more comprehensive and diverse set of research papers.

Another important improvement is deeper full-text integration, which would allow users to preview or directly access complete articles through partnerships with open-access platforms. Inciteful may also enhance its algorithms to better detect newly published or emerging research, ensuring that users remain updated with the latest studies. In addition, future versions could include built-in learning support such as tutorials, guided examples, and explanations to help students understand citation maps and research clusters more easily. Greater integration with other research tools—such as reference managers, AI summarizers, and writing assistants—would also streamline the research workflow, making it possible to export selected papers directly into tools like Zotero or Mendeley. Finally, improvements in customization, such as interactive and adjustable network visualizations, would allow users to highlight themes, isolate clusters, and explore literature more effectively, making Inciteful an even more valuable resource for educators, students, and researchers.

6. Supplementary Information and References

6.1 Tool Access Details

Official URL

Inciteful can be accessed directly through its official website:
<https://inciteful.xyz>

The landing page provides a simple search bar, a clean interface, and easy access to all features without login requirements.

Pricing / License Model

Inciteful follows a **freemium** access model:

- The **free version** includes:
 - paper discovery
 - citation network visualization
 - literature connector
 - basic browsing of abstracts and metadata
 - saving papers into collections
- The **premium version** may include:
 - expanded visual interaction
 - additional filters
 - advanced analytics
 - deeper citation insights



Fig. 10 Insight into data of Inciteful AI

6.2. Further Reading and Documentation

To deepen understanding and make the most of Inciteful, users can refer to the following supportive resources:

1. Official Help and Tool Documentation

The Inciteful website provides brief instructions on how to:

- enter search queries
- explore literature maps
- interpret citation networks
- use the paper connector

These guides help beginners quickly understand the tool.

2. Research Methodology Books

Standard books on educational research offer strong foundations in:

- literature review
- research design
- data interpretation
- identifying research gaps

These concepts help users use Inciteful more effectively.

3. Videos and Tutorials on AI Research Tools

Platforms like YouTube, Coursera, and academic blogs offer short visual guides that demonstrate:

- searching for research topics
- using citation maps
- building collections
- synthesizing literature

These visual explanations support teacher-educators and students in using Inciteful confidently.

4. Additional AI Tools That Complement Inciteful

Other tools that work well with Inciteful include:

- **Google Scholar** (for full-text access)
- **Research Rabbit** (for deeper visualization)
- **Julius AI** (for data analysis in pre-post studies)
- **Elicit** (for summarizing academic papers)

These tools together create a complete workflow for research writing and analysis.

6.3 References (APA 7th Edition, Latest → Oldest)

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Infogram AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

The toolset is **Infogram AI**, the generative component within the Infogram platform. Its core capability is to convert raw data, text, or concepts into **professionally designed, interactive data visualizations, infographics, and reports** with minimal manual design effort.



Fig. 1 Logo of Infogram

1.2. Brief History and Development

Infogram launched in 2012 as a data visualization platform. The integration of AI features (post-2023) was driven by the need to speed up the design process. The goal was to empower users—including educators and students—to practice **data storytelling** without needing graphic design skills, focusing instead on the narrative behind the numbers.

1.3. Target Audience and Scope

The primary audience includes **educators, school administrators, students, and academic researchers**. The scope covers the creation of lecture slides, research posters, administrative dashboards, and student project visualizations.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Data-to-Chart Mapping:** The AI analyzes uploaded datasets (e.g., student grades, survey results) and recommends the most statistically appropriate chart type (e.g., box plots for grade distribution, line charts for attendance trends).

- **Generative Layout Design:** It uses text prompts to generate full slide or infographic layouts, organizing text and visuals logically.
- **Smart Style Adaptation:** The system applies school branding or specific color schemes automatically to ensure consistency across departmental reports.

2.2. Key Features and User Interface (UI)

Feature	Description	UI Location
AI Chart Selector	Suggests optimal chart types upon data upload.	Data editor panel.
Quick Generate Report	Users paste text/bullets; AI designs a report or slide deck.	"New Project" prompt field.
Interactive Visualization	AI assists in setting up tooltips and tabs for interactive exploration.	Design sidebar.
Data Synchronization	Connects to live Google Sheets/databases for real-time updates.	Data linking panel.

Table 1 Features of Infogram

2.3. Differentiating Characteristics

- **Interactivity:** Unlike static image generators, Infogram creates charts that viewers can interact with (hovering for values, switching tabs), which is excellent for engaging students.
- **Academic Chart Library:** It includes specialized charts often needed in education (e.g., treemaps, pyramids, scatter plots).
- **Ease of Use:** It bridges the gap between complex data tools (like Excel) and design tools (like Canva).

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Infogram Account:** Registered account (Free or Paid).
- **Structured Data:** Data in CSV/Excel format or a clear text prompt.
- **Data Literacy:** Basic understanding of the data being visualized.

3.2. Step-by-Step Usage Guide

Scenario 1: Creating a "Student Progress Dashboard" for Parents

- **Input Data:** A teacher uploads a CSV file containing anonymized class averages, attendance rates, and reading level progression over the term.
- **AI Recommendation:** The AI suggests a "Line Chart" for reading levels (to show growth) and a "Gauge Chart" for attendance targets.
- **Layout Generation:** The teacher selects "Generate Report." The AI places these charts into a clean layout, applying the school's color palette.
- **Publish:** The teacher embeds this interactive dashboard into the school's Learning Management System (LMS) where parents can view the general class trends.

Scenario 2: Student Visualizing History Data for a Presentation

- **Prompt:** A student working on a project about the Industrial Revolution enters: "Create an infographic showing the population growth of London from 1750 to 1900 compared to Paris."
- **Draft Creation:** The AI generates a layout with a title, a comparison bar chart, and text boxes for historical context.
- **Refinement:** The student inputs the specific census data they found during research into the chart to ensure accuracy, then adds their analysis in the text boxes.

3.3. Tips and Best Practices

- **Verify Accuracy:** Always double-check that the AI has chosen the correct scale and labels for your data.
- **Live Data:** For things like "House Points" or "Fundraising Goals," link a live Google Sheet so the infographic updates automatically.
- **Narrative Focus:** Use the visuals to support a thesis or lesson objective, not just for decoration.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

The tool promotes **visual literacy** and **data communication**. It allows students to move beyond simple "reading" of data to "representing" it, a higher-order cognitive skill. For teachers, it creates more engaging instructional materials.

4.2. Impact on Teaching and Learning

- **For Teachers:** Rapidly creating visual aids for complex concepts (e.g., visualizing the scale of the solar system or economic inflation).
- **For Students:** Empowering them to produce professional-grade visual support for their arguments and research, increasing pride in their work.

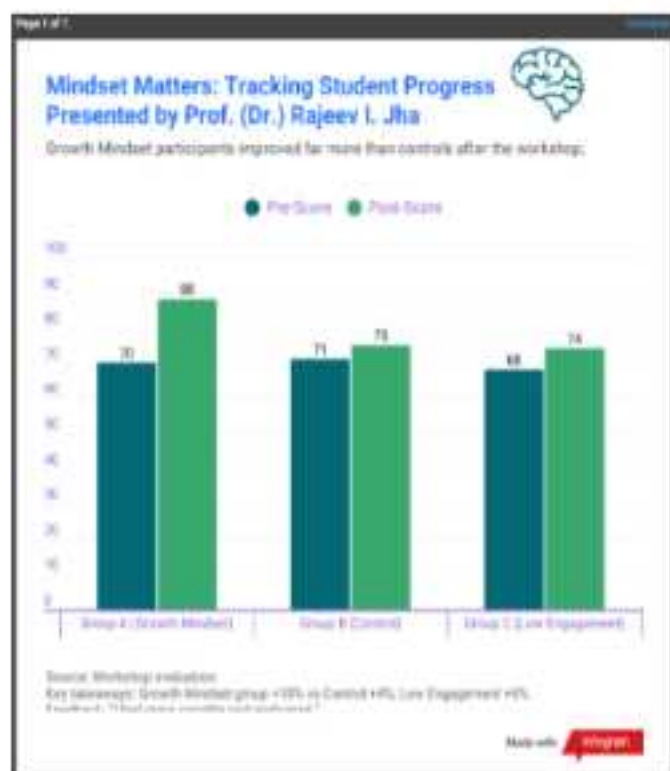


Fig. 2 An Infographic prepared with the help of Infogram AI

4.3. Specific Classroom Applications

- **Social Studies:** Students create interactive maps showing migration patterns or election results.
- **Science:** Students log experimental data (e.g., plant growth) into a spreadsheet and use Infogram to visualize the trends for their lab report.
- **Administration:** Principals use the tool to present annual budget breakdowns or standardized test results to the school board in an easy-to-digest format.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Paywalls:** High-quality downloads (PDF/PNG) often require a subscription.
- **Data Misinterpretation:** Students might accept a visually pleasing chart even if the underlying data representation is misleading (e.g., truncated axes).

5.2. Ethical and Equity Considerations

- **Data Privacy:** Teachers must ensure no Personally Identifiable Information (PII) of students is uploaded to the public cloud version of the tool.
- **Access:** Schools with limited budgets may be restricted to the free version, which has watermarks and limited features.

5.3. Future Outlook and Roadmap

- **Narrative AI:** Future tools may write the analysis paragraphs based on the data trends automatically.
- **AR Integration:** Visualizations that can be projected into 3D space for immersive learning.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://infogram.com/>
- **Pricing:** Freemium (Free basic plan; Paid Education/Business plans for advanced features).

6.2. Further Reading and Documentation

- Infogram "Data Visualization for Education" guides.
- Tutorials on API integrations.

6.3. References

- Official Infogram Blog
- EdTech case studies on data visualization in the classroom.

INVIDEO.AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

InVideo AI is a cloud-based, artificial intelligence-powered video creation platform that transforms simple text prompts into professional, engaging videos without requiring any video editing skills or technical expertise



Fig 1. Logo of Invideo AI

(Beard IT, 2025). The platform uses advanced generative AI models to automatically generate scripts, select relevant visuals from over 16 million stock photos and videos, create human-sounding voiceovers in 50+ languages, add subtitles, background music, and transitions - all in just a few minutes (InVideo.ai website).

The core functionality of InVideo AI is to simplify video creation for educators, content creators, and businesses by eliminating the need for expensive equipment, technical knowledge, or time-consuming editing processes. Teachers can now create engaging lesson videos, educational explainers, animated tutorials, and interactive content directly from their classrooms, making complex concepts more accessible and visually engaging for students (Invideo.ai website).

InVideo AI is particularly valuable for educators who want to enhance their teaching materials with multimedia content but lack the technical skills or time to create videos from scratch. The platform aligns perfectly with the philosophy of National Education Policy (NEP)

2020, which emphasizes making education more interactive, engaging, and technology-enabled (*Beard IT, 2025*).

Watch how InVideo.AI works:

<https://youtu.be/9rpOO0Bh7i0?si=3vDDKBj47iKvZXv6>

Teachers simply type a description or paste a script, select their preferences (video length, platform, voiceover accent), and the AI generates a complete video ready to share with students.

1.2. Brief History and Development

InVideo was founded in 2017 by Sanket Shah, Anshul Khandelwal, Panket Shah, and Harsh Vakharia in San Francisco, with the simple goal of helping non-professionals create professional videos using AI to handle tough tasks like scripts, scenes, and voiceovers.

In 2018, they launched their first cloud-based platform with templates and editing tools. By 2020, it had over a million users worldwide, \$3 million in seed funding, and an automated assistant for readable text.

In 2021, advanced AI video editing arrived, followed by better team collaboration features in 2023. The game-changer came with InVideo.AI, which democratized video creation for teachers and others - adding AI script generation, avatars, emotional voiceovers, educational platform integrations, and support for formats like YouTube Shorts and explainers.

In 2024, they optimized AI automation and hit revenue milestones; by 2025, annual recurring revenue reached \$70 million, with v3.0 integrating models like Google's Veo 3.1 and OpenAI's Sora 2 for realistic text-to-video magic, all backed by \$52.5 million from investors like Peak XV Partners.

1.3. Target Audience and Scope

InVideo AI is designed for a diverse range of users, but for educational purposes, it serves:

- School teachers (primary, secondary, and senior secondary levels)
- Teacher educators and academic trainers
- Content creators and instructional designers
- Special educators working in inclusive education settings
- Educational institutions creating online learning materials

- Individual educators designing blended and hybrid learning experiences

The platform is used globally by educators, businesses, marketers, and content creators. It is particularly valuable for teachers looking to create engaging multimedia content for Distance Education, hybrid learning models, and student-centered instruction aligned with NEP 2020. The scope extends to creating videos for various subjects, including Science, Social Studies, Economics, Languages, History, and professional development courses.

2. Characteristics and Features

2.1. Core AI Capabilities

InVideo AI uses advanced artificial intelligence and natural language processing (NLP) to:

- Generate scripts automatically using prompts or content provided by the users.
- Select visuals from its broad library that has over 16 million photos and videos to match the script/content.
- Create naturalistic voiceovers, available in over 50 languages and different accents.
- Generate AI characters and avatars to present the content that helps teachers create training videos and explainers with AI twins.
- Add captions/subtitles in the videos in multiple languages that makes the content accessible for diverse learners.
- Compose background music matching the pace and tone of the video.
- Generate transition effects to create professional looking videos.

The InVideo AI system processes the input, replaces words ensuring that the generated content is pedagogically sound, age appropriate and aligned with the educational objectives.

2.2. Key Features and User Interface (UI)

InVideo AI has a very teacher-friendly interface with the following features:

1. Video Creation Workflows:

- Text-to-Video: Convert simple prompts or full scripts into complete videos.
- AI Avatar Creation: Create personal AI twins from a recorded video or YouTube link.
- Template-based Creation: Choose from 5,000+ templates designed for different purposes (education, marketing, social media, etc.)
- Multi-platform Optimization: Generate videos optimized for different platforms like YouTube, Instagram, TikTok, and other educational platforms.

2. Editing Capabilities:

- Magic Box Editing: Edit videos using simple text commands like "change the voiceover accent", "delete scene 5", "add subtitles", "slow the pace a little", or "add a funny intro".
- Media Swapping: Replace the visuals by simply describing what is wanted.
- Voice Customization: Choose from multiple AI voices, accents, and emotional tones.
- Music and Sound: Select or customize background music to match your video's mood.

3. User-Friendly Features:

- Simple dashboard with drag-and-drop interface.
- Quick export in multiple formats and resolutions (including 4K on premium plans).
- Real-time collaboration tools (coming soon on premium plans).
- Cloud storage for saving drafts and projects.
- Commercial rights are included with all videos created.

4. Teacher-Specific Benefits:

- No video editing skills are required. Anyone can create professional videos.

- It saves hours of content creation time.
- Allows direct integration with Canvas, Google Classroom, and other LMS platforms.
- Supports the creation of videos in multiple languages and adding subtitles for inclusive classrooms.

2.3. Differentiating Characteristics

- InVideo.AI is different from other video-making tools and AI platforms in several key ways:
- Compared to regular video editors (like Adobe Premiere or DaVinci Resolve):
- It's super easy to use - no technical skills or training needed.
- No need to find stock footage, the AI picks visuals automatically.
- Everything is done together - script, visuals, voiceover, music, and effects are fully automated.
- Compared to other text-to-video tools:
- It gives access to over 16 million high-quality stock photos and videos for the best visuals.
- The AI voiceovers sound natural and expressive, adding emotion to the video.
- It includes ready-made templates and features specially designed for teachers and classrooms.
- Compared to general AI tools (like ChatGPT or Bard):
- It focuses only on video creation with actual visual output, not just text.
- It's tailored for education, creating age-appropriate and curriculum-friendly content.
- Videos are export-ready for professional classroom or institutional use.
- Security and compliance features:
- Being cloud-based, it works from any device, anywhere.
- All exported videos come with commercial usage rights.
- Premium users get watermark-free videos.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

To use InVideo AI effectively, teachers need:

1. A stable internet connection and a web browser.
2. A free or paid [InVideo AI](#) account (registration is quick and simple).
3. Basic familiarity with digital tools (no advanced technical skills required).
4. Lesson content (text, script, outline, or even just a topic idea).
5. Optional: A video or YouTube link to create a personal AI avatar.

Getting Started:

1. Visit [invideo.io](#)
2. Sign up with an email address or use an existing Google account
3. Verify your email
4. You're ready to start creating videos!

3.2 Step-by-step Usage Guide (Scenario-Based)

Scenario: Creating a video explaining the concept of Hindu Undivided Family Business from the chapter Forms of Business Organisation (Business Studies, Grade 11, CBSE)

Steps:

1. Open [InVideo AI](#) and click "Create New Video".
2. Choose your workflow: Select "Educational Video" or "Text-to-Video".
3. Enter your prompt: "Create a 5-minute educational video explaining what is the meaning of the Hindu Undivided Family business through a story of a family called the "Gupta Family" who have a handicrafts business. Include the features (managed by Karta, ancestral property, no formal registration), advantages (tax benefits, unity), and disadvantages (disputes, limited expansion). Use simple language, animations, and Indian visuals."

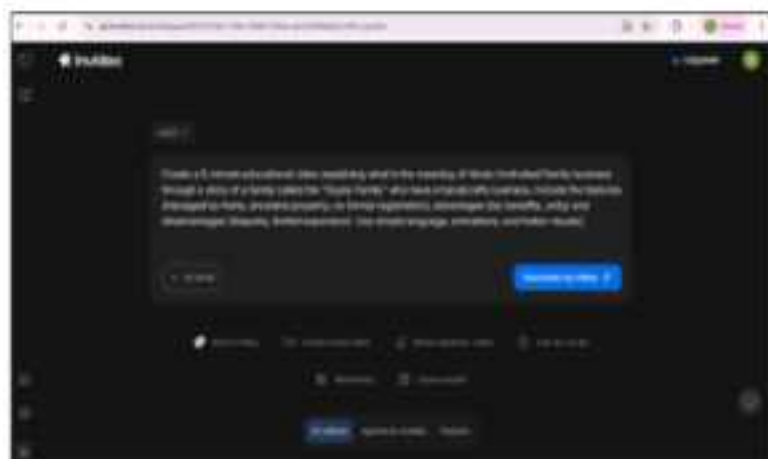


Fig 2. Prompt given to AI

4. Customize settings:
 - Video length: 5 minutes
 - Platform: YouTube/Educational
 - Voiceover accent: Standard English
 - Style: Animated and educational
 - Click "Generate Now" and let AI process (usually takes 2-5 minutes)
5. Review the generated video with auto-generated script, visuals, voiceover, and music.
6. Make edits using Magic Box (optional):
 - "Make the voiceover sound softer."
 - "Replace scene 2 with animations showing family meetings."
 - "Add subtitles in Hindi for ESL students."
7. Export the video in HD quality.
8. Upload to Canvas or Google Classroom, or share the link directly with students or show it in the class.

Result: A professional, engaging business studies video created in under 20 minutes without any video editing software.

3.3. Tips and Best Practices

The following are a few tips to make effective videos using InVideo AI:

- Keep the prompts super clear, mention key terms, important points to be included and any examples to be included.
- Check everything in detail. AI content may not be accurate at all times. Hence, check the video carefully and make sure it aligns with the lesson objectives.
- Pair up the video with activities, discussions, and games for an effective lesson.
- The generated video can be used in many ways like- grabbing attention while introducing the topic, explaining concepts to visual learners, for a quick revision or recap and in cases of online or hybrid learning.
- Use of AI avatars for a steady style of teaching.
- Add multiple subtitles or voiceovers for diverse groups.
- Adapt the videos for suitable platforms.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

InVideo AI meshes seamlessly with today's teaching methods and learning principles, especially by ramping up visual and multimedia elements. Studies prove that blending images, voiceovers, on-screen text, and background tunes helps kids grasp ideas, retain them longer, and stay hooked far more than plain text or sound alone. Educators love deploying these clips in flipped classroom setups, letting students preview material at home so class time frees up for debates, problem-solving, or group projects, which lines up spot-on with NEP 2020's push for learner-driven approaches. The platform champions inclusivity too, offering various languages, captions, and customizable playback speeds to reach English language learners, those with hearing challenges, or anyone benefiting from paced adjustments. On top of that, whipping up tailored versions at varying complexity suits differentiated teaching for every ability level, and the polished, vibrant videos grab attention and fuel excitement from the get-go.

4.2. Impact on Teaching and Learning

For Teachers:

- **Drastically reduces preparation time:** Creating a professional video now takes 10-20 minutes instead of hours.
- **Reduces workload:** Teachers can focus on pedagogy, student interaction, and assessment instead of technical video production.
- **Increases content variety:** Teachers can create videos for different topics, subjects, and learning objectives without significant time investment.
- **Enhances professional appearance:** Even beginning creators produce polished, professional-looking videos that reflect well on the institution.

For Students:

- **Improved retention:** Animated, visually engaging explanations help students remember concepts better than text-based materials.
- **Flexible pacing:** Students can pause, rewind, and watch videos multiple times at their own pace, supporting differentiated learning[1]
- **Increased engagement:** Colorful animations, professional voiceovers, and structured pacing capture and maintain student attention.
- **Accessible learning:** Multiple language options, subtitles, and adjustable speeds make content accessible to all learners.
- **Support for multiple learning styles:** Visual, auditory, and reading/writing learners all benefit from the multimedia format.

For Institutions:

- **Consistent content quality:** All students receive professionally-produced learning materials.
- **Scalability:** Teachers can share videos across classrooms, grades, and subjects.
- **Hybrid learning support:** Robust video content enables seamless transitions between in-person and remote instruction.

4.3. Specific Classroom Applications

- **Lesson Introductions and Hooks:** Concise 2-3 minute videos introduce new units or topics, stimulating student curiosity and engagement.
- **Concept Explanations:** Complex topics such as photosynthesis, fractions, historical events, or economic principles are clarified through animations and visuals that improve comprehension.
- **Flipped Classroom Model:** Students view instructional videos at home, reserving class time for discussions, problem-solving, projects, and individualized assistance.
- **Revision and Exam Preparation:** Focused videos enable efficient review of essential concepts prior to examinations, reducing extended study requirements.
- **Student-Created Content:** Students utilize InVideo AI to produce videos on research projects, reports, or conceptual understanding, fostering both knowledge application and creativity.
- **Support for Absent Students:** Video summaries provided by teachers ensure absent students maintain progress without disruption.
- **Multilingual Support:** Videos generated in various languages or with multilingual subtitles accommodate diverse student demographics.
- **Professional Development:** Teacher trainers and institutions employ InVideo AI for creating onboarding materials and professional development modules for educators.
- **Special Education:** Customized videos with simplified language and slower pacing assist students with learning differences.
- **Integration with LMS Platforms:** Videos upload seamlessly to platforms like Canvas, Google Classroom, Moodle, or institutional systems, enhancing teaching workflows.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Technical Limitations:

- **Free plan limits:** Watermarks show up, storage caps at 1GB, videos stick to 720p quality, and generation runs out quickly. Premium unlocks clean exports.
- **Stock media gaps:** With 16 million photos and clips, super-specific topics sometimes lack perfect matches.
- **Quality ups and downs:** AI scripts work well most times, but can miss details, get facts wrong, or skip key points in tough subjects.
- **Customization locks:** Free users miss out on voice cloning, team sharing, or AI image/video creation—those need paid access.
- **Needs steady internet:** Fully online setup means spotty connections in rural spots can slow things down for teachers.

Pedagogical Challenges:

- **Too much video reliance:** Swapping live teaching for clips cuts down real chats between teachers and students.
- **Watching without doing:** Videos alone turn into mindless viewing unless mixed with talks, tasks, or quizzes for real learning.
- **Access hurdles:** Subtitles help, but color-blind kids or others with unique needs might struggle with visuals.
- **Fact-check needed:** AI can slip on details, especially in fast-changing topics—teachers must double-check everything.

5.2. Ethical and Equity Considerations

- **Data privacy basics:** Cloud storage holds user info—check InVideo.AI's privacy rules closely. Get proper okay before using student photos or voices in videos.
- **AI avatar questions:** Making digital teacher copies sparks debates on who owns them and if they feel real. Tell students upfront when content comes from AI.
- **Copyright checks:** Stock clips come licensed, but know the rules. AI scripts might have some misinformation or may echo other information so the teachers need to confirm it's fresh.

- Fair access issues: Paid perks cost extra, so schools weigh whether every teacher gets them. Kids in low-resource spots may struggle with slow internet for videos.
- Real learning matters: Videos aid teaching, but true smarts come from kids thinking hard, joining in, and using ideas hands-on.

5.3. Future Outlook and Roadmap

InVideo AI's upcoming features pack a punch for classrooms, starting with full AI tools on the Generative Plan to craft custom images and videos from nothing. Interactive upgrades let teachers embed quizzes in clips, add clickable notes, or create branching paths that shift with student choices. Smarter AI even reads emotions to adjust tone and keep kids hooked. Teams can edit videos live together, while analytics reveal pauses, rewinds, and skips to pinpoint learning snags. Auto-generated quizzes tie right into video content, offline downloads work in spotty internet zones, and AR/VR links bring immersive, hands-on experiences to life.

6. Conclusion

InVideo AI marks a big step forward for teachers wanting to make pro-level videos that grab attention and boost learning, without needing tech skills, fancy gear, or hours of editing. It levels the playing field by handling everything from scripts to visuals, letting educators focus on crafting multimedia lessons that fit hybrid classes, NEP 2020's push for interactive content, and all kinds of student styles—think quick topic intros, deep-dive explanations, review clips, or even student projects. That said, it shines brightest as a sidekick to solid teaching, not a stand-in; real magic happens through teacher-led discussions, checks on understanding, and those personal bonds that spark growth. Looking ahead, as AI gets sharper, tools like this will hand teachers even more ways to personalize and engage lessons, amplifying what educators already do best: inspire and guide kids.

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Julius AI

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Julius AI is an artificial intelligence powered data analysis and visualization tool designed to make complex analytical tasks simple and accessible for students, teachers, researchers, and professionals. It works as an intelligent statistical assistant that helps users interpret datasets, create graphs, explain statistical results, and convert numerical information into clear, meaningful insights.



Fig 1. Logo of Julius AI



Fig 2. Main page of Julius AI

At its core, Julius AI acts as a bridge between raw data and accurate interpretation. Users can upload datasets or enter numbers manually, and the tool instantly produces descriptive statistics, comparative analysis, correlations, graphs, and narrative explanations. Unlike traditional statistical software which often requires training, Julius AI allows users to interact using simple natural-language commands. For

example, users can ask, “*Create a bar graph of students’ test scores,*” or “*Explain the relationship between study hours and achievement,*” and the tool generates precise outputs within seconds.

By automating analysis and visualization, Julius AI reduces the technical burden typically associated with data work. This allows users to focus more on interpretation, decision-making and academic writing. As a result, the tool becomes a valuable support system for learners and educators who want to understand data meaningfully without advanced statistical training.

1.2. Brief History and Development

Julius AI emerged during a period of rapid growth in educational artificial intelligence, particularly around 2023–2024, when data-driven decision-making became essential across academic and professional fields. While many AI tools were developed for writing, summarizing, or generating content, very few supported **practical data analyses** in a simple and accessible way.

To address this gap, developers designed Julius AI with the aim of **democratizing data analytics** and making statistical reasoning easy for individuals who may not have formal training in data science. The tool was created to solve common challenges faced by students and educators, such as difficulty interpreting numerical results, choosing statistical tests, or preparing clear visualizations.

From the beginning, Julius AI followed a user-centred design approach, prioritizing clarity, simplicity, and natural language interaction. Over time, it has continued to evolve adding better analytical models, improved explanations, and expanded features to support academic research, classroom teaching, and professional reporting.

1.3. Target Audience and Scope

Julius AI is useful for a wide range of users, reflecting the increasing importance of data literacy in education and research.

1. **Students (School, Undergraduate, and Postgraduate)**- It helps students in organization of content material, interpret numbers, make graphs, and complete data-based assignments.
2. **Teachers and Teacher-Educators**-Teachers can use Julius AI to analyse classroom assessments, monitor student progress, evaluate interventions, and practice evidence-based

decision-making. Teacher educators can use it to simplify the teaching of statistics.

3. **Researchers and Scholars (M.Ed., M.Phil., PhD)**-Researchers conducting quantitative studies can rely on Julius AI for statistical calculations, interpretation, and visualization, especially if they are not fluent in advanced software like SPSS or R.
4. **Education Administrators and Policy Makers**-Administrators handling large datasets such as attendance, achievement scores, or surveys can use Julius AI to generate clear summaries for decision-making.
5. **NET/SET Aspirants**-The tool helps learners practice data interpretation, which is an important part of the Research Aptitude unit.



Fig. 3 Julius AI Interface

Scope of the Tool:

Julius AI supports a wide range of research and educational activities, such as:

- Exploratory data analysis
- Descriptive and inferential statistics (depending on the version)
- Visualization of trends and patterns
- Interpretation of results in simple language
- Preparation of research reports and presentations
- Analysis of classroom and institutional data

While Julius AI is not a replacement for advanced statistical expertise, it greatly improves users' ability to understand, interpret, and communicate data. Its simple design promotes data literacy and supports evidence-based academic practices.

2. Characteristics and Features

2.1 Core AI Capabilities

Julius AI has several key abilities that help users work with data easily:

- Users can type questions in normal English, such as *"find the average," "explain this data,"* or *"show a bar graph."* Julius AI understands these without technical commands.
- It quickly calculates values like mean, median, range, or correlation. It can compare groups and identify trends in the data.
- The tool explains what the results mean in simple language, helping users understand the significance of their findings.
- It can create bar charts, pie charts, line graphs, and scatter plots within seconds.
- If the data contains missing values or mistakes, Julius AI alerts the user and suggests corrections.
- These features make the tool helpful for anyone who needs to analyse data without advanced knowledge.

2.2 Key Features and User Interface (UI)

Julius AI is designed to be simple and user-friendly. Some of its important features include:

- Users can upload Excel or CSV files, paste data, or type values. No technical skills are needed.
- The tool looks like a chat window. Users type questions, and Julius AI replies instantly with graphs, results, or explanations.
- Tables, graphs, and explanations appear in a clean layout, making it easy to read and understand.
- Users can request a graph, and the tool generates it immediately. These graphs can be used in reports or presentations.
- Graphs and summaries can be downloaded or copied into assignments, research work, or teaching materials.
- There are no complicated settings or menus. Anyone can use the tool comfortably.

2.3 Differentiating Characteristics

Julius AI is different from other tools because:

- **It uses simple English, not Formulas**-Tools like Excel or SPSS need formulas. Julius AI works through normal language.

- **It gives explanations, not just Numbers**—It helps users understand the meaning behind the calculations.
- **It is useful for all levels of Learners**—School students, college students, teachers, and researchers can all use it easily.
- **It creates graphs immediately**—No design skills or formatting are needed.
- **No installation is Required**—Everything works online through a browser.
- **It supports learning**—By explaining results clearly, it helps users understand basic statistics better.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

Before using Julius AI, users need only a few basic requirements. Since the tool operates entirely online, a stable internet connection is essential to ensure smooth functioning. Julius AI can be accessed from any device, including a laptop, desktop computer, tablet, or smartphone, although working on a larger screen is more comfortable when analysing graphs and detailed datasets.

To use the tool effectively, users should prepare a clean and well-organized dataset. The data must be arranged in a simple table format, preferably in Excel, CSV, or Google Sheets. Julius AI also allows manual entry of values. Each column in the dataset should have clear and meaningful names.

E.g. *Self-awareness Pre* and *Self-awareness Post*—so that the tool can understand and analyse the information accurately.

Julius AI is web-based, no installation or special setup is required. Users simply need to open the website in their preferred web browser, upload or enter their data, and begin interacting with the tool immediately.



Fig 4. Julius Chatbot

3.2 Step-by-Step Usage Guide (Scenario-Based)

- **Scenario**

Suppose the study is carried out on *Yoga Education for developing Self-Awareness and Motivation for Students*. In this case, **Julius AI can support the researcher in two ways**, first, by helping generate innovative lesson-plan ideas and activities for the YEP sessions through language prompts, and second, by analysing the pre-test and post-test scores to interpret the improvement in variables.

- **Using Julius AI for Lesson Planning Ideas**

Before beginning the intervention, the researcher can interact with Julius AI to develop creative and age-appropriate lesson activities on variables. By typing prompts such as “Suggest mindfulness-based activities for Grade 8,” “Give yoga poses suitable for improving self-awareness in children,” or “Create an innovative classroom activity to motivate upper primary students,” the tool provides a variety of structured ideas that can be used to design sessions. These AI-generated suggestions help the researcher create more engaging, meaningful, and child-friendly lesson plans for the intervention.

provides a short, clear interpretation describing the positive direction of change. This helps the researcher present findings confidently and accurately in the data analysis and discussion chapters.

- **Exporting Outputs**

All graphs, tables, and explanations can be downloaded or copied. These outputs can be added directly to the dissertation, research proposal, or seminar presentation.

3.3. Tips and Best Practices

Using Julius AI effectively during a research study like the Yoga Education Program (YEP) requires thoughtful preparation and mindful interaction with the tool. The following best practices help ensure accurate, meaningful, and research-friendly outputs.

- **Keep Dataset Clean and Well-Organized:** A clean dataset is essential for accurate analysis. All columns should have clear, consistent names such as *SelfAwareness_Pre*, *SelfAwareness_Post*, and *Motivation_Post*. Avoid spelling variations, extra spaces, or mixing numbers with text. Proper labelling helps Julius AI identify each variable correctly.
- **Use Clear and Simple Prompts:** Julius AI performs best when instructions are short, direct, and easy to understand. Prompts like "Calculate the average," "Explain the difference between pre- and post-test scores," or "Create a bar graph" lead to precise and reliable results. Simple language reduces confusion and makes the analysis smoother.
- **Generate Multiple Visuals for Better Insight:** For an intervention-based study like YEP, it is useful to generate multiple graphs one for each variable and one combined graph. These visuals help the researcher see patterns more clearly and provide stronger evidence in the analysis chapter.
- **Review Interpretations Carefully:** Although Julius AI gives helpful interpretations, it is important for the researcher to read them carefully and ensure they match the context and objectives of the study. Final conclusions should always be reviewed and framed by the researcher's academic understanding.
- **Use Julius AI to Strengthen Research Aptitude:** The tool is also valuable for NET/SET aspirants. By practising data interpretation, reading graphs, and understanding basic statistics through Julius AI, learners can build confidence in the Research Aptitude section of the exam.

- **Save and Export Outputs Regularly:** The graphs, summaries, and explanations generated by Julius AI can be copied or downloaded and used directly in the dissertation. These outputs fit well into Chapter 4 (Data Analysis), Chapter 5 (Findings and Conclusion), and the annexures, saving time and ensuring neat presentation.

4. Educational Implications and Applications

4.1. Complementary Tool for Advanced Statistical Analysis

While Julius AI is excellent for basic descriptive analysis and visualization, more advanced statistical analysis such as inferential tests, regression, hypothesis testing and deeper data modelling often requires a more powerful tool. For this purpose,

- It supports inferential statistics (t-tests, ANOVA, correlations, regressions), which are essential for rigorous research studies.
- It allows detailed data management and more control over variables and analyses.
- Researchers can use it along with Julius AI: use Julius AI for initial descriptive summaries and visuals, and JASP for deeper statistical testing and validation.
- Its open-source nature makes it freely available, which helps researchers with limited budget.

Thus, combining Julius AI (for quick descriptive analysis) with JASP (for advanced statistical examination) provides a balanced, comprehensive approach for academic research, especially useful when doing thesis work, intervention studies, or published research.

Pedagogical Assistance

The use of Julius AI in educational settings is grounded in the belief that data literacy is an essential 21st-century skill for both teachers and students. Understanding data helps learners make informed decisions, identify patterns, and think critically skills that align with constructivist and inquiry-based learning approaches. Julius AI supports these pedagogical principles by simplifying data analysis and helping students engage meaningfully with numerical information.

From a teacher's perspective, the tool reduces the complexity of statistical concepts, making it easier to explain ideas such as averages, trends, and comparisons. Students can see their learning progress in visual form, which improves self-reflection and metacognitive awareness. By providing clear interpretations, Julius AI also helps

learners develop confidence in understanding graphs and statistics that are commonly used in academic research.

Overall, Julius AI strengthens the teaching-learning process by promoting analytical thinking and making data-driven activities accessible to diverse learners.

4.2 Impact on Teaching and Learning

Julius AI positively influences teaching and learning in several ways. For teachers, it becomes a quick and reliable assistant for analysing classroom assessments, evaluating the success of interventions, and generating visual reports. Instead of spending time on manual calculations, teachers can focus more on planning instruction, giving feedback, and designing meaningful learning experiences.

For students, Julius AI makes statistics less intimidating. They can explore their data, visualize changes over time, and understand their performance using simple language explanations. This helps students become active participants in the learning process rather than passive recipients of grades. The tool also supports project-based learning, action research, and inquiry activities by helping learners analyse data independently.

In a broader sense, Julius AI encourages a culture of evidence-based practice in schools. Teachers and students are able to make academic decisions based on actual data, which leads to more transparent, reflective, and effective educational outcomes.

4.3 Specific Classroom Applications

Below are a few practical ways Julius AI can be used directly in the classroom:

- **Analysing Student Progress**
Teachers can upload assessment scores and ask Julius AI to generate descriptive statistics or graphs showing individual or class performance. This helps identify learning gaps and strengths.
- **Evaluating the Effectiveness of Teaching Interventions**
In programs teachers can compare pre-test and post-test scores to measure improvements in self-awareness and other variables. Julius AI helps quickly determine whether the intervention had a positive effect.

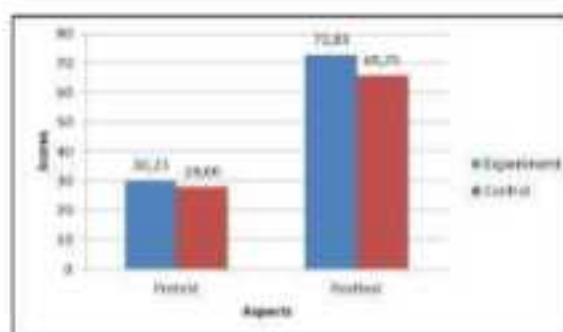


Fig 6. Bar Graph of pre-test and post-test

- Supporting Research Projects for Students**
 Students conducting small research projects (e.g., survey-based tasks) can use Julius AI to analyse their data and create visual presentations, helping them understand research methodology in a practical manner.
- Creating Instant Visuals for Classroom Discussions**
 During a live lesson, teachers can enter sample data into Julius AI to demonstrate concepts like mean, variation, or comparison among groups. This helps make abstract statistical concepts concrete.
- Using Data for Reflective Practice**
 Teachers can upload feedback or survey responses to understand student needs, classroom climate, or learning challenges. Julius AI provides summaries that support informed decision-making.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Although Julius AI is a supportive tool for educational and wellness research, it still has certain limitations that researchers should consider. These limitations become visible especially when conducting pre- and post-intervention studies such as your published research on the **Effect of Face Yoga on Resilience**.

- Limited Features in the Free Version**-The free version of Julius AI only provides basic descriptive analysis such as calculating averages, listing scores, or generating simple graphs. It does not allow deeper or detailed statistical techniques.

Example: In research the point is how resilience improved

from pre-test to post-test. Julius AI can show the average resilience score before and after the sessions and can make a bar graph. However, it **cannot** show more detailed comparisons or advanced calculations within the free version.

- **Prompts Need to Be Very Clear and Simple**-Julius AI works best when questions are short, direct, and broken into steps. Long or confusing prompts can lead to incomplete results.

Example: Instead of typing: *"Analyse my resilience scores and tell me how much improvement happened and show it also,"* the user needs to break it into small steps like:

- "Show descriptive statistics for resilience pre-test and post-test."
 - "Create a bar graph for resilience pre-test and post-test."
 - "Explain the difference in simple words."
 - This stepwise prompting is necessary for the tool to give accurate results.
- **Struggles With Messy or Unclear Data**-Julius AI requires neat and well-labelled data. If the dataset has spelling mistakes, empty cells, or confusing variable names, AI may misread
 - **Example:** If your resilience data columns are labelled differently such as *RES1*, *Resilience old*, or *Pre ResilienceV2*, the tool may not understand they refer to the same variable.
Clear labels like *Resilience Pré* and *Resilience Post* work best.

- **Cannot Independently Design Full Intervention Programs**-While Julius AI can give ideas for activities, it cannot design a full programme with all steps, objectives, timings, and assessments.

Example: If you type, *"Create a full 30-minutes face yoga session plan,"* the AI may give general suggestions like "do breathing," "relax muscles," or "practice gentle stretches." But the final structured lesson plan requires the researcher's academic inputs.

- **Interpretation Still Requires Human Judgment**-Although the tool explains results in simple language, the final interpretation must come from the researcher.

Example: Julius AI may say: *"Post-test resilience scores are higher than pre-test scores."*

But you, as the researcher, must explain what this means such as:

"This improvement suggests that face yoga helped participants strengthen emotional balance and stress-handling capacity."

5.2 Ethical and Equity Considerations

- **Use as Support, Not Substitution:** AI should assist learning, not replace understanding. Students and researchers must not copy AI output without comprehension.
- **Data Privacy and Confidentiality:** Remove all personal identifiers before uploading datasets especially in studies involving children (e.g., YEP) or wellness interventions (e.g., Face Yoga study).
- **Ensure Fair Access:** The free version has limited features; not all students may access premium tools. Teachers should provide alternatives to maintain equality.
- **Transparency and Academic Honesty:** If graphs, summaries, or explanations are generated using Julius AI, this should be acknowledged in the research or dissertation.
- **Avoid Over-Reliance:** AI interpretations should be reviewed by the researcher; human judgment remains essential.

5.3 Future Outlook and Roadmap

- **Expand Free Features:** Adding more descriptive tools and simple comparison functions would help beginner researchers and school teachers.
- **Introduce Guided Learning Mode:** Future versions can explain "how" calculations are done, supporting NET/SET and basic statistics learning.
- **Provide Ready-Made Research Templates:** Templates for pre-post studies, classroom assessments, or yoga/wellness interventions would save time for educators.
- **Improve Integration with Educational Platforms:** Connecting Julius AI with LMS or digital gradebooks could enable real-time classroom analysis.
- **Complement with Advanced Tools:** For deeper statistical analysis, Julius AI can be paired with JASP, one of the best free tools for research-level statistical testing.

6. Supplementary Information and References

6.1 Tool Access Details

Julius AI is easily accessible through its official website, which opens directly in any standard web browser. Users do not need to install any software or create an account to begin basic analysis. The landing page is designed in a clean and user-friendly manner, allowing beginners to start working within seconds. Once the user uploads a dataset, the tool immediately provides options for descriptive statistics, visualizations, and simple interpretations. This makes the tool suitable for teachers, students, and researchers who want quick access without technical barriers. Julius AI is accessible through its official website: <https://julius.ai/>

Regarding the pricing structure, Julius AI follows a **freemium model**, meaning that essential features are available for free, while more advanced capabilities may require a paid upgrade. The free version allows users to upload datasets, generate basic charts, and receive simple descriptive summaries and explanations.

However, the free version does have certain limitations. Large datasets, advanced statistical options, detailed export tools, or extended analytical explanations may only be available in the premium version. Users conducting long-term research projects or requiring deeper statistical functions may consider upgrading although for most school-based or basic educational studies, the free version is adequate. The license model is designed to be flexible and accessible. Students and teachers can continue using the free version with no time restrictions, making Julius AI a budget-friendly option for educational settings. Researchers who need more detailed analysis can choose paid features as needed, ensuring that the tool remains scalable depending on the complexity of the research project.

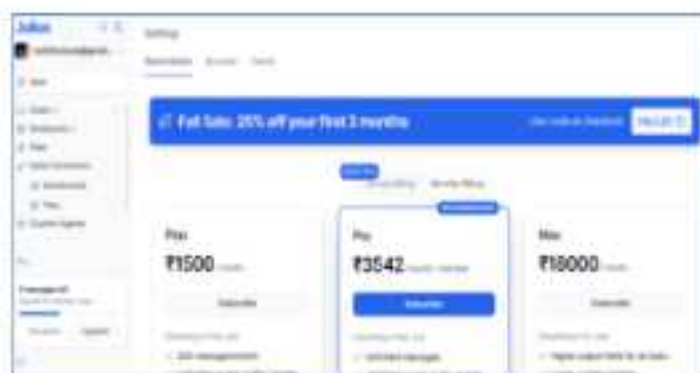


Fig 7. Pricing plans

6.2 Further Reading and Documentation

To make full use of Julius AI and strengthen one's understanding of data analysis, it is helpful to explore additional reading materials and documentation. The official Julius AI platform generally provides basic guidance on how to upload data, structure prompts, and interpret the outputs. These official help pages or tutorials assist new users in understanding the tool's interface and ensure accurate use, especially for beginners who may not have a strong background in statistics.

Beyond the tool itself, reading standard books on **educational research methodology** can deepen the user's conceptual understanding. Such books explain the meaning of descriptive statistics, the purpose of pre-post study designs, and the value of visual representations in interpreting student outcomes. These resources are especially useful for researchers designing interventions. Users can also benefit from articles and academic papers that discuss the role of artificial intelligence in education. These provide insight into how AI tools improve teaching, assessment, and research. For example, many researchers highlight how AI can support quick data interpretation, reduce teacher workload, and help students engage with real-time analytics.

In addition, online platforms such as YouTube, MOOCs, and educational technology websites offer short tutorial videos demonstrating how to use AI tools for data analysis. These visual guides help users understand practical steps such as uploading files, writing prompts, and generating graphs which can be extremely helpful for beginners.

Finally, those who need deeper or more advanced statistical analysis may explore complementary tools such as **JASP**, an open-source statistical software that provides more detailed functions. Using Julius AI for basic analysis and JASP for deeper testing creates a well-balanced approach to educational and wellness research. Together, these resources ensure that researchers can conduct their studies with clarity, accuracy, and confidence.

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Khanmigo

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1. Introduction and Tool Overview:

1.1 Tool Name and Core Functionality.

In today's classrooms, learning is evolving faster than ever – and Khanmigo is one of the tools leading this change. Developed by Khan Academy, empowering learners to study at their own pace, both in and out of the classroom. Covering subjects from



Fig. 1 Logo of Khanmigo

kindergarten to early college, including math, science, reading, computing, history, art history, economics, financial literacy, and more.

1.2 Brief History and Development.

Khanmigo was launched in March 2023 as an experimental AI-powered tutor and teaching assistant. Built on OpenAI's GPT-4 and customized to support safe, accurate learning, it was first tested with students and teachers in selected U.S. schools. Over time, Khan Academy expanded Khanmigo's features, including the Writing Coach, which was launched in late 2023, to help students improve their writing and provide educators with feedback tools. In May 2024, Khan Academy partnered with Microsoft, allowing Khanmigo's teacher tools to be offered free to K-12 educators through donated Azure infrastructure. By 2024-2025, Khanmigo began expanding globally.

1.3 Target Audience and Scope.

- Students (primary to higher secondary)
- Teachers and educators
- Parents supporting home learning
- Schools integrating AI into learning
- Learners seeking personalized academic guidance

Its scope spans mathematics, science, languages, coding, writing, and the humanities.

2. Characteristics and Features:

2.1 Core AI Capabilities.

Khanmigo's core capabilities center on instructional dialogue, step-by-step tutoring, and the ability to adapt explanations to a learner's level. As an AI companion, it helps students reason through math problems, understand complex texts, explore historical events, and even practice writing and coding.

2.2 Key Features and User Interface (UI).

For the students:

- Offers a clean and student-friendly interface.
- Uses chat-style interaction.
- Provides guided hints.

For the teachers:

- Provides a dedicated teacher dashboard for efficient classroom monitoring.
- Includes tools to track student progress and learning activities.
- Helps teachers save time and enhance lesson planning with AI-powered support

2.3 Differentiating Characteristics :

The differentiating characteristics of Khanmigo are as follows:

Feature	Khanmigo	Other AI apps
Primary purpose	Designed specifically for education - tutoring, homework help, writing, and coding.	General-purpose: chat, writing, coding, creative tasks, business use, etc.
Curriculum Alignment	Integrated with the large, trusted content library of Khan Academy - lessons, videos, exercises.	Not necessarily aligned with a school syllabus or grade-wise learning.
Teaching style	Socratic method: asks guiding questions, gives hints, breaks problems into steps to promote critical thinking.	Often gives direct answers; you ask a question, and it directly responds with a full solution.
Safety & Moderation	Filters unsafe or inappropriate content.	May or may not filter inappropriate content.

Table 1 Features of Khanmigo

3. Practical Implementation and Usage.

3.1 Prerequisites and Setup.

Step 1. Visit the official Khanmigo website <https://www.khanmigo.ai>

For teachers, click on Teachers and sign up for free. Follow the same for Learners or Parents.

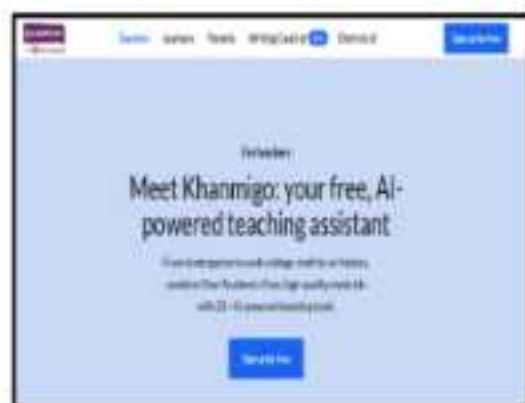


Fig 2. Dashboard of Khanmigo

Step 2. Once the sign-up is complete, access Khanmigo and follow the on- screen instructions for further use.

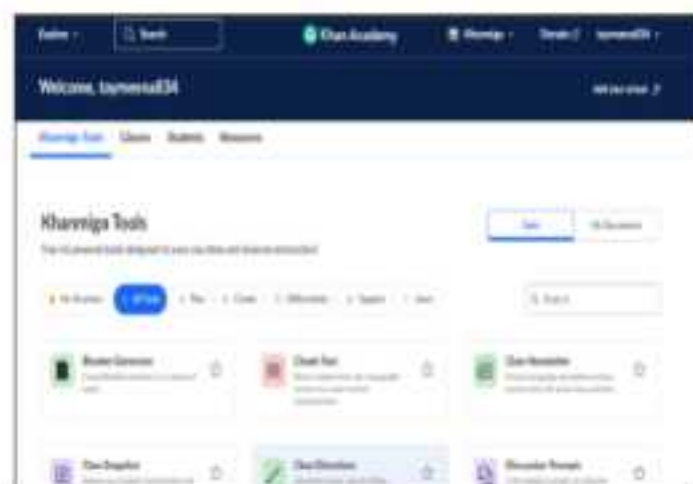


Fig 3 . Tools of Khanmigo

3.2 Step-by-Step Usage Guide:

• For Teachers:

There are 25 tools for teachers which can be used to plan, create, differentiate, support, and learn. Following is the list Tools:

I. Planning tools: Helps design lessons, activities, and class workflows

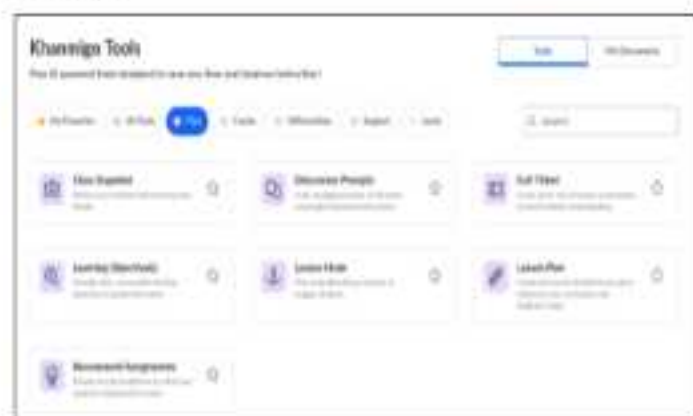


Fig 4 . Planning tools of Khanmigo

- Class snaps
- Discussion prompts
- Exit ticket
- Learning objectives
- Lesson Hook
- Lesson plan
- Recommend Assignment

II. Creation tools: Allows users to generate quizzes, worksheets, explanations, and learning materials instantly.

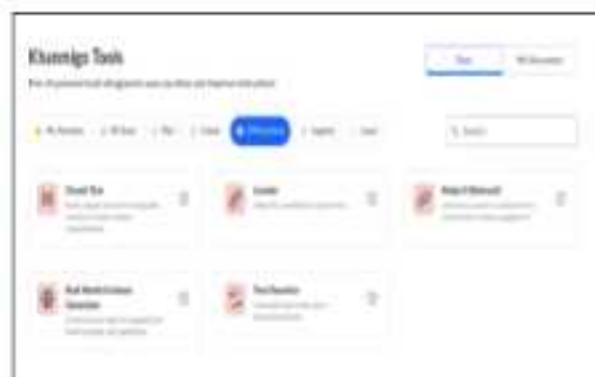


Fig 5. of Khanmigo

- Booklet Generator
- Class Newsletter
- Clear Direction
- Fun class summary poem
- Informational Text
- Letter of recommendation
- Multiple choice quiz
- Questions Generator
- Report card comments
- Rubric Generator

III. Differentiation Tools: Provides customised text and supports at different learning levels.

- Chunk Text
- Leveler
- Make it relevant

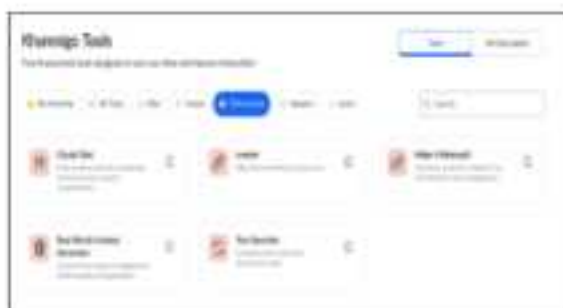


Fig 6. of Khanmigo

- Real-world context generator
- Text Rewriter

IV. Support Tools: Offers guidance, feedback, and step-by-step help for both students and teachers.



Fig 7. of Khanmigo

- IEP Assistant
- SMART Goal writer

V. To Learn: Acts as a personalised tutor that explains concepts, answers questions, and reinforces understanding.



Fig 8. Of Khanmigo

- Refresh my knowledge.

For Students:

Step 1: Sign up as a learner

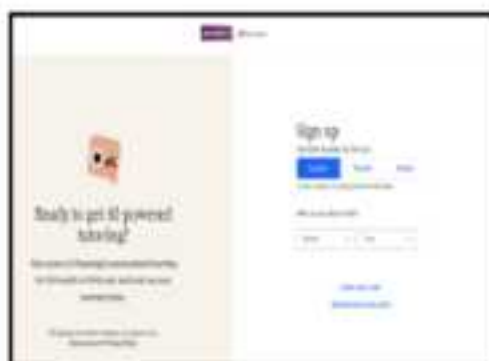


Fig 9. Of Khanmigo

Step 2: Select courses of your choice.

Khanmigo provides NCERT and SSC content from grades 1 to 12, organized in a very structured and easy to use manner.

3.3 Tips and Best Practices.



Fig 10. Of Khanmigo



Fig 11. Of Khanmigo

- Ask clear, specific questions to get accurate help.
- Use step-by-step guidance instead of asking for full answers.
- Teachers should review AI-generated tasks before assigning them.
- Use the Teacher Dashboard to monitor progress and adjust support.
- Combine Khanmigo with real teaching—AI supports, not replaces instruction.

4. Educational Implications and Applications.

Khanmigo supports constructivist learning by helping students build their own understanding through guided exploration. It creates personalized learning pathways based on each learner's needs and encourages inquiry-based engagement through interactive questioning. The tool also enables continuous formative assessment by giving instant feedback and identifying areas for improvement, while supporting differentiated instruction so teachers can tailor learning experiences for every student.

4.1 Impact on Teaching and Learning.

Khanmigo reduces teacher workload by automating tasks and generating learning materials, while enhancing student motivation through interactive, engaging conversations. It offers real-time feedback that helps learners understand mistakes instantly and provides strong support for struggling students by giving step-by-step guidance. The tool also enables self-paced learning, allowing students to progress at their own speed, and encourages creativity and

problem-solving through open-ended questions and exploratory activities.

4.3 Specific Classroom Applications.

- Class activities and group discussions
- AI-generated worksheets and quizzes
- Creative writing exercises
- Coding workshops
- Remedial learning support

5. Challenges, Ethics, and Future Directions.

5.1 Limitations and Challenges.

- Requires reliable internet
- Subscription fees may limit access
- AI-generated responses need verification
- Risk of over-dependence by students

5.2 Ethical and Equity Considerations.

- Ensuring fair access across different socio-economic groups
- Protecting student data and privacy
- Preventing misuse for cheating
- Maintaining teacher oversight

5.3 Future Outlook and Roadmap

Khanmigo aims to expand multilingual support, so more learners can benefit globally, while offering deeper subject-specific tutoring for more advanced and accurate learning help. It also plans to provide advanced teacher analytics to better track student progress and classroom needs, and to continue aligning its AI tools with educational standards to ensure safe, effective, and curriculum-aligned learning experiences. Additionally, Khanmigo strives to make AI-assisted classrooms more inclusive, ensuring every learner gets equal access to support and opportunities.

6. Supplementary Information and Reference.

6.1 Tool Access Details.

- The official URL of the Khanmigo app is <https://www.khanmigo.ai>
- Limited free content via Khan Academy

6.3 References

- All information is derived from Khan Academy and Khanmigo official website, educator testimonials, and independent reviews.
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Litmaps

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Litmaps is a research-oriented AI application that assists academic studies, and researchers in discovering, navigating, visualising, and monitoring scientific literature. Litmaps is based on a citation-network

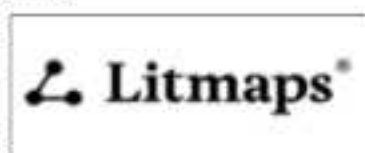


Fig. 1 Litmaps Logo

technique, which treats studies as nodes in a network and citations or references between them as links. This network allows users to easily identify essential documents, investigate how ideas evolved across time, and discover relevant but previously unknown works.

Litmaps provides an interactive "Literature map" instead of lengthy, unfocused lists of search results (like typical bibliographic search engines do). This visual approach organises papers based on key criteria (date, citation count, connectivity, etc), providing a "bird's-eye view" of a study subject.

Function of Litmaps are as follows:

- Create writing maps from seed articles or keywords
- Arrange papers by topics, impact, chronology, and relevance.
- It also monitors new publications automatically via alerts when new papers in topic emerge.
- It also export references/ bibliographies
- It also shares maps with colleagues and also promotes collaboration.

Thus, Litmaps aims to reduce the time and effort needed for literature reviews, while increasing comprehensiveness and clarity.

1.2. Brief History and Development

As the volume of the academic literature increased tremendously, researchers particularly undergraduates and early career academics began to experience information overload. Traditional keyword

searches (e.g., Google Scholar, PubMed, or Scopus) frequently provide hundreds or thousands of results, many of which are peripheral or irrelevant.

To solve this, Litmaps was created to use the citation network, a structured representation of how papers refer to one another as the foundation for literature discovery. Rather than depending just on keywords, Litmaps uses the relationships between publications to identify foundational works, clusters of related studies, and developing trends, providing a more relevant and organised path for literature review.

Litmaps has achieved global popularity; according to its website, hundreds of thousands of students, scholars, and professionals throughout the world.

1.3. Target Audience and Scope

Litmaps is intended for a broad academic audience.

- Undergraduate and postgraduate students are working on assignments, term papers, dissertations, and theses.
- PhD candidates and research researchers are performing literature reviews, systematic reviews, and metaanalysis.
- Faculty and educators provide reading lists, teach research techniques, and supervise theses.
- Industry researchers, policymakers and professionals need to stay current on research breakthroughs.

2. Characteristics and Features

2.1. Core AI and Algorithmic Capabilities

Litmaps power stems from its behind-the-scenes algorithms, which use citation networks and semantic similarities to propose related articles. According to its documentation, Litmaps supports three major search algorithms:

- **Shared Citations & References (default):**
Discovers articles that are most closely related to a particular seed article based on citations, references, and co-citations. This helps you locate influential or foundational work in your industry.
- **Common Authors:**
Locates further publications by the same authors (or frequent co-authors), allowing you to investigate a researcher's body of work or partnership.

- **Similar Text:**

Employs semantic/ text similarity (title and abstract) to identify papers that are related by the topic but may lack direct citation ties- great for discovering less obvious or recent literature

2.2. Key Features and User Interface (UI)

Litmaps offers a clean, intuitive, and visually appealing interface with several components.

- **Home Dashboard** – it create maps, options to start new searches and displays a summary of user activity
- **Map View Interface**- The core part (Heart) of litmaps, where citations appear as interconnected nodes. Users can zoom in/out, click nodes for details, or rearrange the visual layout
- **Paper Detail View**- it shows title, authors, publication year, citation count, and also links to full text
- **Timeline Feature**- It displays papers chronologically to help users understand the flow of research over time.
- **Collections Library** – It allows users to organise maps according to topics or research objectives
- **Export Options**- Here maps can be exported as images, PDFs, or reference lists compatible with Mendeley, Zotero, and EndNote.

2.3. Differentiating Characteristics

Characteristic that differs Litmaps from other tool in several ways:

- **Visual Learning Orientation** – Litmaps makes learning visual, interactive, and engaging by presenting search results in a long list
- **Predictive AI Suggestion** – Litmaps identifies papers that users might not find through standard keyword searches, unlike traditional search tools.
- **Easy Understanding of Research Clusters**- Clusters of research within a topic is automatically identified by Litmaps
- **Save Time and Efforts** -Literature search that take days can be done within just a few hours

3. Practical implementation and usage

3.1. Prerequisite and Setup

To begin using litmaps, user needs:

- Basic understanding of the research topic
- A functional email ID to create an account

- A stable Internet connection
- Keywords or DOIs of initial papers

3.2. Step-by-Step Usage Guide

Here's how you might use Litmaps in practice for a literature review on, say, "Impact of urbanisation on bird migration."

Scenario 1: Starting with a Topic / Keyword

1. Open Litmaps and select "New Search."
2. Enter your topic keyword: urbanisation birds migration.
3. The platform returns a set of "seed articles" across different subfields. Choose one or more that seem central.
4. Litmaps builds Litmaps, showing connected articles (via citations/references).
5. Use the axes/filter tools: set X-axis = publication date, Y-axis = citation count → quickly spot seminal older papers vs. recent trending ones.
6. Click on nodes to view metadata (abstracts, authors, citation counts).
7. Save the map in your library under a name like "Urbanisation Bird Migration."

Scenario 2: Expanding from a Known Key Paper (Seed Paper)

1. Start with a known influential paper you found via Google Scholar. Paste its DOI or title into Litmaps search.
2. Use the default "Shared Citations & References" algorithm to find connected works that reveal both papers cited by your seed and those citing it.
3. Use "Common Authors" algorithm to find related works from the same research group, which may represent continuing streams of research.
4. Use "Similar Text" algorithm to discover relevant works that haven't yet been heavily cited but are semantically useful for emerging studies.
5. Add interesting nodes to your map, annotate them (e.g., tag as "theme: habitat loss," "theme: climate change," etc.).

Scenario 3: Organising, Exporting and Monitoring

1. Group articles into thematic clusters (e.g., "habitat fragmentation," "urban light pollution," "migration pathways").
2. Export the map as an image or PDF to include in your thesis or literature review.

3. Export the reference list (e.g., BibTeX) and import it into the citation manager for writing.
4. Activate the "Monitor" or "Alert" feature this way, you get notifications when new relevant papers are published.
5. Share the map with co-researchers, supervisors, or classmates for collaboration or feedback.

These workflow steps reflect how Litmaps is used in real research and teaching settings.

3.3. Tips and Best Practices

Explore "predicted papers" for future research insights

Combine litmaps with Google Scholar or Scopus for thoroughness

Save each map with meaningful titles like "Chapter 2 Review" or "Theoretical Background".

Use filters such as year, relevance, or citation count for precision.

4. Educational Implications and Application

4.1 Pedagogical Rationale

Litmaps fit well within constructivist, connectivity and research based learning theories. Students learn best when they actively explore and visually interpret their information and by transforming text heavy research into visual networks litmaps also enhances comprehension and it promote meaningful learning

4.2 Impact on Teaching and Learning

For Students:

- It helps identify research gap
- It encourages deeper reading
- It strengthens critical thinking and analytical skill
- It makes literature reviews less overwhelming

For Teachers:

- It assists them in teaching research methodology to students
- It also helps them simplify explanation of theoretical development
- It allows demonstration of how research evolves

For institutions:

- It improves quality of dissertation and thesis
- It also enhances research culture

4.3 Specific Classroom Applications:

- Research methodology labs: It gives hands on training for reference searching
- Seminar: Instead of slides it gives literature evolution using map
- Assignment: Student can create their own citation maps for a selected topic
- Thesis Supervision: Faculty can easily track student research progress through maps

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- It requires basic digital literacy
- Some major studies may not appear due to incomplete indexing
- Free version limit map size
- Over dependence on AI could lead to missed manual insights

5.2 Ethical and Equity Considerations:

- Must avoid misinterpretation of citation links
- AI biases may influence suggestions
- Accessibility issues exists, as premium features may not be affordable for all
- Researchers must still read full paper, as maps cannot replace thorough reading

5.3 Future Outlook and Roadmap:

- AI generated summaries of clusters
- Integration with Scopus and web of science
- Expanded databases for regional and non English research
- Personalised learning dashboards for students

6. Supplementary Information and References

6.1 Tool Access Details

Official Website: litmaps.com

Subscription Model: Freemium (basic free tier), Paid Pro plan with unlimited maps, advanced filters, Zotero sync, custom alerts.

6.2. Further Reading and Documentation

Litmaps Help Center: tutorials, user guides, algorithm explanations.

Reviews and analyses of Litmaps and similar tools (e.g., as part of research-tool comparisons) for example, "Litmaps Review (2024): Revolutionizing Research with Dynamic Literature Mapping."

Studies on the use of citation networks and bibliometric mapping in research for broader context on the importance and limitations of such tools.

6.3. References

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Llama AI

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1. Introduction and Overview of Tools

1.1. Tool Name and Core Functionality

Llama AI is a group of open-source big language models developed by Meta AI to manage multilingual communication, text generation, reasoning activities, and coding support. With sizes ranging from 1 billion to 405



Fig 1 . Logo Llama

billion parameters, these models can be customised for educational uses such as creating tests, lesson plans, and individualised explanations for students. The technology facilitates smooth interactions in a variety of school situations by analysing extended contexts up to 128,000 tokens and supporting more than 30 languages.

1.2. Brief History and Development

When Meta first published its research models in February 2023, Llama AI was born. These models immediately became popular in the open-source community. While Llama 3 (2024) was trained on 15 trillion tokens for better reasoning, later generations such as Llama 2 acquired the ability to follow instructions. In response to the increasing demands for accessible AI in education, the most recent Llama 3.1 version in July 2024 brought frontier-level performance across scales, multilingual support for eight key languages, and improvements in tool use and translation.

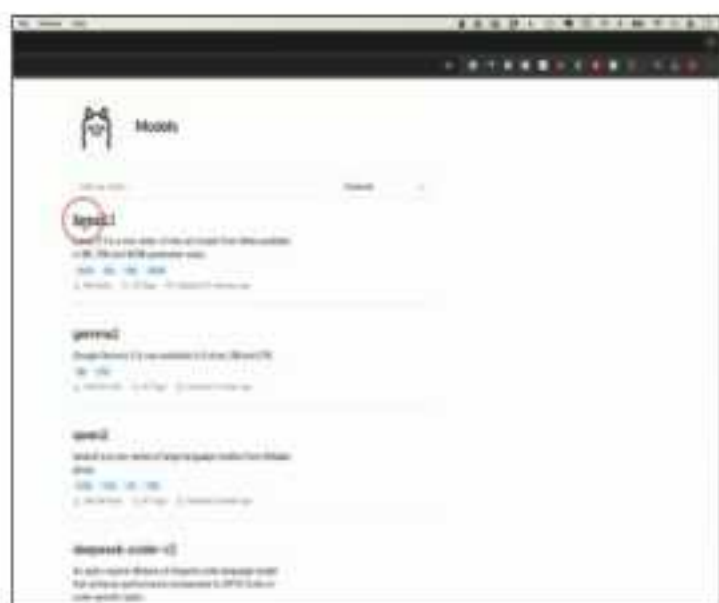


Fig 2 . Select mode

1.3. Target Audience and Scope

- Learners and Student Teachers use Llama AI for interactive study tools, essay draughting, homework assistance, and concept summaries. It is used by educators to create lesson plans, worksheets, assessment tools, and simplified explanations of difficult subjects.
- Professionals and Researchers: Professionals use it for data analysis, multilingual documentation, and report writing. For specialised tasks like literature synthesis and hypothesis formulation, researchers gain from fine-tuning capabilities.
- Llama is used by regular users for translation, creative writing, email authoring, and general information enquiries.

2. Characteristics and Features of Llama AI

2.1. Core AI Capabilities

- Understanding Natural Language: Llama exhibits sophisticated understanding of subtle cues, retaining context awareness and stylistic flexibility across prolonged exchanges.

- Capabilities for Content Creation enables to create extensive long-form content with logical flow, such as technical documentation, creative narratives, academic articles, and systematic explanations.
- Improvement of Multi-modal & Reasoning: Llama demonstrates strong performance in mathematical reasoning, code generation, and tool integration.

2.2 Key Features and User Interface (UI)

- Model Distribution and Hub resources-including pre-trained weights, fine-tuning scripts, and deployment templates are available via llama.com, Hugging Face Hub, and the LlamaIndex ecosystem.
- Pipeline for Customisation: extensive infrastructure for fine-tuning, including distillation techniques for domain-specific adaptation, parameter-efficient approaches, and LoRA adapters.
- Flexibility in Deployment enables cloud APIs via partners, edge deployment with quantised models for contexts with limited resources, and local inference using llama.cpp. Integration of Ecosystems Easy classroom integration is made possible via browser extensions, instructional packs, and API wrappers.

UI Advantages

Model selection that is intuitive for different computational requirements, Community-driven extensions and templates; quick inference using optimised inference engines; thorough documentation for educators

2.3 Distinguishing Features

- The Open Weights Theory Llama offers full parameter access, which permits unlimited customisation, research reproducibility, and community innovation in contrast to proprietary models.
- The Ecosystem of Education: It differs from general-purpose LLMs with specialised packs for curriculum building, assessment creation, and adaptive learning systems.

- Intelligence that is scalable: The model family covers a range of institutional needs, from lightweight mobile deployment (1B) to research-grade reasoning (405B).

3. Practical Implementation and Usage:

3.1 Prerequisites and Setup

Conditions:

- A reliable internet connection
- A free Hugging Face or Meta AI account
- A GPU is recommended for models above 8B parameters (e.g., Google Colab, cloud instances)
- A Python 3.8+ environment for local deployment
- Browser access for hosted playgrounds
- Only basic pip dependencies are required—no complicated installation needed

3.2 Step-by-Step Usage Guide

Example: Making Classroom Materials

Step-by-Step Process

1. Click Model Hub

Hugging Face Access or llama.com, choose Llama 3.1 8B Instruct variant.

2. Educational Prompt:

"Create a 500-word lesson plan on photosynthesis for 8th grade including objectives, activities, assessment, and extension questions."

3. Llama produces structured text content.

Output includes complete lesson components with learning objectives, hands-on activities, differentiation strategies, and evaluation rubrics.

4. Edit with Iterative Prompting

"Simplify language for ESL students and make suggestions for visual aids."

5. Export and Integrate

Copy to Google Docs/Word or export via API to LMS platforms.

3.3 Tips and Best Practices

- For Optimal Educational Output

- Use structured prompts specifying grade level, learning objectives, and assessment criteria
- Use chain-of-thought prompting in complex reasoning problems.
- Always check factual content for curriculum standards
- Combine AI generation with teacher review to maintain pedagogical integrity
- Save effective prompts as templates for recurring lesson types

4. Implications and Educational Applications:

4.1 Pedagogical Rationale

- **Constructivist Education Assistance:** By creating discussion starters, scaffolding student inquiry, and offering differentiated explanations in line with Vygotsky's Zone of Proximal Development, Llama supports the creation of knowledge.
- **Development of Digital Literacy Critical 21st-century abilities** that are necessary for future workforce participation, are cultivated through exposure to quick engineering and AI evaluation.
- **Learning through Universal Design:** Different learning styles and skill levels are accommodated by a variety of output forms, including mind maps, quizzes, and summaries.

4.2 Implications for Teaching and Learning Teaching Effect:

- Enables real-time differentiation during instruction;
- Provides quick assessment item production and marking rubrics;
- Saves hours of lesson planning;
- Personalised practice problems at the just-right level of difficulty;
- Instant feedback on writing and reasoning;
- Exposure to academic discourse patterns

4.3 Specific Classroom Applications

- **Curriculum-Related Content Development:** Create lesson plans, worksheets, and formative evaluations based on state learning objectives.
- **Differentiated Instruction:** Concurrently develop resources for various reading levels, language skills, and cognitive difficulties.
- **Assistance with Project-Based Learning:** Organise research projects using presentation templates, source evaluation standards, and topic outlines.
- **Applications for Special Education:** Create grade-level resources in simplified text, behaviour intervention plans, and individualised IEPs.

5. Challenges, Ethics, and Future Directions

5.1 Challenges and Limitations

Large AI models often demand high computational power, making them difficult to use in schools with limited GPU access. Educators must also be aware of hallucination risks, as AI can produce incorrect information that requires human verification. Additionally, unequal access to devices and internet connectivity can widen existing educational gaps, raising concerns about equity.

5.2 Considering Equity and Ethics

Clear academic integrity rules are necessary to help students understand the difference between acceptable guidance and plagiarism. Protecting student data is equally important, and institutions may need privacy-compliant options such as local deployments. Regular audits of AI outputs are also essential to reduce linguistic or cultural bias and ensure fair learning experiences.

5.3 Prospects and Future Roadmap

Future models will increasingly support multimodal features, such as visual understanding for image-based learning tasks. AI is also moving toward more autonomous educational agents capable of adapting lessons in real time. At the institutional level, large-scale deployment

frameworks and LMS integrations will make AI tools easier to adopt across entire districts.

6. Additional Information and References

6.1 Access to Tools

Web site: llama.com – Official model hub and documentation

Price

Free open weights download

Partner-hosted inference (variable pricing)

Enterprise licensing for institutional deployment

6.2 Further Reading and Documentation

Meta Llama technical reports and model cards

Hugging Face Model Collections for Education

LlamaIndex documentation for RAG educational applications

arXiv papers on open LLMs in pedagogy

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MAGIC SCHOOL

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1. Introduction and Tool Overview

1.1 Tool name and core functionality

Artificial Intelligence (AI) has rapidly transformed industries worldwide, and education is no exception. Among these innovations, Magic School AI stands out as one of the most widely adopted platforms. Magic School AI was designed by educators, for educators, with the mission of amplifying teacher impact while reducing burnout. Its suite of tools allows teachers to save 7–10 hours per week on routine tasks such as lesson planning, writing assessments, and drafting Individualized Education Programs (IEPs). For students, the companion platform Magic Student promotes responsible AI literacy, ensuring that learners engage with AI as a supportive tool rather than a replacement for critical thinking.



Fig.1 Magic School Logo

1.2 Brief History and Development

Magic School AI was founded by educators who recognized the growing strain on teachers. Their vision was not to replace teachers but to empower them with AI tools that reduce repetitive tasks. Magic School AI was founded in March 2023 by Adeel Khan, a former teacher and principal from Colorado. He created the platform to help educators save time, reduce burnout, and responsibly integrate AI into classrooms. Khan saw first-hand how teachers were overwhelmed by administrative tasks, lesson planning, and paperwork. His vision was to build an AI platform that would amplify teacher impact rather than replace them.

1.3. Target Audience and Scope

Magic School AI was designed by educators, for educators, but its reach extends beyond teachers:

Primary Audience:

- **Teachers & Educators** (the main users) – Magic School helps them with lesson planning, assessments, parent communication, and saving time on repetitive tasks.
- **School Leaders & Administrators** – Principals and district leaders use it to support staff, streamline workflows, and implement AI responsibly in schools.

Secondary Audience:

- **Students (via Magic Student)** – A companion platform that teaches learners how to use AI responsibly for studying, summarizing, and practicing skills.
- **Parents** – Indirectly benefits when teachers communicate more effectively and when students learn AI literacy.

2. Characteristics of Magic school.

- **Education-specific design:** Built by educators, for educators, unlike general AI chatbots.

Example

A 5th-grade ELA teacher selects Grade 5 → Reading Literature → Standard: Determine theme → Lesson length: 40 minutes → Scaffold: 2 levels. Magic School returns a standards-aligned lesson with objective, warm-up (text excerpt + guiding question), differentiated close-reading tasks, a small-group discussion protocol, an exit ticket, and an answer key — all labelled with the standard code and teacher notes for formative checks.

- **User-friendly interface:** No complex prompts required; simple inputs generate tailored outputs.

Example

A busy teacher types: “Create a 30-minute science bell ringer on the water cycle for 3rd grade.” Magic School prompts for grade and time only, then generates a ready bell ringer (short passage + 3 multiple-choice questions) plus answer key and printable PDF — no complex prompt crafting needed.

- **Global adoption:** Used in nearly every U.S. school district and in 160+ countries.

Example

A curriculum coach in Brazil searches Magic School for “grade 8 fractions” and finds multiple localized lesson templates used in U.S., U.K., and international schools. They adapt one for Portuguese language and local metric examples, demonstrating cross-border sharing and reuse across 160+ countries.

- **Scalability:** Supports individual teachers, entire schools, and districts.

Example

A district adopts Magic School for all middle schools. Individual teachers create classroom lessons while curriculum leads push district-wide unit templates and assessments. Admins use rostering and role permissions so coaches share resources with hundreds of teachers while maintaining local customization.

- **Security & compliance:** Adheres to FERPA, COPPA, and GDPR privacy laws, ensuring student and staff data protection.

Example

School uploads anonymized student performance data to generate targeted intervention lessons. Magic School enforces encryption, role-based access, and data retention rules that comply with FERPA, COPPA, and GDPR; only authorized staff can view identifiable student records.

- **Responsible AI philosophy:** Promotes ethical AI use with oversight tools for teachers and literacy training for students.

Example

After Magic School generates a formative assessment, the teacher reviews and edits items before assigning. The platform highlights suggested items with a confidence score and provides teacher training modules on spotting bias and verifying AI outputs, keeping teachers as final decision-makers.

- **Integration:** Works seamlessly with Google Classroom and Microsoft platforms, allowing easy export of material.

Example

A teacher creates a math unit and clicks Export → Google Classroom. Magic School posts the unit as a sequence of assignments with attached slide decks and exit tickets. Student submissions return to Google Classroom for grading. Alternatively, the teacher exports editable files to OneDrive and schedules assignments in Microsoft Teams for co-teaching.

2.1. Core Capabilities

1. Lesson Planning & Curriculum Support

- Generates **standards-aligned lesson plans** in minutes.
- Offers differentiated versions of lessons for diverse learners (simplified, advanced, scaffolded).
- Provides ready-to-use activities, worksheets, and project ideas.

2. Assessment & Feedback Tools

- Creates **quizzes, rubrics, and formative assessments** tailored to grade level and subject.
- Drafts **report card comments** and personalized student feedback.

- Suggests modifications for Individualized Education Programs (IEPs).

3. Administrative & Communication Assistance

- Automates parent emails, newsletters, and announcements.
- Helps teachers draft professional communication quickly and clearly.
- Reduces paperwork and repetitive writing tasks.

4. Student-Facing Platform (Magic Student)

- Provides 40+ tools for learners to study responsibly with AI.
- Teaches AI literacy — how to use AI ethically and effectively.
- Allows teachers to monitor and guide student use of AI.

5. Content Creation & Summarization

- Summarizes YouTube videos, articles, and documents for classroom use.
- Builds presentations, games, and interactive activities.
- Generates scaffolded texts for different reading levels.

6. Time Savings & Efficiency

- Teachers report saving 7–10 hours per week on routine tasks.
- Frees up time for direct student interaction and creative teaching.

7. Integration & Security

- Works with Google Classroom and Microsoft Teams for seamless export.
- Complies with FERPA, COPPA, and GDPR privacy standards.
- Designed specifically for safe, responsible AI use in schools.

2.2. Key Features and User Interface (UI)

User Interface (UI):

Magic School AI can be operated on mobile-phone, tab, desktop and laptop, but it is advisable to use a desktop or a laptop.

Key Features:

Instructional support (lesson planning, assessments).

Administrative relief (communication, paperwork).

Student empowerment (Magic Student platform).

Responsible AI integration (privacy, literacy, oversight).

This combination makes it one of the most comprehensive AI education platforms, serving both teachers and students while ensuring ethical use.

2.3. Differentiating Characteristics.

Feature	Magic School AI	Other AI Apps (ChatGPT, Khanmigo, Eduaide)
Target Audience	Teachers & Students	General users or niche education segments
Tool Count	70+ teacher tools, 40+ student tools	Limited (5–20 tools)
Privacy Compliance	FERPA, COPPA, GDPR	Varies; often general data policies
Integration	Google Classroom, Microsoft Teams	Limited or none
Focus	Reduce teacher burnout, AI literacy	General productivity or tutoring
Reported Time Savings	7–10 hours/week	Not education-specific

Prerequisites and Setup

To use Magic school AI an internet-connected device (laptop, table, or smartphone) and a registered magic school account is required. The platform is web-based and does not require local installation for daily usage.

4. Educational Implications and Applications to Economics pedagogy

Magic School AI is particularly beneficial for economics pedagogy as it offers a range of tools that can enhance the teaching and learning experience. Here are some ways it can be helpful:

4.1. Curriculum and Lesson Planning:

The platform can generate high-quality lesson plans and academic content that align with specific economics topics and educational standards.

Example

A teacher can use the Text Leveller tool to adapt a complex article on supply and demand into different reading levels (e.g., 9th grade vs. 11th grade vocabulary and sentence structure), ensuring all students can access the core concepts.

4.2. Content Generation & Differentiation:

Educators can quickly generate a variety of materials, saving significant time on lesson preparation.

Example When teaching about different economic systems (e.g., market, command, mixed), the teacher can use the Lesson Plan Generator to quickly draft a structured lesson plan, complete with objectives, key points, and extension activities.

The Choice Board Generator could also be used to create varied assignments that cater to different learning styles.

4.3. Assessment and Feedback: Magic School AI assists with creating assessments and providing timely feedback, allowing students to correct misconceptions quickly.

Example

An economics teacher can use the Multiple-Choice Assessment Generator to create a quiz on inflation, and the tool will provide an answer key. Students could then use the AI Writing Feedback tool to get instant, constructive input on a short essay about the impact of a new tax policy before a teacher review.

4.4. Accessibility and Inclusivity: The platform offers tools that remove learning barriers for students with special needs or language barriers.

Example

The Accommodations Generator can suggest appropriate support measures for a student with an Individual Education Plan (IEP) when assigning a project on global trade, while the Translation features can help non-native English speakers access and understand course materials.

4.5. Administrative Efficiency: By automating tasks like drafting parent communication or generating rubrics, teachers can focus more on meaningful student interactions.

Example After a lesson on the stock market, the teacher can use the Professional Email Generator to draft a clear, professional email update for parents about the class's simulated stock market game and student progress.

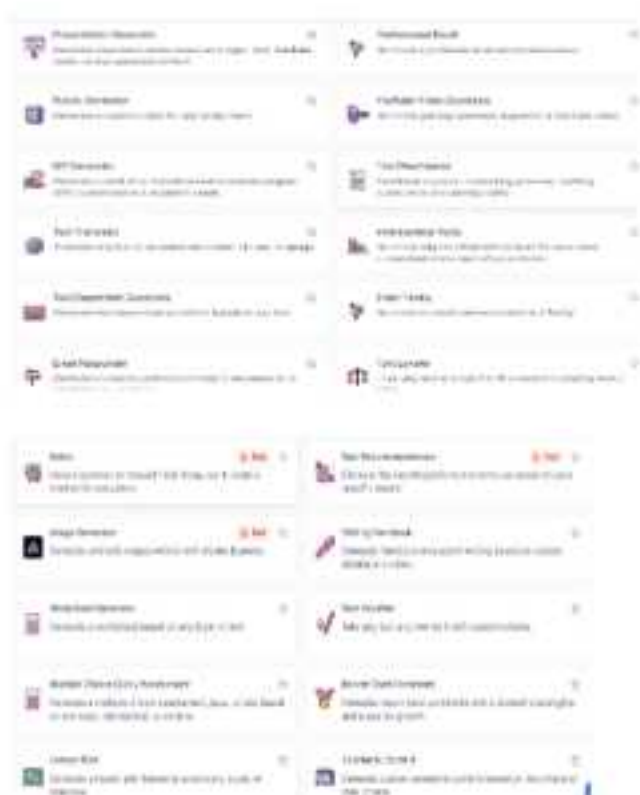
Step-by-Step Usage Guide (Scenario-Based)



Step 1: Login with Email Id

Step 2: Select the Magic Tool as per need: Student Tool or Teacher Tool



Step 3: Select the tool which caters to your requirement.

Example scenario: Teacher wants to generate Report card comments for grade 10 students.

Step 1: Enter the prompt "report card comments" in the tool.



Step 2: Provide all mandatory information as prompted by the tool, such as the grade level, student pronoun, area of strength and area of weakness.

— Prompt Editor

Report Card Comments

Generate report card comments with a descriptive strength and area for growth.

Grade level:

Student pronoun:

Area of strength:

Area for growth:

Result after entering the above prompt.

























— Prompt Editor

Area of Strength: He consistently demonstrates strong conversative skills and contributes positively to group work, showing respect and reliability with his peers. He is a valuable member of the group in sports activities, where his enthusiasm and participation set a constructive example for others. He displays natural leadership in class tasks and school events, guiding teammates calmly and encouraging participation from everyone.

Opportunities for Growth: He would benefit from focused work on expanding his vocabulary and strengthening grammar to improve clarity and confidence in written and spoken English. He should continue practicing Hindi and Marathi, especially reading and writing, to build fluency and ease in expressing ideas across languages. With targeted practice and study, regular goals, he can make steady progress and better reflect his strong leadership and participation in his written work.

Magic School for students

Step 1: Select the tool according to the task.

 Image Generator Generate and edit images with AI using prompts. Free	 AI Tutor Ask questions and get answers or ask your AI assistant to write essays. Free
 Writing Feedback Get feedback on your writing. Free	 Notes for Students Generate notes and study guides from any text or video. Free
 Teacher's Toolkit A suite of tools for teachers to create, edit, and manage content. Free	 Language Tutor A chat-based tutor for learning languages. Free
 Research Assistant Find information and summarize it for you. Free	 Essay Generator Generate essays on any topic. Free
 Text Translator Translate any text from one language to another. Free	 Character Chatbot Chat with AI characters from movies, books, and games. Free
 Create a Story Generate a story from a prompt. Free	 Helping Hand A chat-based tutor for learning math. Free
 Generate a Lesson Plan Generate a lesson plan for any topic. Free	 Map Maker Create a map from a text prompt. Free
 Text Generator Generate text from a prompt. Free	 T-Summary Generate a summary from a text prompt. Free
 Book Suggestions Get book recommendations. Free	 Text Summarizer Summarize any text. Free
 Text Summarizer Summarize any text. Free	 Respond to My Mail Generate responses to emails. Free
 Library Assistant Find books and resources. Free	 Coding Assistant Generate code snippets. Free
 Web Review Generate reviews for websites. Free	 Quiz Maker Generate quizzes. Free

Step 2: For example, if a student requires an explanation in simpler language tailored to their reading level, they can select the “Tool Description” option for easier understanding.

5. Tool Access Details Official URL

5.1. Pricing/License Model:

1. Free trial for new users: At signup, new users are granted a one-time 30-day free trial of the Paid Plus plan. After completion of the trial period, users continue to enjoy the free tier (subject to usage caps and restricted feature availability).
2. Pricing scales based on the number of users and feature needs, ranging from modest monthly rates for individuals to enterprise plans for schools.

5.2. Further Reading and Documentation:

- Magic school FAQ, user guides, and training webinars are available on the official website.
- Blog posts and educator testimonials offer insights into best practices and real-world classroom scenarios.

5.3. References:

All information is derived from Magic school official website, educator testimonials, and independent reviews: - Magic school Official: <https://magicschool.ai/en>, and Wikipedia.

MANUS AI

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1. Introduction and Tool Overview

1.1 Tool name and core functionality:

Manus AI is an artificial writing assistant that helps professionals, educators, and students create, arrange, and polish written content. Fundamentally, Manus AI helps users create essays, research papers, lesson plans, letters, summaries, screenplays, and other written materials by utilizing natural language processing (NLP). High-quality, grammatically correct, and stylistically consistent writing that is suited to the user's objective is the app's main focus. Manus AI offers a user-friendly interface



Fig.1 Manus Ai Logo

to expedite the writing process, whether someone needs assistance with idea outlining, paragraph rewriting, content expansion, or citation checking. Manus AI serves as a learning aid as well as a productivity tool, assisting users in improving their writing while lowering the mental strain of organizing and refining content.

1.2. Brief History and Development:

The increasing growth of generative AI applications in content production and education gave rise to Manus AI. The software was developed in the early 2020s to address a persistent problem, even with extensive topic expertise, professionals and students frequently have trouble articulating ideas coherently. Their goal was to close the gap between good communication and conceptual understanding. The Manus AI team created an app that was sensitive to multilingual needs, lightweight, and mobile-friendly by combining machine learning and linguistic modelling. Advanced rewriting tools, content expansion modes, contextual editing recommendations, and tone settings that may be adjusted to fit academic, creative, or professional needs are just a few of the features that the software has added over time.

1.3. Target Audience and Scope

Manus AI serves a wide range of users, such as:

- Teachers, professors, students who require assistance with writing reports, essays, lesson plans, assignments, reflections, and abstracts.
- Scholars seeking assistance with editing manuscripts, organizing literature reviews, or summarizing papers.
- Professionals that require help with proposals, reports, presentations, and emails.
Content producers that want to write scripts, blogs, captions, and social media content.
- Education, corporate communication, creative writing, and personal productivity are all covered by the app.

2. Characteristics and Features

2.1. Core AI Capabilities

- Manus AI incorporates a number of cutting-edge AI features, such as:
Natural Language Generation (NLG): Generates text that is appropriate for the context and coherent.
- Text summarization is the process of condensing lengthy material while keeping important concepts.
- Rewriting and paraphrasing: Produces different iterations of sentences or paragraphs
Grammar correction: Identifies and fixes punctuation, spelling, and structural mistakes.
- Tone adjustment: Enables users to alternate between formal, conversational, academic, and creative tones
- Idea generation: Facilitates the creation of outlines, argument frameworks, and themes.
Manus AI is an adaptable writing partner across fields thanks to these features.

2.2. Key Features and User Interface (UI):

- Because the Manus AI app interface is purposefully straightforward, users can concentrate on writing. Usually, the characteristics consist of:
- Users can type or paste text into this input area.
Rewrite, Summarize, Expand, Shorten, and Correct Grammar are examples of mode selection buttons.
- Custom directions, such as "Write a 300-word introduction on renewable energy," allows users to provide context.

- History panel, which saves earlier results for convenient comparison.
- To export text to notes, documents, or chat apps, use the copy/share icons
- Accessibility options and dark mode for ease of usage.

2.3. Differentiating Characteristics

- Manus AI is unique because it uses a mobile-first design that is ideal for academic help on the go.
- User-driven personalization that allows users to adjust complexity, tone, and length.
- Performance that is lightweight and effective even on less powerful devices.
- It is helpful for students learning English as a second language because of its multilingual capacity.
- Drafting that is offline-friendly and allows for first text input without constant connectivity.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

In order to use Manus AI, users must have

- A tablet or smartphone (Android or iOS).
- AI-powered features require basic internet access.
- A working account (sign-in with Google or email).
- In order to set up the app, you must download it, register, and navigate the homepage, which displays various writing styles.

3.2. Step-by-Step Usage Guide:

Scenario 1: Writing an Academic Paragraph

- Click the "Write" or "New Task" button after launching the Manus AI application.
- Put in the directive, such as "Write a 150-word paragraph explaining the importance of biodiversity."
- Choose the tone of academia.
- Press "Generate" Examine the text, make any necessary manual edits, and then save or export.

For academic submissions, Manus AI generates a completely structured paragraph with coherent reasoning, terminology, and clarity.

Scenario 2: Revising and Enhancing Student Work

- Copy and paste a rough document, such as a student paragraph with mistakes.
- Choose Rewrite → Enhance Clarity.
- Select options like "Improve Vocabulary" or "Fix Grammar."
- Examine the updated version that the software offers.
- Use the history panel to compare the original and changed texts.

Teachers who wish to model better writing will find this scenario very helpful.



Fig.2 Steps to follow

3.3. Tips and Best Practices:

- Give precise directions. The production improves with increasing quick specificity.

- Make deliberate use of tone settings: academic for assignments, conversational for communications, and creative for narratives.
- Make sure the content produced by AI is accurate and in line with learning objectives by regularly reviewing it.
- Instead of using the app as a shortcut, use it as a learning tool. Examine changes to enhance your writing abilities.
- Don't rely too much on rewriting tools; instead, mix AI support with your own critical thinking.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

By assisting students in honing their language abilities and improving their ability to communicate concepts, Manus AI promotes constructivist and scaffolding-based learning approaches. It serves as a writing scaffold, particularly for students who struggle with argument structure, restricted vocabulary, or linguistic deficiencies.

The software encourages:

- Students' comparison of drafts and revisions demonstrates metacognition.
- Boosting self-assurance and lowering writing anxiety.
- Differentiated instruction is made possible by the tool's ability to adjust to the demands of individual students.

4.2. Impact on Teaching and Learning:

Manus AI offers a great deal of promise to improve teaching methods:

- When creating lesson plans, examples, rubrics, and comments, teachers save time.
- Higher-quality drafts are produced by students, freeing up teachers to concentrate more on in-depth subject learning than on fixing grammar.
- Real-time assistance helps language learners improve their understanding and fluency.
- Writing becomes more approachable, particularly for kids who struggle with learning.
- To avoid problems with academic integrity, teachers must instruct students on how to utilize AI responsibly.

4.3. Specific Classroom Applications:

Creating sample paragraphs or essays for examples.

- Assisting pupils in coming up with concepts for stories or reports.

- Crafting unique reading passages that complement the goals of the class.
- Rewriting difficult literature to accommodate varying reading levels.
- Assisting students with scripts, presentations, and reports in order to support project-based learning.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

Manus AI has a number of drawbacks despite its advantages:

- Potential errors, particularly in technical areas.
- Over-reliance has the risk of decreasing students' original effort.
- Little originality because texts produced by AI can occasionally seem unoriginal.
- Data privacy issues, based on usage and storage regulations.
- Teachers need to strike a balance between helping students and maintaining the integrity of their work.

5.2. Ethical and Equity Considerations:

Transparency, equity and academic integrity are necessary for the ethical application of Manus AI.

Important factors include:

- Treating AI output as a draft rather than a final submission helps prevent copying.
- Ensuring fair access because some students might not have reliable internet or a smartphone.
- Teaching digital literacy and assisting students in comprehending the biases and limitations of AI.
- Preserving student-teacher trust by making it obvious whether portions of an assignment were aided by artificial intelligence.

5.3. Future Outlook and Roadmap:

It is anticipated that future iterations of Manus AI will comprise:

- Deeper LMS platform integration.
 - Support for multimodal authoring and voice-to-text.
 - More individualized learning data.
 - Tools for improving creative writing.
 - Sophisticated academic writing citation management.
- These improvements might establish Manus AI as a complete digital literacy partner in addition to a writing assistant.

6. Supplementary Information and References

6.1. Tool Access Detail:

Official URL: <https://manus.im>

Pricing/License Model: Manus AI usually offers a premium subscription that unlocks limitless rewriting, sophisticated modes, and faster processing, as well as a free tier with a daily cap on rewrites.

6.2. Further Reading and Documentation:

- Articles about the use of AI writing aids in the classroom.
- Studies on generative AI and natural language processing.
- Guidelines for academic honesty in the AI era.

6.3. References:

AI, Machine Learning & NLP (Foundational Books)

Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

The most widely used textbook on AI.

Jurafsky, D., & Martin, J. H. (2023). *Speech and language processing* (3rd ed.). Pearson.

Authoritative text on NLP and language models.

Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.

Covers neural-network foundations relevant to AI tools like Manus.

AI in Education

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*.

Center for Curriculum Redesign.

Discusses how AI transforms learning environments.

Luckin, R. (2018). *Machine learning and human intelligence: The future of education in the 21st century*. UCL Institute of Education Press.

Explores how AI can enhance human learning.

Mem.ai

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Mem.ai (often referred to as Mem) is an AI-powered note-taking and knowledge management platform designed to act as a "thought partner" by organizing information, connecting ideas, and bringing back relevant content when needed. Instead of relying on rigid folders, Mem uses artificial intelligence to automatically tag, relate, and surface notes, emails, and meeting records so that users can focus on thinking and creating rather than manual organization.



Fig 1 Logo of Mem AI

1.2. Brief History and Development

Mem was founded in the late 2010s to solve the friction of traditional note-taking systems, where users struggled with fragmented information spread across emails, documents, and apps. Over the years, it evolved from a simple AI-assisted notes app into Mem 2.0, positioned as an 'AI Thought Partner' that captures ideas, meetings, and research and resurfaces them contextually at the right time.

1.3. Target Audience and Scope

Mem primarily targets professionals, students, researchers, and teams who manage large volumes of information and want a 'second brain' to remember and relate their knowledge. For educators and school leaders, Mem offers a unified workspace to store lesson plans, meeting notes, research, and reflections, while AI helps retrieve and recombine these for lesson design, reporting, and professional development.

2. Characteristics and Features

2.1 Core AI Capabilities

Mem uses natural language processing and machine learning to automatically categorize notes, understand context, and suggest related information, turning a collection of notes into a connected knowledge graph. Its AI can summarize content, answer questions

using your own notes, and generate or refine text, which makes it useful for drafting lesson plans, meeting summaries, and study materials based on existing data.



Fig 2 MemAI Characteristics

2.2. Key Features and User Interface (UI)



Fig 3. Mem AI User Interface

Key features include Smart Search, Related Notes, Collections (auto-grouping of related notes), Mem Chat (conversational querying of your notes), rich-text note editing, and integrations such as connected email. The interface typically consists of a side panel with navigation (Home, Collections, Inbox), a central editor for notes, and

contextual suggestions or related items, providing a clean, distraction-reduced workspace.

2.3. Differentiating Characteristics

The following are the differences between mem.ai and other conventional note apps and tools.

Feature/ Dimension	Mem.ai	Typical Other AI Note/Knowledge Tools/traditional note-apps or less AI-centric tools
Organisation philosophy	"Dump everything" approach: minimal manual tagging/folders; AI auto-tags, auto-links, auto-structures.	Often rely on manual organisation: folders, notebooks, and tags are set up by the user.
Cognitive Role of the Tool	More than storage: acts as a "thought partner" — resurfaces earlier ideas, links distant topics, supports collaboration.	Often, primarily storage + retrieval; linking/idea-surfacing features may exist, but not core.
Search & retrieval	Natural-language, semantic search; context-aware recall; AI hints and suggestions.	Keyword/basic search dominates; semantic/AI search may be weaker or an add-on.
Tagging/folders	Less dependence on folders and manual tags; AI handles much of the structure.	More reliance on hierarchical structure, manual tags/folders, and user-driven organisation.
Team/collab features	Supports sharing and collaborative knowledge spaces, though its core emphasis is on the	Many tools emphasise team collaboration, structured workflows, and databases for groups.

Feature/ Dimension	Mem.ai	Typical Other AI Note/Knowledge Tools/traditional note-apps or less AI-centric tools
	individual's knowledge flow.	
Onboarding & setup	Lower setup friction for capturing: just dump content, minimal initial structure required; AI builds context over time.	Often requires upfront setup: defining notebooks, databases, templates, tags, and folders.
Control vs automation trade-off	More automation, less manual control over precise structure; users may trade fine-grained control for ease and intelligence.	Greater manual control; the user defines the structure, which may offer more precision but requires more effort.
Ideal user scenario	Knowledge-workers, educators, and researchers who accumulate lots of notes/ideas and want retrieval/connection rather than managing folders.	Users who prefer well-structured systems, teams managing collaborative projects with formal workflows.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Users create an account via the mem.ai or get.mem.ai website using an email ID and then follow an onboarding process to set up basic preferences. For best use in educational contexts, educators should connect their work email (if permitted), import key documents or notes, and define initial collections (e.g., "Grade 10 Physics", "Staff Meetings", "NEP 2020 Implementation") that Mem can later refine.

3.2. Step-by-Step Usage Guide:

Scenario 1: Creating and Organizing Lesson Notes

- Log in to Mem and click “New Mem” or the “+” button to create a new note.
- Title the note (e.g., “Class 11 Physics – Motion in a Plane – Lesson Plan”) and draft objectives, activities, and assessment ideas.
- Tag the note with course labels (e.g., “Class 11”, “Physics”) or simply mention these terms in the text; Mem’s AI will automatically link it with similar notes and add it to relevant Collections over time.
- Later, when designing an assessment, use Smart Search with keywords like “Motion in a Plane” to instantly retrieve related lesson notes, questions, and past reflections without browsing multiple folders.

Scenario 2: Using Mem for Meeting Notes and Action Tracking

- Meeting – Assessment Policy – 12 Dec 2025” and record key decisions, action points, and deadlines.
- After the meeting, Mem’s AI can highlight or help you summarize key action items, which can then be pasted into emails or shared via Mem with team members.
- When planning the next meeting, see During a staff meeting, open Mem and create a note “Staff rch for “Assessment Policy meeting” to recall previous commitments, and use Related Notes to see connected discussions or decisions over time.

Scenario 3: Student Research or Project Work

- A group of students working on a research project (e.g., “Impacts of AI in Education”) can maintain a shared Collection where they store article notes, interview summaries, and reflections.
- Mem auto-organizes the notes, and students can use AI to generate a synthesized outline or draft from their own inputs, reinforcing citation and critical thinking rather than copy-paste.

3.3. Tips and Best Practices



Fig. 4 Tips and Best Practices

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Mem aligns with constructivist and connectivist principles by helping users create a dynamic network of knowledge where new notes constantly connect to prior learning. For teachers, it supports reflective practice, lesson refinement, and data-informed decision-making by making past experiences and records easily accessible for analysis.

4.2. Impact on Teaching and Learning

By reducing the cognitive load of organizing information, Mem allows teachers and students to spend more time on higher-order tasks such as analysis, synthesis, and creative output. Students using Mem's AI notes can improve comprehension and recall by revisiting

automatically organized materials and receiving tailored summaries and suggestions.

4.3. Specific Classroom Applications (with screenshots)

- **Flipped classroom:** Teachers can store pre-class readings, prompts, and reflection questions in a Collection and then quickly access related notes during class discussions, modeling efficient information retrieval.
- **Portfolio of learning:** Students can maintain a long-term Mem space for projects, reflections, and feedback, which can later be reviewed to document growth over a term or academic year.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Mem's AI-driven organization may initially feel opaque to users who prefer rigid folder structures, requiring a mindset shift towards trusting AI-curated collections and search. Dependence on cloud services raises issues of internet access and device availability in low-resource schools, potentially limiting equitable adoption.

5.2. Ethical and Equity Considerations

As Mem can store sensitive notes (e.g., student data, confidential meeting records), institutions must develop clear policies on what can be stored, how access is controlled, and how privacy is maintained. Equity concerns arise if only certain teachers or students have access to AI-assisted note-taking; schools should plan infrastructure and training so that AI tools support inclusion rather than widen gaps.

5.3. Future Outlook and Roadmap

With Mem 2.0 positioning itself as a full 'AI Thought Partner', future developments are likely to deepen integrations with calendars, task systems, and learning platforms, making the tool more embedded in day-to-day work. For education, potential directions include tighter curriculum-aligned templates, analytics dashboards based on teacher notes, and integrations with LMS platforms to streamline planning, assessment, and reporting.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL:

- <https://mem.ai/> Mem can be accessed through its official website at get.mem.ai or mem.ai, which provides product information, sign-up, and links to documentation.
- **Pricing/ License Model:** As of late 2025, Mem provides a limited free tier (approximately 25 notes and 25 chat messages per month) and a Pro subscription, commonly priced around 12 USD per month with unlimited notes, chat messages, searches, collections, templates, connected emails, and API keys. A Teams plan with custom pricing adds group billing, priority support, and dedicated success management, making it suitable for institutions or large departments (<https://get.mem.ai/pricing>)

6.2. Further Reading and Documentation

- Official Mem Help Center for getting started, feature explanations, and best practices. <https://help.mem.ai/>
- Mem blog articles on AI note-taking, education use cases, and historical perspectives on note-taking and AI. <https://get.mem.ai/blog/how-ai-is-revolutionizing-note-taking-a-historical-deep-dive>

6.3. References

Official product site and landing pages. <https://mem.ai/>

Official pricing page and public communication on Mem 2.0 and its plans. <https://get.mem.ai/pricing>

Mem Help Center documentation. <https://help.mem.ai>

Mem blog posts on study skills and AI-assisted note-taking for students.

<https://get.mem.ai/blog/customize-ai-notes-for-your-learning-style>

Independent reviews and overviews of Mem as an AI note-taking platform.

<https://skywork.ai/skypage/en/Mem-AI-Your-Personal-Knowledge-Engine-in-2025/1976181401534304368>

<https://get.mem.ai/blog/ai-note-taking-apps-simplify-research-for-college-students>

<https://www.salesforce.ai/directory/sales-tools/mem-ai>

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<https://help.mem.ai/features/version-history>

<https://get.mem.ai/blog/how-ai-notes-are-transforming-student-learning-in-2024>

<https://get.mem.ai/blog/customize-ai-notes-for-your-learning-style>

https://ppl-ai-file-upload.s3.amazonaws.com/web/direct-files/attachments/82263655/bc17bfc2-a664-49b6-a0d1-636845010d07/2025_11_22_AI-Book-Outline-of-Chapter-1.docx

https://www.reddit.com/r/ProductivityApps/comments/1n6tstl/mem_pricing/

<https://zapier.com/blog/mem-ai/>

<https://mem0.ai/usecase/education>

<https://www.fahimai.com/clickup-vs-mem-ai>

<https://ai-productreviews.com/mem-ai-review/>

Mentimeter

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

The tool discussed is Mentimeter (commonly called Menti).

Core Functionality: Mentimeter

is an interactive, cloud-based platform and Student Response System (SRS) that enables speakers to interact in real time with an audience. It operates by letting participants utilize their own gadgets (smartphones, computers, or tablets) to provide input that is immediately displayed on the presenter's screen, such as responses to surveys, questions or brainstorming ideas. Gathering real-time input, boosting active involvement and improving engagement in meetings, training sessions and classrooms are its primary goals.



Fig. 1 Mentimeter Logo

1.2. Brief History and Development:

Four Swedish businessmen, Johnny Warström, Niklas Ingvar, Henrik Frömén, and Kristoffer Renholm, launched Mentimeter in 2012. The tool was initially developed as a way to combat inefficient corporate meetings, seeking to produce a simple, useful and interesting product.

The company obtained external finance and became a full-time venture in 2014. By 2018, it had developed into a full-featured presentation platform rather than just a polling tool. In 2024, it incorporated AI-powered features, establishing its current incarnation as an AI-powered engagement tool.

1.3. Target Audience and Scope:

Mentimeter is employed throughout numerous domains, particularly:

Education: In classrooms and training settings, teachers and instructors utilise it to assess students' comprehension, initiate

conversations and create space for more reserved students to participate.

Corporate/Business: Professionals use it for meetings, workshops, town halls and training events to get anonymous feedback and align teams during planning.

The tool's scope is to fuel a cycle of engagement, guaranteeing that "every voice is heard" by changing passive conversations into active, collaborative encounters.

2. Characteristics and Features

2.1 Core AI Capabilities:

Mentimeter's most current AI capabilities accelerates content development and data analysis:

- **AI Menti Builder/AI Creation:** Allows users to construct a draft presentation (Menti) automatically by supplying a simple text prompt. Using Mentimeter's best practices, the AI creates pertinent slides, questions and even multiple-choice answers.
- **AI Question options:** Provides options for interactive questions based on a topic typed in by the presenter.
- **AI-powered Response Grouping:** This tool automatically clusters and identifies comparable responses from Open Ended questions, saving time for presenters analyzing massive volumes of free-form text feedback.

2.2 Key Features and User Interface (UI):

Mentimeter offers a large range of interactive slide kinds and presentation features:

- **Multiple Choice, Word Clouds, Scales, Ranking, Quizzes** (Select Answer, Type Answer) and Open-ended questions are examples of interactive question types.
- **Engagement Tools:** Live Q&A sessions (with participant upvoting and presenter moderation), emoji reactions and live comments.
- **Presentation Integration:** Supports importing existing slides from PowerPoint, Keynote or PDF files (premium plans).
- **Results & Reporting:** Provides real-time results visualisation and the opportunity to export data to Microsoft Excel or download the presentation as a PDF (premium plans).

- **User UI:** The application offers an intuitive and user-friendly UI with a small learning curve for both presenters and participants.

2.3. Differentiating Characteristics:

1. **Real-time Visualisation:** The immediate and dynamic presentation of audience responses (e.g., increasing word clouds or shifting bar charts) keeps participants engaged and delivers instant insights.



Fig. 2 Real Time Statistics

(The screenshot captures real-time statistics, data is represented in the bottom left corner; there are 7 thumbs up, 1 comment and 44 responses to the word cloud)

2. **Audience Anonymity:** Participants can often post responses and questions anonymously, which encourages honest feedback, higher involvement and gives a comfortable area for quieter students to contribute.
3. **Device Flexibility:** Participants only need a web browser on any device (phone, tablet, computer) to participate and interact; no app download or account creation is necessary for voters.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

- **Presenter:** need dependable internet access and a valid Mentimeter account.
- **Participants:** Requires a personal device (smartphone, laptop, or tablet) and internet connectivity.
- **Setup:** Using the web platform, presenters produce material. Participants can sign up by utilising a link or scanning a QR code, or by going to menti.com and inputting the special 8-digit code that appears on the presenter's screen.

3.2. Step-by-Step Usage Guide: Creating a Quick Formative Quiz

This guide covers the three basic phases: creation, presentation, and analysis, embracing the latest innovations like the AI Menti Builder.

Step	Phase	Action
Create	Creation	Log in to your Mentimeter dashboard. Click + New Menti (or + New presentation). You have three main starting options: Start from scratch , choose a Template , or select Start with AI to instantly generate an initial presentation draft based on a prompt. Give your presentation a title. (Refer Fig. 3)
Add Slides	Creation	Click + New slide . From the question types, select a Quiz Competition slide, such as Select Answer (Multiple Choice) or Type Answer (Written Answer). (Refer Fig. 4)

Configure Content	Creation	In the content panel, insert the question and the available answer options . For Quiz slides, you must designate the correct answer (e.g., by checking the box next to the option). (Refer Fig. 5)
Set Quiz Rules	Creation	In the Customize panel on the right, fine-tune the quiz settings: Set a time restriction (e.g., 10 seconds), select the Scoring Setting (e.g., awarding more points for faster correct answers), and optionally Add music or a Leaderboard slide .
Present	Presentation	Click the Present button (typically a play icon) to launch the full-screen view. A unique, temporary voting code and the website menti.com are displayed prominently at the top.
Run Quiz	Presentation	Ask participants to navigate to menti.com and enter the code . Once the participants have joined, press Enter or the Start countdown button to begin the first question. The results and the correct answer are shown after the countdown ends. If a Leaderboard slide is included, it will display the updated ranking.
Analyze	Analysis	After the session, you can access the Results tab from your dashboard to view the data. You can Export the raw results to Excel (paid plans) or download the presentation slides with results as a PDF . (Refer Fig. 6)

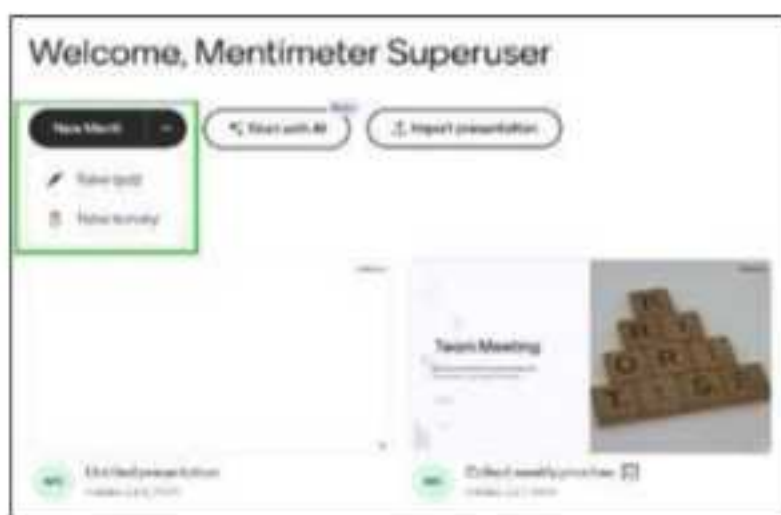


Fig. 3 Login Dashboard

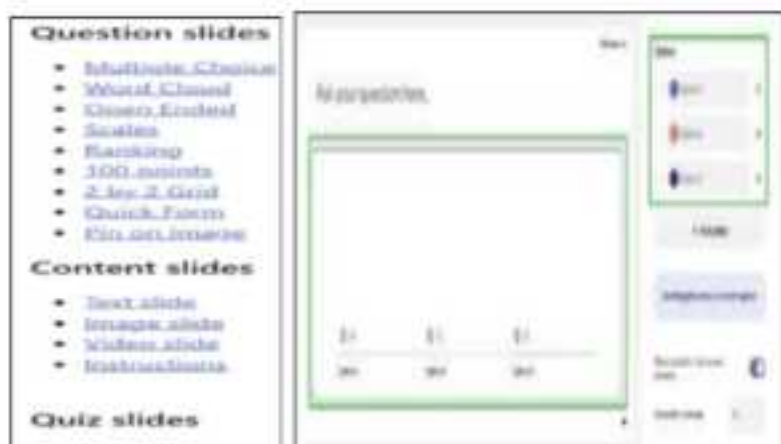


Fig. 4 Question Types

Fig. 5 Add Questions



Fig. 6 Export the File

3.3. Tips and Best Practices:

The following are current guidelines and best practices for utilising Mentimeter effectively, especially in educational settings:

- **Let's start with AI, provide a straightforward prompt (e.g., "Create a 5-question quiz on the Roman Empire for 9th graders") to make use of the AI Menti Builder (now known as AI Creation in some situations). By creating interactive slides, tests, and surveys using best standards, this capability significantly reduces preparation time. Always evaluate and enhance the AI-generated information for correctness before displaying.**
- **Encourage More In-Depth Thought:** Go beyond simple memory questions. To get detailed feedback and promote critical thinking and in-depth thoughts, use Scales slides or Open Ended slides with several display options, such as speech bubbles or one-by-one.

Integrate Formatively and Asynchronously:

- **For quick knowledge assessments, incorporate Mentimeter as a frequent formative evaluation tool.**
- **For pre-session preparation, post-session feedback, or remote/asynchronous learning, use the Audience Pace**

setting to transform your Menti into a survey that participants may finish at their own pace.

Promote Inclusivity & Accessibility:

- Emphasise that comments are anonymous (where applicable) to increase interaction from shy or silent audience members.
- When presenting, always read aloud the unique code and the menti.com URL for accessibility.
- Use the functionality to add Alternative Text to all photos for participants who use screen-reading software.

Enhance Brainstorming and Analysis:

- Use the Word Cloud feature to instantly discover group opinions or priorities regarding a subject.
- After a Word Cloud or Open Ended inquiry, use the AI Grouping tool (available for Pro/Enterprise customers) to automatically cluster audience replies by theme for quick, effective analysis.
- Control Presentation Flow: Make sure you don't have to leave the full-screen presentation view in order to link to external content by using Content Slides (Heading, Official URL: <https://slidesgo.com/ai/presentation-maker>)
- Paragraph, Image) within your presentation to provide context and information.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

Mentimeter's effectiveness stems from its alignment with active learning pedagogy. It turns conventional, passive presentations into dynamic, two-way exchanges. Students are forced to express their ideas and react to others when learning is facilitated through conversation and teamwork, which makes them active participants in the process of gaining knowledge.

4.2. Impact on Teaching and Learning:

- Enhances Student Engagement: The interactive aspects and real-time visualisation contribute to better student attention and active engagement compared to traditional lecture approaches.
- Instant Feedback: Instructors can modify their lesson plans in the middle of a lesson by using the immediate feedback they

receive on students' comprehension (just-in-time teaching). Students get immediate feedback on their understanding.

- **Fosters an Inclusive Environment:** The anonymity feature encourages all students, especially those who may be shy or lack confidence, to submit their answers and questions without fear of judgement.
- **Boosts Knowledge Retention:** The utilisation of interactive elements and diverse question kinds produces memorable moments that boost retention.

4.3. Specific Classroom Applications

Mentimeter is utilized in classrooms across various disciplines and educational modalities to facilitate active learning, assessment, and enhanced communication. Here are specific classroom applications supported by the sources:

I. Pedagogical Approaches and Environment Enrichment

- **Active Participation in Large Cohorts:** It is a valuable tool for actively engaging participants in large lecture cohorts and virtual video classes involving many people.
- **Developing Skills:** The tool is used to help develop students' creative thinking ability, critical thinking, and problem-solving skills.
- **Blended and Remote Learning:** Mentimeter is effectively integrated into synchronous and asynchronous remote/online learning sessions to ensure active student engagement.

II. Specific Interactive Activities and Content Delivery

Teachers utilize Mentimeter to create and share presentations that include interactive elements:

- **Gauging Opinion:** It is employed as a strategy for soliciting opinions and quickly gauging class sentiment or understanding (e.g., using polls or word clouds).
- **Generating Discussion:** It is used to engage discussions and stimulate meaningful interaction through features like word clouds and Q&A sessions.
- **Elicitation and Brainstorming:** It is frequently used for general elicitation activities, brainstorming and soliciting student responses.
- **Content Clarification and Review:** It is used to clarify difficult concepts and for activities related to recalling past topics and preparing for next sessions.

III. Assessment and Feedback

Mentimeter is a valuable assessment tool, primarily focusing on real-time checks of comprehension:

- **Real-time Formative Assessment:** It is a useful tool for real-time formative assessment and real-time exercise in the classroom.
- **Immediate Feedback:** It provides immediate feedback for anonymous student responses, allowing students to check their knowledge retention before exams.
- **Gauging Understanding:** Teachers can obtain an instant assessment of students' understanding and progress, which enables them to modify instructions and improve teaching quality.
- **Data Collection:** The platform enables the storage and analysis of assessment data for comparative purposes.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- **Technological Dependency:** The tool's reliance on stable internet access and student-owned devices (smartphones, etc.) is a key concern. The lesson may be interrupted by technical issues.
- **Student Distraction:** Students run the danger of getting sidetracked by non-academic content when using personal devices, which are required for the tool to work.
- **Over-reliance:** If the technology is not appropriately included into the curriculum, there is a chance that it may be perceived as a novelty, which could result in decreasing results.

5.2. Ethical and Equity Considerations:

- **The Digital Divide:** Students who lack access to reliable devices or constant internet access are barred from participation, thereby increasing existing equity inequalities.
- **Data Privacy:** Certain AI capabilities (such response grouping) involve third-party Large Language Models (LLMs), requiring users to opt-in and be cautious not to expose personal data via those features.
- **Anonymity Misuse:** While anonymity fosters participation, it can occasionally be misused to submit unsuitable or abusive

content, necessitating the employment of the platform's moderation tools.

5.3. Future Outlook and Roadmap:

- Mentimeter's future orientation is focused on deeper integration of AI for efficiency and enhanced capability for major organisations:
- AI Integration: Continued development of AI features, such as the AI Menti Builder, to speed up content generation and analysis.
- Enterprise Features: The roadmap emphasises advanced features for major institutions (e.g., universities and companies), including Single Sign-On (SSO), SCIM (for automated licensing management), and collaborative workspaces.
- Growth: Building on the success of the move to remote learning and meetings, the organisation is growing internationally.

6. Supplementary Information and References

6.1. Tool Access

Details:

Official URL: (with screenshot of Landing page)



- <https://www.mentiimeter.com>
- Pricing/License Model: Mentimeter offers customised business and educational plans under a freemium business model.
- Free Plan: Includes 50 participants per month and unlimited presentations with core question kinds.
- Basic/Pro Plans (Education): Paid subscriptions that eliminate the participant cap, provide data export to Excel, and import pre-existing PowerPoint or PDF presentations.
- Campus/Enterprise Plans: Custom tiers for large organisations that offer Single Sign-On (SSO), enhanced branding, and dedicated support.

6.2. Further Reading and Documentation:

- Detailed assistance and resources are accessible through the official channels.
- The primary source for technical assistance and manuals is the Mentimeter Help Centre.
- Mentimeter Academy: Provides users with free training on how to make presentations and make the most of the tool's capabilities.

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Meta AI

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1. Introduction and Tool Overview :

Artificial intelligence has rapidly moved from being a futuristic concept to an everyday reality, shaping how we communicate, learn, and work. Among the significant contributors to this revolution is Meta AI, an

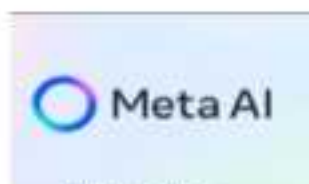


Fig 1 Logo of Meta

intelligent assistant developed by Meta Platforms. Positioned not just as a tool but as a digital companion, Meta AI brings the power of large-scale language models and multimodal learning directly into the applications people use daily. Whether through WhatsApp, Facebook, Instagram, or Messenger, Meta AI is gradually turning ordinary chat spaces into rich environments for learning, problem-solving and creativity.

Understanding Meta AI :

Meta AI is built to respond to human queries, generate ideas, create content, provide visual information, and support a wide range of personal and professional tasks. Unlike earlier AI systems that were limited to predefined instructions, Meta AI processes language more like humans do, recognizing intention, reasoning with context, and producing meaningful outcomes. At the heart of the tool lies the Llama family of language models, particularly Llama-3, which has enabled Meta AI to handle conversations with impressive fluency and depth.

The journey of Meta AI did not begin overnight. Meta, formerly Facebook, started investing heavily in AI through its research division, FAIR (Facebook AI Research), more than a decade ago. The vision was simple yet bold: make AI safe, powerful, and widely accessible. Over the years, this mission has resulted in breakthroughs

in deep learning, speech recognition, image understanding, and conversational modelling. Today, Meta AI stands as the synthesis of these efforts, designed for everyone from students preparing for exams to professionals solving workplace challenges.

What Makes Meta AI Different?

The strengths of Meta AI lie in its capabilities and its accessibility. Since it is integrated within everyday apps, users do not need new installations or special devices. A person can simply open WhatsApp, type “@Meta AI,” and instantly receive help. This simplicity marks a major shift: instead of people going to AI tools, AI now reaches people where they already are.

Another standout feature is its multimodal intelligence. Meta AI does not only process text it can understand and generate visual content. For example, it can examine an uploaded photo and provide explanations, suggestions or creative captions. It can also generate images based on a written prompt, making imagination instantly visible.

Other important features include:

1. Conversational support.
2. Help in writing and content creation.
3. Coding and debugging assistance.
4. Study summarise and explanation.
5. Travel and event planning.
6. Image creation and editing.

I. AI Works in Practice :

The implementation of Meta AI is intentionally effortless. Users simply open a supported Meta application—such as Instagram, Messenger, or WhatsApp and begin interacting with the built-in assistant. Instead of a rigid step-by-step structure, Meta AI adapts naturally as the conversation progresses.



Fig. 2 of Meta

For example, a teacher designing a lesson plan can request, “Prepare a 40-minute lesson on climate change for 8th grade students with activities.” Meta AI not only generates the plan but can also provide supporting worksheets, MCQs, debate topics, and reflective questions.

A business owner might ask Meta AI to create a product description, slogans, pricing comparison, and customer engagement ideas. The assistant can then modify the tone—professional, emotional or humorous to suit the user’s purpose.

Even everyday tasks become easier. A user planning a birthday party can ask for theme suggestions, decoration ideas, budget planning, invitation messages and games for children. This conversational and scenario-based support is the core of Meta AI’s utility: it responds like a knowledgeable partner rather than a machine receiving instructions.

To get the best results, users often apply simple strategies such as giving a clear prompt, specifying tone, or requesting alternatives. For example, “Rewrite this in formal tone and keep it under 150 words” produces exactly the kind of output needed for professional writing. This collaborative style turns Meta AI into an interactive tool rather than a passive generator of content.

2. Education and Meta AI: A Powerful Partnership

Education has become one of the most meaningful fields for Meta AI. In a world where classrooms are becoming increasingly dynamic and learners have diverse needs, AI can support teachers rather than replace them.

Meta AI contributes to pedagogy in three ways:

Teaching assistance	Learning assistance	Creative learning engagement
<ul style="list-style-type: none"> Lesson planning, question paper creation, activity design and assessment criteria become much faster. 	<ul style="list-style-type: none"> Students receive personalised explanations, examples and practice exercises in real-time. Complex topics can be simplified into flowcharts, bullet notes or stories. 	<ul style="list-style-type: none"> Teachers can generate role-play scripts, debate prompts, visual scenarios, poems and games to make learning more interactive.

While AI enhances learning efficiency, the human role remains central. Edu Challengesators provide emotional guidance, values, assessment of originality and a safe framework within which students use AI. When used responsibly, Meta AI nurtures curiosity, autonomy and confidence—skills that matter for lifelong learning.

Ethical Concerns and challenges :

Like every emerging technology, Meta AI also brings challenges that must be acknowledged openly. AI models sometimes produce incorrect or outdated responses. Because of this, users must treat AI-generated



Fig 3 of Meta

content as helpful support rather than unquestioned truth.

Another important ethical concern relates to dependency. If learners rely excessively on AI to generate answers, critical thinking and creativity may weaken. Responsible AI usage means treating the tool as a companion that stimulates thinking not as a substitute for thinking.

Meta has continued to improve its safety measures by incorporating:

- Content filters that block harmful or discriminatory outputs
- Privacy controls that limit misuse of personal information
- Guidelines to prevent misinformation and protect young users
- Yet, as AI evolves, ethical conversation must also evolve—requiring participation from educators, tech professionals, policymakers and users.

Future of Meta AI :

- The direction of Meta AI points toward a future where interaction with technology becomes intuitive, personalized and contextual. The developmental roadmap includes:
- Support for more regional languages.
- Enhanced real-time reasoning.
- Expanded control for users over their personal AI preferences.
- Higher accuracy and transparency of information.
- Deeper integration of assistive technologies for disability support.
- Meta has also signalled interest in scaling open-source AI research, enabling universities, developers and innovators worldwide to modify and build on Llama models. The potential impact on healthcare, education, workplace automation and creativity is enormous.

Conclusion :

Meta AI represents a remarkable shift in how humanity interacts with technology. Instead of rigid commands and technical barriers,



Fig 4 of Meta

we now have an assistant that listens, adapts and collaborates. It supports professionals at work, teachers in classrooms, learners at home, and individuals in everyday life. While challenges around ethics and responsible usage remain, the promise of Meta AI is profound: a world where artificial intelligence enhances human ability rather than replacing it.

As AI continues to evolve, Meta AI stands as a reminder that technology can be powerful and human - centered at the same time—bridging imagination and solution, effort and efficiency, curiosity and knowledge.

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<https://ai.meta.com/resources/>

MONSHA AI

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1. Introduction And Tool Overview

1.1 Tool name and core Functionality:

Tool Name:

Monsha AI (often just called Monsha) -
found at monsha.ai



Fig. 1 Logo of Monsha AI

Core Functionality:

Monsha's core functionality focuses on helping educators design, generate, differentiate, and export teaching resources and curriculum-Based materials by leveraging generative AI.

Core Functionality of Monsha AI:

1. Creates teaching materials, automatically generates lesson plans, worksheets, quizzes, presentations, reading passages, and more.

2. Helps with differentiation

Adjusts difficulty levels, simplifies or advances content, and translates materials into many languages.

3. Plans courses & units

Helps teachers make unit plans, course outlines, and structured lesson sequences.

4. Saves time in teacher workload

Reduces planning and preparation time by automating repetitive tasks.

1.2 Brief History and development:

Monsha AI begins with a very simple observation: Teachers are fatigued even after work. Using AI to reduce the heavy workload teachers silently carry every day. In November 2023, they launched the first version of Monsha - a simple AI-powered web tool to help teachers plan lessons and create teaching materials faster.

To their surprise, Monsha quickly gained attention, attracting over 20,000 users from across the world without any paid promotion. Even today, Monsha is still run by just the two founders, driven by the

same dream to make teaching easier, lighter, and more human for educators everywhere.

1.3 Target Audience and scope:

Monsha AI is designed primarily for teachers up to grade 12 who often struggle with heavy workloads and time-consuming tasks such as lesson planning, creating worksheets, preparing assessments, and supporting diverse learners. It also serves schools, educational institutions, and academic coordinators who want to standardize teaching materials, and improve teacher productivity by integrating AI into daily classroom workflows. Monsha is built for a global audience, with users coming from countries like the US, UK, Canada, Australia, and other emerging markets. The platform's scope extends across curriculum planning, lesson preparation, and the creation of teaching materials. Along with seamless export options to tools like Google Classroom and Microsoft Office it continues to grow, Monsha aims to expand into advanced areas such as AI-powered grading, enhanced teacher workflows, and strategic partnerships with schools, making it a scalable and globally relevant solution for modern education.

2. Characteristics and features

2.1 Core AI Capabilities:

Monsha AI employs artificial intelligence to expedite and automate teachers' everyday work, enabling the speedy development of curriculum blueprints, lesson plans, and teaching resources targeted to individual subjects and grade levels. It saves a lot of preparation time by producing a variety of instructional resources, including worksheets, tests, and presentations. Monsha also adapts resources for varied learning requirements and connects easily with systems like Google Classroom and Microsoft Office. In order to save manual labor and boost teaching effectiveness and creativity, future additions will include automated grading, better topic recommendations, and greater classroom management support.

2.2 Key Features and User Interface (UI)

Monsha AI offers a user-friendly platform that enables educators to quickly create educational resources such as worksheets, tests, lesson plans, and presentations. It converts existing content from PDFs, lesson notes, or YouTube links into these resources. The tool allows for customization in question types, formats, languages, and difficulty levels, making it suitable for diverse classrooms. Resources can be shared easily via download options in PDF, Google Docs, or Slides.

The interface is intuitive, guiding users through the creation process and providing a preview before finalization.

2.3 Differentiating characteristics:

This technology, which was created with educators in mind, makes classroom administration easier by taking only clicks to use and enabling the uploading of PDFs, notes, and videos to generate worksheets or tests. It features a visual lesson planner with a drag-and-drop interface and varied versions for different skill levels. The results ensure school safety because they may be used for worksheets, presentations, and papers without requiring student data. This application dramatically decreases instructors' workloads, making it user-friendly for both seasoned and rookie educators.

3. Practical implementation and usage

3.1 Prerequisites and Setup:

Prerequisites for Using Monsha AI

1. Basic Digital Skills-Capacity to operate a laptop or phone with ease of typing, clicking, and file uploading.



Fig. 2 usage of AI

2. Access to the Internet-Monsha is a cloud-based program, so stable internet (Wi-Fi or mobile data) is necessary.
3. Equipment-laptop, tablet, or smartphone with Chrome or other updated browsers work best.



Fig.3 Fraction worksheet

4. PDFs, notes, images, YouTube links (only if you want to import your own content)

3.2 Step-by-Step Usage Guide

Scenario A: Create a brief worksheet on fractions for sixth graders.

The objective is to produce a downloadable worksheet containing multiple-choice questions, brief answers, and a matching part.

Click Create Worksheet (or Worksheet Generator) after launching Monsha.

Choose Grade 6 → Subject Math → Topic Fractions.

Select the following question types: matching, short answer, and multiple-choice questions.

One-sentence learning objective: "Add and subtract like fractions" (optional).

Select "Generate."

Examine the preview page or click Regenerate Question for any MCQ that doesn't appear right.

Select PDF (or Google Doc) after clicking Export. Send it to class or download it.

Scenario B — Turn a Textbook PDF into Quiz Questions

The objective is to turn a three-page PDF chapter into a ten-question formative test.

On the dashboard, select Import/Upload. Upload your PDF.

After selecting the uploaded file, select "Create → Quiz from document."

Select the settings: Ten questions in a mixed style

Grade 8/Medium is the set level. Click "Create." Examine the generated questions and make any necessary edits or deletions.



Fig. 4 Textbook into Pdf Question

3.3 Tips and best Practices

Monsha AI functions best when you begin with simple activities, such as making worksheets, then progressively experiment with more complex tools. Make sure the generated content is accurate and clear at all times. For better outcomes, use your own resources, such as PDFs, notes, or textbook pages. To help all students, make the most of the Adapt and Differentiate capabilities. To save time, save your favorite templates. When producing content, use precise keywords and select the appropriate export format for sharing or printing.



Fig. 5 Practices for using AI

4. Educational implication and application

4.1 Pedagogical Rationale:

Monsha AI supports effective teaching by reducing teachers' workload and enabling more meaningful classroom engagement. Its tools help create structured, curriculum-aligned resources that cater to diverse learning needs. By offering differentiated worksheets, clear learning objectives, and interactive content, Monsha strengthens personalised learning and supports varied learning styles. It allows teachers to focus on facilitation rather than manual preparation.

4.2 Impact on Teaching and Learning:

Monsha AI improves teaching and learning by lowering preparation time and allowing teachers more time for meaningful classroom interaction. It makes classes more inclusive and interesting by offering top-notch, personalized resources that support various learning levels. Clear, organized worksheets, exercises, and visual aides help students comprehend and retain information. Through varied resources and flexible question formats, the platform promotes individualized learning. While students enjoy more structured, engaging, and

learner-centered classrooms, teachers benefit from increased productivity, creativity, and self-assurance while creating lessons.

4.3 Specific Classroom Applications:

By assisting educators in creating rapid worksheets, tests, and lesson plans that are suited to various learning levels, Monsha AI enhances classroom instruction. It makes it possible to quickly transform textbook pages into assignments that are easy for students to complete, allowing for customized learning. In only a few minutes, teachers can use it to create homework assignments, multimedia presentations, practice problems, and visual explanations. Slow, average, and advanced learners can all be successfully addressed with its differentiation features. In order to make learning more dynamic, organized, and interesting, Monsha also helps with weekly lesson planning, unit objectives, and review materials preparation.

5. Challenges, ethics and future directions

5.1 Limitation and challenges:

There are still issues with Monsha AI, including sporadic errors, trouble comprehending complicated context, reliance on internet access, and the requirement for educators to go over generated content. Its overall efficacy may also be diminished by educators' lack of digital proficiency and disparate curriculum requirements.

5.2 Ethical and Equity Considerations:

Ensuring data privacy, eliminating bias in AI-generated content, and limiting misuse are examples of ethical challenges. When schools don't have gadgets or dependable internet, it leads to unequal access and equity problems. In order to ensure justice and transparency for all students, educators must employ AI properly.

5.3 Future Outlook and Roadmap

Better multimodal capabilities, tighter curriculum alignment, enhanced customisation, and expanded language support are all part of Monsha AI's future.

6. Supplementary information and references

6.1 Tools Access Details:

- a. Official Url: <https://monsha.ai>
- b. Pricing/License Model:

- A Free forever plan (for individual teachers) with a limited number of resource generations per month: Monsha+2Teach with ND+2
- A Pro plan (~ US\$120/year or US\$10/month) for unlimited resource creation: Teach with ND+1
- Team and Enterprise licences for schools, districts or bulk use: custom pricing, institutional features.

6.2 Further Reading and Documentation:

- FAQ and detailed plan descriptions: "Plans, Pricing & Pilots" section on the Monsha website: Monsha
- Blog and educator resources on how to use Monsha tools and AI in education: Monsha
Case-study and comparison article: "The Best AI for Lesson Planning: Brisk vs Monsha AI", Teach with ND

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MyEdit AI

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1. INTRODUCTION AND TOOL OVERVIEW

1.1. Tool Name and Core Functionality:

MyEditAI is an advanced all-in-one online platform designed to simplify and enhance the process of digital content creation. It brings together a powerful collection of AI-driven tools that allow users to generate, edit, and refine images, videos, and audio files with ease. Unlike traditional editing software that requires installation, technical expertise, and specialised hardware, MyEditAI operates completely

online, making it accessible to a wide range of users including students, educators, professionals, digital creators, and businesses. The platform's core purpose is to enable high-quality multimedia production in a fast, efficient, and user-friendly manner. It empowers users to create professional-grade outputs without the steep learning curve normally associated with graphic design and video or audio editing tools.



Fig. 1 MyEdit Logo

1.2. Brief History and development:

MyEditAI is developed by CyberLink Corp, a global leader in multimedia software and AI facial recognition technology, founded in 1996 and headquartered in Taiwan. CyberLink has a strong reputation in multimedia software with products like PowerDirector and PhotoDirector, and MyEditAI builds on this legacy by leveraging years of experience in AI and audio/video software development. The focus on user experience, monthly updates, and multi-language support highlights its commitment to convenience and efficiency in digital content creation.

1.3. Target Audience and Scope:

The target audience of MyEditAI is diverse because the platform supports both basic and advanced multimedia tasks. Content creators can use it to design promotional graphics, advertisements, or social media posts in an instant. Educators and students benefit from its ability to convert text into videos, generate visual learning materials, and assist with audio transcription. Business professionals can generate marketing visuals, polish product images, create brand videos, or prepare presentation assets quickly. Podcasters and media creators can record, edit, convert, and enhance audio files smoothly using its built-in audio editor. Even users with no design background can use the platform confidently due to its intuitive and user-friendly layout.

The scope of MyEditAI extends across several key domains like graphic design, photo enhancement, video production, audio editing, and automation of creative workflows. By combining simplicity with advanced technology, MyEditAI positions itself as an essential digital tool for modern creative environments. Through intelligent automation, it reduces the complexity of multimedia production and makes high-quality digital creativity accessible to everyone.

2. Characteristics and Features

2.1. Core AI Capabilities:

MyEditAI possesses a wide range of characteristics and features that distinguish it as a powerful AI-based creative platform. At its core, the system is built on advanced artificial intelligence models that enable automated creation, editing, and enhancement of multimedia content. Its AI capabilities span across image generation, background removal, photo enhancement, video creation, text-to-video transformation, and audio processing. These tools allow users to produce high-quality digital content quickly and efficiently without requiring specialised technical skills. The intelligence of the platform lies in its ability to analyse user input whether text, images, or audio and transform it into polished, professional outputs. For instance, its image tools automatically detect subjects, adjust clarity, refine backgrounds, and enhance visual quality, while video tools convert still images or text prompts into dynamic videos. Similarly, audio features enable clean editing, voice conversion, speech-to-text, and text-to-speech processing, all of which contribute to its role as an all-in-one creative solution.

2.2. Key features and User- Interface:

The key features of MyEditAI are supported by a well-structured and intuitive user interface designed to ensure seamless navigation. The platform organises its tools into clear categories like Design Tools, Image Tools, Video Tools, and Audio Editor which makes it easy for users to locate what they need. Each section is clearly labelled and visually arranged, reducing confusion and making the creative process smooth even for beginners. The Graphic Designer tool, for example, allows users to type a simple idea and instantly receive a complete design generated by the AI. The interface also supports easy uploading of files, previewing of results, and downloading of completed work. This combination of automation, simplicity, and clear organisation ensures that the platform is accessible to people with varying levels of digital literacy.

2.3. Differentiating Characteristics:

In terms of distinguishing characteristics, MyEditAI stands out because it brings multiple powerful functionalities into a single platform. Unlike traditional software where users often require separate applications for design, video editing, and audio processing, MyEditAI merges all these tools into one unified online space. This consolidation saves time, enhances workflow efficiency, and reduces the learning curve. Another major differentiator is its strong reliance on AI automation, which allows tasks that normally take hours to be completed within minutes. The platform reduces manual effort while still producing high-quality results, making it ideal for professional users as well as beginners.

Whether the goal is designing social media graphics, editing photos for eCommerce, creating educational videos, or producing podcasts, the platform offers the necessary tools in an integrated environment. This makes it appealing across various domains including marketing, education, entertainment, and business communication. Together, these characteristics and features make MyEditAI a unique, intelligent, and highly efficient platform for modern content creation.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

Using MyEditAI in real-world situations involves a simple and accessible setup, making it highly convenient for both new and experienced users. Since the platform is entirely web-based, the only essential prerequisites are a stable internet connection and a modern web browser such as Chrome, Edge, or Firefox. After accessing the

platform's website, users can create an account to save their projects or unlock additional features, though many tools remain usable even without registration. Once logged in, the interface presents all tools under clearly organised categories like Image Tools, Video Tools, Design Tools, and Audio Editor. Preparing files for use is straightforward-images, videos, or audio clips can simply be uploaded from the device, and the AI handles the analysis and processing automatically. This ease of setup ensures that any user, regardless of experience level, can begin creating content almost immediately.

3.2. Step-by-step Usage Guide:

The actual usage of MyEditAI follows a predictable and user-friendly workflow. For example, if a user wants to create a social media marketing poster, they can enter the Design Tools section and select the Graphic Designer. By typing an idea or prompt, the AI automatically generates a complete design based on the user's description. Similarly, someone wishing to enhance a photograph can open the Image Tools section, upload the picture, and choose options like background removal or image enhancement. The AI quickly processes the image and displays the improved version for download. In video creation scenarios, users can transform still images into dynamic videos, convert text into visual stories, or trim and enhance existing footage using the Video Tools section. Audio editing follows the same pattern-users upload recordings to merge tracks, modify voice tones, transcribe speech, or convert written text into natural-sounding audio.

Each tool follows the same simple sequence: upload, process, preview, and download.

This consistent workflow reduces complexity and allows users to focus more on creativity rather than technical adjustments.





Fig. 3 *(Prompt Cartoonize the Heart image inserted for students of Grade 5 to understand the Heart better.)*

3.3 Tips and best Practices:

To maximize results, users can follow certain practical tips and best practices. It is helpful to provide clear input when using AI-driven tools, especially for prompts that generate images or videos from text. Detailed descriptions lead to more accurate and visually appealing outputs. Using high quality input files such as clear images and clean audio recordings also enhances the final results, as AI tools perform best with strong source material. Previewing content before final download ensures that users can make small adjustments without restarting the entire process. Overall, the practical implementation of MyEditAI is designed to be smooth, intuitive, and supportive of various creative workflows, making it an effective tool for diverse professional, educational, and personal uses.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

The integration of MyEditAI into educational settings is supported by strong pedagogical foundations that promote creativity, active learning, and digital literacy. Modern teaching approaches emphasise the need for multimedia-rich content and diverse forms of learning engagement, and MyEditAI fulfils this requirement by enabling the quick creation of images, videos, and audio materials that enhance classroom instruction.

4.2. Impact on Teaching and Learning:

The impact of MyEditAI on teaching and learning is substantial because it transforms the classroom into a more dynamic and interactive environment. Teachers can prepare engaging visual materials more easily, saving significant lesson planning time while improving presentation quality. The ability to create quick tutorials, graphical explanations, or short educational videos allows educators to implement blended learning and flipped classroom models, where students can access content anytime outside school hours. On the student side, the platform enhances motivation by allowing learners to express their understanding creatively. Instead of relying solely on written assignments, students can develop digital posters, short videos, audio reflections, or visual demonstrations. This increases engagement and encourages them to take ownership of their learning. The tool also fosters collaboration, as group projects can involve sharing tasks such as image editing, video creation, and audio narration. As a result, teamwork, communication, and planning skills improve alongside academic skills.

4.3. Specific Classroom Application:

In terms of practical classroom applications, MyEditAI can be used across multiple subjects and grade levels. In language classes, students can make use of text-to-speech and speech-to-text tools to improve pronunciation, reading fluency, and writing skills. English learners and students with learning difficulties benefit greatly from these accessibility features. In science and social studies, learners can create diagrams, timelines, process videos, or visual reports that help simplify complex topics. Subjects such as ICT and media studies can incorporate the platform to teach basic multimedia skills, including video trimming, audio editing, and graphic design. For teachers, the tool becomes a valuable asset for designing worksheets, activity sheets, infographics, and supplementary materials that are visually engaging. Project-based learning also becomes richer and more effective as students can present their research through multimedia outputs instead of only traditional written formats. Overall, MyEditAI enhances both teaching and learning by increasing creativity, accessibility, engagement, and digital competency, making it an important tool for modern education.

5. Challenges, Ethics, and Future Directions

5.1. Limitation and Challenges:

Although MyEditAI offers a powerful set of tools for multimedia creation, it also faces several challenges and limitations that influence

its overall effectiveness. One of the primary limitations is its complete dependence on an internet connection since the platform is entirely web-based. Another challenge lies in the restricted free usage model. While MyEditAI provides many features at no cost, the most advanced tools require a premium upgrade, which may not be affordable for students, small creators, or users with limited financial resources. The quality of output is also heavily dependent on the quality of input materials; low-resolution images or unclear audio recordings may not produce optimal results even after AI enhancement. Professionals who prefer detailed, layer-based editing may find the platform less flexible compared to traditional software. These challenges highlight areas for improvement as the platform continues to evolve.

5.2. Ethical and Equity Consideration:

The growing use of AI in creative platforms like MyEditAI also raises several ethical and equity considerations. One major ethical concern involves content originality and copyright issues. Because AI-generated images or videos may inadvertently resemble existing copyrighted content, users must be cautious when using AI-created outputs for commercial or public purposes. Privacy concerns must also be acknowledged because users upload personal images, voices, and videos to the platform. Ensuring that this data is handled securely and not misused is essential for maintaining trust. Additionally, tools like voice changers and video editors can potentially be misused to create misleading content or falsified media. Educators and professionals must therefore guide users in applying AI tools responsibly and ethically, balancing innovation with accountability.

5.3. Future Outlook and Roadmap:

Looking towards the future, MyEditAI has promising growth potential as artificial intelligence continues to advance. Future versions are likely to feature more precise and realistic content generation, allowing for even higher-quality images, videos, and audio outputs. Increased customisation options may also be introduced, giving users more control over the editing process while still benefiting from AI automation. The platform could further expand its integration with educational tools, learning management systems, and professional applications, making it even more useful across industries. Overall, the future direction of MyEditAI aims to combine improved quality, stronger ethics, broader accessibility, and richer creative capabilities, ensuring that it remains a relevant and effective tool in a rapidly advancing digital world.

6. Supplementary Information

6.1. Tool Access Details:



Fig. 4 Tools to Use

Official URL: Source: MyEdit

<https://share.google/cR9fZhqRAZc3sO2Ly>

Landing page Pricing: Free version includes 3 free credits per day for premium features, unlimited downloads for general tools, and one download per day for premium tools. Image Plan at \$4 monthly offers access to all image tools, 300 bonus credits per month, unlimited AI image generation, and no watermarks. Annual billing options available: Image Plan at \$48 per year and Image Pro Plan at \$84 per year, offering cost savings compared to monthly rates.

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Nano Banana AI

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1. Introduction

In the rapidly evolving landscape of educational technology, Artificial Intelligence (AI) has emerged as a crucial driver of pedagogical transformation. Institutions worldwide are increasingly adopting AI-enabled ecosystems that support intelligent content creation, automated workflows, enhanced learner engagement, and data-driven decision-making. Among the new-generation AI platforms, **Nano Banana AI** distinguishes itself as a versatile, educator-friendly, and institution-ready solution that blends creativity, efficiency, and intelligent automation.

Nano Banana AI is designed to serve teachers, students, administrators, and educational institutions by providing a unified suite of AI-powered tools for content development, assessment generation, workflow automation, and personalized learning support. Its intuitive interface and task-specific AI engines make it ideal for higher education, teacher training, K-12 classrooms, and corporate learning.



Fig. no. 1 Nano Banana AI

Nano Banana AI positions itself not merely as a tool but as a **holistic educational companion**, supporting educators in designing high-quality instructional materials, streamlining evaluation processes, and empowering learners with accessible and adaptive content.

2. Evolution and Growth of Nano Banana AI

Nano Banana AI was conceptualised as a lightweight, fast, and educator-focused AI platform intended to simplify daily academic tasks. The platform has evolved through several stages of development:

2019–2021: Conceptualisation and Prototype

- Development of AI text generation models for teaching content
- Early modules for lesson planning and summarisation

2022–2023: Educational Integration

- Addition of assessment tools
- Support for Bloom's taxonomy-aligned objectives
- Expansion into institutional workflows

2024–2025: Transition to a Full Learning Productivity Suite

- Introduction of Nano Banana AI Classroom tools
- AI-based remediation suggestions
- Document creation engines (Word, PPT, PDFs)
- Multimodal AI capabilities (text, voice, image assistance)

Today, Nano Banana AI serves as a robust educational AI ecosystem supporting **content creation, assessment generation, data insights, and intelligent teaching assistance.**

3. Core Capabilities of Nano Banana AI

Nano Banana AI provides a rich set of tools across four core domains—**teaching productivity, content creation, assessment support, and learning personalisation.**

3.1. Instructional Design and Content Authoring

Nano Banana AI helps educators design comprehensive learning materials through:

- AI-generated lesson plans
- Module-wise content creation
- Learning outcomes aligned to Bloom's taxonomy
- Simplification, expansion, or restructuring of content
- Ready-to-use lecture notes, summaries, and exemplars

Educators can convert text into **Word documents, PDFs, PPTs, worksheets, or infographics** with a single command.

3.2. Assessment and Evaluation Tools

Nano Banana AI enhances assessment workflows by providing:

- AI-generated quizzes (MCQs, case-based questions, HOTS items)
- Auto-created rubrics
- Draft feedback for assignments
- Descriptive, application-level, and reflective questions
- Blueprint creation aligned to outcomes

These features reduce the burden of manual assessment preparation and ensure consistency in evaluation.

3.3. Automation of Administrative and Academic Tasks

The platform automates routine institutional workflows such as:

- Circulars, notices, and official communication
- Reports, inspection documents, and minutes of meetings
- Professional emails and memos
- Timetables and academic calendars
- Policy drafts and proposals

This supports efficiency and administrative accuracy.

3.4. Communication and Collaboration

Nano Banana AI strengthens academic communication through:

- AI-drafted announcements
- Student progress summaries
- Parent communication notes
- Collaboration tools for project groups
- Templates for reflective journals and portfolios

Institutions benefit from streamlined information flow and easy documentation.

3.5. Analytics and Insights

Nano Banana AI includes foundational analytics features:

- Difficulty-level estimation for assessments
- Complexity analysis of content
- Suggestions for scaffolding and remedial instruction
- Detection of conceptual gaps in learning material

Advanced versions include institution-level dashboards, providing insights into usage, content quality, and learner engagement.

4. AI-Powered Capabilities in Nano Banana AI

Nano Banana AI's strength lies in its specialised AI engines developed specifically for academic and instructional tasks.

4.1. Nano Banana Content Engine

This AI engine supports:

- Syllabus-to-module content generation
- Interactive learning activities
- Teaching aids and examples
- Concept maps
- Worksheets and skill-based exercises

Educators can upload a document or specify a topic, and the engine generates structured pedagogical content.

4.2. Assessment Intelligence Engine

This module automates:

- MCQs, SAQs, LAQs, case studies, and scenario-based questions
- Outcome-mapped question banks
- Adaptive and differentiated assessment sets
- Suggestive answers and marking schemes
- Rubric-based evaluations

It ensures curricular alignment and reduces teacher workload.

4.3. Nano Feedback and Evaluation AI

The platform generates:

- Draft feedback for assignments
- Peer-review comments
- Reflective prompts
- Remediation suggestions for learners
- Language refinement and clarity checks

Educators maintain full control, approving or editing AI-generated feedback before release.

4.4. Multimodal Intelligence

Nano Banana AI supports:

- Image-to-text interpretation
- Document reading and summarisation
- Voice-based assistance
- Slide generation from text

This makes it useful across multiple teaching situations, from classroom presentations to faculty development.

5. Educational Applications of Nano Banana AI

5.1. Higher Education

Universities use Nano Banana AI for:

- Course material development
- Academic proposal writing
- Review of research papers
- PG-level teaching aids

- Semester-wise content structuring

5.2. Teacher Education and Professional Development

The platform is especially beneficial in teacher training programs:

- Practice lesson planning
- Reflective journal evaluation
- Observation tools and rubrics
- Internship documentation
- Micro-teaching content generation

5.3 K–12 Schooling

Schools benefit from:

- Age-appropriate content creation
- Worksheets, activities, flashcards
- Parent communication notes
- Student portfolio templates
- Morning assembly scripts

5.4 Corporate and Professional Training

Used for:

- Compliance training content
- Upskilling modules
- Behavioural training decks
- Progress reports and feedback notes

6. Distinctive Advantages of Nano Banana AI

Nano Banana AI stands out due to:

6.1 Educator-Centric Design

Simple prompts, clear workflows, and classroom-ready outputs.

6.2 Rapid Document Generation

Creates Word files, PPTs, PDFs, reports, and templates instantly.

6.3 Reliable Pedagogical Alignment

Supports Bloom's taxonomy, learning outcomes, and instructional coherence.

6.4 Multilingual Support

Content can be translated or adapted for linguistic diversity.

6.5 High Customizability

Institutions can tailor templates to meet curriculum requirements.

6.6 Time and Effort Efficiency

Reduces preparation time by up to 60–80% for teachers.

7. Challenges and Ethical Considerations

Despite its strengths, Nano Banana AI must address:

- Risks of over-dependence on AI-generated teaching content
- Variation in quality of AI output
- Data privacy concerns for uploaded documents
- Need for teacher training in AI-assisted pedagogy
- Ensuring academic integrity

Nano Banana AI developers emphasise transparent AI practices and the requirement for human oversight in all educational decisions.

8. Future Outlook

Nano Banana AI aims to evolve into a deeply integrated AI-learning ecosystem. Future enhancements include:

- AI co-teachers and adaptive tutoring
- Predictive learning analytics
- Emotion-awareness in learning support
- Gamified AI content generation
- Cross-platform classroom orchestration
- AI-powered lab simulations and micro-learning modules

The platform is positioned to significantly strengthen AI-driven educational innovation.

Tool access - <https://artlist.io/>

9. Conclusion

Nano Banana AI represents a new generation of intelligent educational technology that blends pedagogical understanding with powerful AI capabilities. Its strength lies in its simplicity, versatility, and ability to elevate both teaching effectiveness and learning productivity. As institutions increasingly adopt AI, Nano Banana AI offers a robust, scalable, and educator-friendly ecosystem that supports creativity, assessment quality, administrative efficiency, and academic excellence.

The platform stands as a valuable ally for teachers, students, and institutions committed to advancing future-ready learning environments.

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Napkin AI

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1. Introduction and tool overview

1.1. Tool Name and core Functionality

In today's digital age, many people often struggle with presenting their ideas in a visually appealing and easy to understand way. Napkin AI is a tool created to solve this problem. It is an AI-powered visual thinking platform that generates simple text inputs and instantly converts them into diagrams, mind maps, charts and many more.

The beauty of Napkin AI is that to use this tool one doesn't need any design experience, special skills, or technical background. A person just needs to type the idea and Napkin AI automatically arranges the information into a clean visual structure within seconds.



Fig.1 Logo of Napkin AI

1.2. Brief History and Development

Napkin AI was launched in October 2021 by Pramod Sharma and Jerome Scholler. The idea of this AI tool came from a simple observation: "Most people think visually but very few know how to design visuals".

They also noticed that students often understand better when concepts are presented visually. However, making visuals such as mind maps or flowcharts is time consuming. Teachers may also feel limited by designing tools that are complex or difficult to learn.

The founders wanted to create a platform where visual thinking becomes effortless. Their mission soon became - "To give everyone the power of visuals in their communication." Today, Napkin AI is used widely in education, business, research, planning and creative fields.

1.3. Target audiences and scope

Napkin AI caters to a wide range of users, but its strongest influence can be seen in the education sector. Teachers use it to make their lessons more interactive and visually appealing, while students rely on its diagrams and visual notes to simplify revision. It also supports researchers who need clear concept maps to organize complex information, and helps curriculum designers plan ideas in an intuitive, visual format. Even presenters and trainers benefit from its ability to generate quick, clean visuals for their slides. With its growing capabilities, Napkin AI is steadily expanding its scope by assisting with brainstorming, teaching, planning, explaining concepts, writing tasks, and even collaborative projects.

2. Characteristics and Features

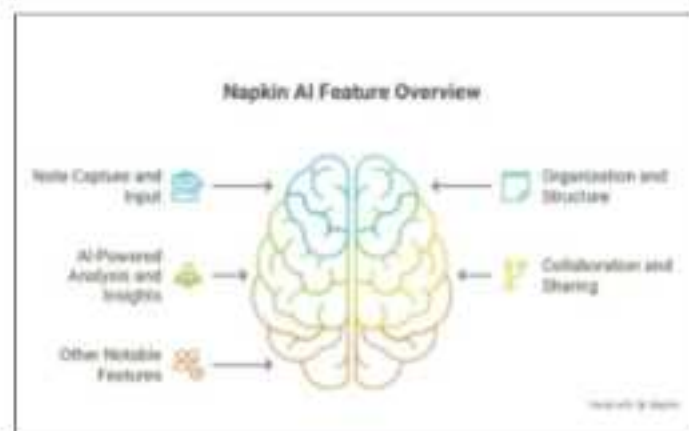


Fig. 2 Feature of Napkin AI

2.1. Core AI Capabilities

- **Understands natural language:** Napkin AI can read and make sense of everyday human sentences, not just keywords.
- **Identifies key ideas:** It picks out the most important concepts from the text to highlight what truly matters.
- **Recognizes relationships:** The tool studies how ideas connect - such as cause and effect, categories, or sequences.
- **Creates visual structure:** After analyzing the content, it arranges the information into clear diagrams or concept maps.

2.2. Key Features and User Interface (UI)

Napkin AI offers a clean and simple interface that allows users to focus on creating ideas rather than struggling with controls. One of its standout abilities is converting written text into visual diagrams instantly, making concept creation quick and effortless. The tool also provides easy drag-and-drop editing, allowing users to rearrange nodes or branches as their ideas develop. To enhance personalisation, Napkin AI includes options to modify colours, styles, icons, and overall layout. Users can export their visuals in formats like PNG, PDF, or even PPT for presentations. It also supports collaboration, enabling classmates or colleagues to work together and share their diagrams. Additionally, Napkin AI gives real-time suggestions to improve the structure and clarity of the visual map, making the final output more organised and effective.

2.3 Differentiating Characteristics

- **Requires very little effort:** Napkin AI does most of the work automatically, turning simple text into a diagram within seconds.
- **Beginner-friendly:** Its simple and clean interface makes it easy for anyone to use, even without experience.
- **Instant visual output:** Users get clear, organized visuals immediately, saving a lot of manual work and time.
- **Clean and professional design:** The tool avoids clutter and creates neat, presentation-ready diagrams.
- **Smart organization:** Napkin arranges ideas logically, helping users understand and present concepts more effectively.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

Using Napkin AI is simple and requires almost no technical preparation. A user only needs a basic device such as a phone, laptop, or tablet, along with a stable internet connection. Access is also easy because a regular email ID or Google account is enough to sign in. Since Napkin AI works entirely through its website, there is no need to install any application or software.

3.2 Step-by-Step Usage Guide (Scenario-Based)

To understand how Napkin AI functions in real academic settings: Imagine a teacher preparing a visual for a grammar lesson on "Parts of Speech." Instead of creating a diagram manually, the teacher

opens the Napkin AI website and logs in using a Google account. Then simply type a prompt “Parts of Speech with examples” and click Continue. Within seconds, Napkin AI generates a clear mind map showing nouns, verbs, adjectives, adverbs, and other categories.



Fig. 3 Example

The teacher can then personalize the diagram by rearranging branches, adding icons, or adjusting the colours. Once acquired the expected result further exports the visual as a PNG or PPT file and inserts it into the classroom presentation. Through this process, the teacher is able to save nearly 30 to 40 minutes of manual work while still creating an organized and engaging lesson visual.

3.3 Tips and Best Practices

Use short and clear sentences:

- Simple inputs help Napkin AI understand the main idea quickly and generate accurate visuals without confusion.
- Experiment with different layouts: Try mind maps, flowcharts, or concept maps to find the layout that best matches your topic and teaching style.
- Add relevant icons or symbols: Small visuals make the diagram more engaging and help learners remember concepts better.
- Maintain consistent colours: Use a fixed colour scheme for related ideas so the visual remains neat, readable, and easy to follow.

- Review the AI-generated map: Always check the final output to make sure the information is correct and aligns with your lesson or topic.
- Keep the diagram uncluttered: Avoid adding too many branches or text so the visual stays clean and effective.
- Update visuals as needed: Make small edits or adjustments to suit different classes, presentations, or learning levels.

4. Educational Implications and Applications

Research in learning theory highlights that students grasp concepts more effectively when information is presented visually and arranged in a structured, interconnected manner. Visual learning naturally enhances comprehension, recall, attention, and participation. Napkin AI supports this approach by aligning with constructive principles, allowing learners to build their own understanding through meaningful links between ideas. In classroom practice, Napkin AI brings noticeable benefits for both teachers and students. For teachers, it reduces preparation time, makes it easier to explain complex topics, enriches lessons with visuals, and supports diverse learning needs. Whereas, for students, it promotes active engagement, strengthens visual memory, simplifies revision, and helps develop logical thinking skills. Napkin AI can be integrated into various classroom tasks. Teachers may use it to create lesson summaries, chapter mind maps, grammar diagrams, science process charts, social studies timelines, or project flowcharts. Students, on the other hand, can apply it for homework visuals, class presentations, group project planning, and portfolio development. Together, these applications make Napkin AI a powerful tool for enhancing teaching and learning.

5. Challenges, Ethics, and Future Directions

While Napkin AI is highly useful, it does come with certain limitations. The tool requires a stable internet connection, and some of its more advanced functions are restricted in the free version. Its accuracy also depends heavily on how clearly the user frames the input, and a few layout options may feel limiting for users who want more complex designs.

Ethical considerations are equally important when using AI in education. Teachers need to make sure that students from low resource environments are not excluded due to lack of access. AI should be used to support learning rather than to replace student thinking or creativity. It is also essential that learners understand the

difference between their original work and AI-generated assistance, and that visuals created through AI are not misused in assessments. Looking ahead, Napkin AI has a promising roadmap. The platform aims to introduce more education-focused templates, voice-to-visual features, multilingual options, and enhanced collaboration tools. There are also plans for smoother integration with learning platforms such as Google Classroom. These developments are expected to make Napkin AI even more valuable for teachers, students, and future educators.

6. Supplementary Information and References

6.1 Tool Access Details

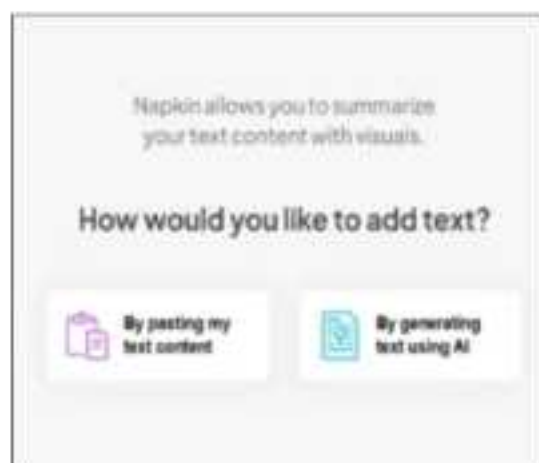


Fig. 4 Summarize the Text

Official URL: www.napkin.ai

Free version: Basic features

Paid version: More customization and export features

6.2 Further Reading and Documentation

Napkin AI Tutorials: Step-by-step guides explaining how to use features and create effective visual diagrams.

Official Help Centre: Provides detailed instructions, troubleshooting tips, and example use cases for educational purposes.

YouTube Demonstrations: Videos showing real-life applications, interface walkthroughs, and practical classroom usage.

Blogs on AI in Education: Articles that discuss the role of AI tools like Napkin AI in teaching, learning, and visual pedagogy.

6.3 References

Napkin AI Official Website: Offers platform updates, features, and detailed information about the tool.

Interviews with Founders: Provide insights into the inspiration, development process, and educational vision behind Napkin AI.

Research Articles on Visual Learning: Academic studies supporting the use of visual strategies to improve comprehension, memory, and engagement in learning.

Navneet AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Navneet AI is an educational artificial intelligence platform developed by Navneet Education Ltd., designed to support students and teachers with digital learning resources, practice materials, doubt solving, textbook solutions, and personalized study assistance.



Fig. 1 Logo of Navneet AI

Core functions include:

- AI-powered doubt solving
- Step-by-step textbook solutions
- Interactive practice questions
- Personalized recommendations
- Digital smart learning aligned with the school curriculum

1.2. Brief History and Development

Navneet, a well-known Indian educational publisher, expanded into AI-based learning tools to modernize classroom and home learning in 2025.

Navneet AI evolved from their digital initiatives such as Navneet TopTech and eSense, and launched with the goal of:

- Making high-quality learning accessible
- Helping students study independently
- Assisting teachers with digital resources

The tool was developed as AI adoption increased in Indian education after 2023.

1.3. Target Audience and Scope

- Students from Primary to Higher Secondary
- Teachers across CBSE, ICSE, and State Boards
- Coaching institutes
- Parents supporting home learning

Scope: Homework help, concept revision, AI-guided learning, and digital classroom support

2. Characteristics and Features

2.1. Core AI Capabilities

- AI-based doubt solving using natural language processing
- Auto-generated answers from textbooks and Navneet guides
- AI-recommended practice questions
- Concept clarification with step-by-step explanation
- AI-generated quizzes for revision

2.2. Key Features and User Interface (UI)

- Subject-wise and chapter-wise navigation
- Direct image-based question input (click/upload and ask)
- Interactive animations and videos
- Quick-access textbook and guide solutions
- Teacher dashboard for assignments & analysis
- Interactive games for students
- Interactive 3D models for easy understanding of the topic

2.3. Differentiating Characteristics

- Aligned with Indian boards and curriculum
- Backed by Navneet's trusted content from textbooks and guides
- Simplifies answers to a student-friendly level
- Includes local language support (in some versions)
- Works both as an app and integrated classroom solution (TopTech)
- Includes music, grammar and coding apps

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- A smartphone/tablet or computer
- Navneet AI app or web access
- Student/teacher login
- Internet connection
- Navneet textbook access (optional but helpful)

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Solving a Doubt

- Open Navneet AI
- Select subject and chapter OR upload a photo of the question
- AI analyzes the query
- Provides step-by-step explanation
- Student can ask follow-up questions for clarity



Fig. 2 Solving Doubts

Scenario 2: Preparing for an Exam

- Choose "Practice Revision"
- AI recommends important questions
- Attempt MCQs, short answers, and numerical questions
- Check explanations
- Monitor progress through dashboard reports



Fig. 3 Revision Tools

Scenario 3: Teacher Using AI for Classroom Engagement

- Select chapter
- Generate AI-based quizzes
- Share with students in class
- Track student attempts
- Use analytics to spot weak areas



Fig. 4 Magic 3D

3.3. Tips and Best Practices

- Use image upload for faster doubt solving
- Re-attempt wrong answers for mastery
- Use chapter summaries before exams
- Teachers should combine AI tasks with live discussion
- Avoid copying AI answers directly - encourage understanding

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Navneet AI believes in empowering teachers in the classroom and not replacing them. It supports a blended learning model, helping students learn independently while giving teachers tools for digital instruction. It aligns with constructivist and mastery-based learning.

4.2. Impact on Teaching and Learning

- Reduces dependency on tuition
- Enhances concept clarity
- Provides instant answers and feedback

- Supports differentiated learning
- Reduces teacher workload for repetitive tasks
- Creates engaging lessons within minutes with the use of visual aids
- Increases learning speed with personalized suggestions

4.3. Specific Classroom Applications

- Smartboard-enabled lessons
- Quick doubt clarification
- Homework checking
- Quiz competitions and interactive assessments
- 3D models to explain concepts better

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Requires consistent internet access
- AI may occasionally misinterpret handwritten questions

5.2. Ethical and Equity Considerations

- Ensuring data privacy for minors
- Avoiding academic dishonesty
- Providing equal access for students without devices
- Offering balanced guidance without replacing teacher judgement

5.3. Future Outlook and Roadmap

- Expansion into more state boards and languages
- More personalized learning paths
- Enhanced handwriting recognition
- AI-driven adaptive tests based on student performance

6. Supplementary Information and References

6.1. Tool Access Details

Official Sources:

- Navneet Education Website
 - Navneet TopTech & eSense digital learning portals
- (Insert screenshots of landing pages)

6.2. Pricing/License Model

- Free student usage (basic)

- Premium features for schools
- Licensing for smart classroom integration
- Teacher tools included in institutional packages

6.3. Further Reading and Documentation

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NotebookLM

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

NotebookLM, previously known as 'Project Tailwind', is an AI-driven tool created by Google to make research and learning smoother and more organised. Rather than giving generic answers, it works like a personal study partner that learns directly from the documents you upload. Whether it's PDFs, articles, notes, or web links, the tool studies your



Fig.1 Logo of NotebookLM

material and builds a customized AI model from it. This allows NotebookLM to answer questions based only on your sources, prepare summaries, create study notes, highlight key themes, and help you spot links between different ideas. With its clean design and seamless connection to the Google ecosystem, NotebookLM is designed to reduce the stress of reading lengthy material, writing papers, and handling complex research tasks.

1.2. Brief History and Development

NotebookLM was first introduced by Google in 2023 under the experimental title 'Project Tailwind'. It emerged from Google's broader mission to build AI tools that genuinely support personalised learning and knowledge work instead of offering generic responses. The development team aimed to solve a challenge familiar to students, researchers, and professionals having valuable information scattered across multiple documents and struggling to combine it into clear, meaningful insights. In 2024, the project evolved into what we now know as NotebookLM, powered by Google's advanced Gemini models to deliver more accurate reasoning and deeply source-linked answers. By 2025, NotebookLM became accessible to a wider audience and grew richer in

functionality, introducing support for multimodal inputs, better summarisation tools, and the ability to analyse information across multiple documents in real time. Overall, its evolution reflects Google's intention to design AI that enhances productivity, deep understanding, meaningful learning and not just quick text generation

1.3. Target Audience and Scope

NotebookLM is built for anyone who spends a lot of time dealing with information. Its main users include students, educators, researchers, writers, journalists, content creators, and other professionals who regularly read, analyse, or organise knowledge. The tool is especially helpful for people managing heavy reading loads, compiling study notes, or working on research-based projects. In terms of application, NotebookLM is suited to academic assignments, classroom planning, self-learning, professional research, long-form writing, and content creation. Acting like a smart learning companion, it helps users explore complicated topics, compare sources, organise ideas, and produce polished explanations or summaries. It also supports many document formats and always grounds its responses in the users' uploaded materials. NotebookLM has broad relevance across education, research, publishing, and professional knowledge management.

2. Characteristics and Features

2.1. Core AI Capabilities

NotebookLM runs on Google's highly advanced language models, which allow it to read, understand, and summarise large sets of information with impressive accuracy. What makes its AI special is that it does not rely on general internet knowledge; instead, it sources information directly from the documents the user uploads, such as PDFs, notes, webpages, or transcripts. By analysing only those sources, NotebookLM can pull out key points, answer questions, explain concepts, create summaries, and connect ideas across multiple documents. This not only saves time during research but also ensures that the information it provides is reliable and directly tied to the user's own material. The tool also accepts multimodal input, meaning it can work with both text and media, and always delivers context-aware responses based on the uploaded content.

2.2. Key Features and User Interface (UI)

NotebookLM's interface is designed to be simple, clean, and supportive for learners and researchers. The layout includes organised sections for uploaded sources, interactive chat, and automatically generated notes, helping users switch between reading and research tasks without confusion. Users can upload documents, get instant summaries, generate study notes, ask questions based on their material, and receive structured study guides within seconds. The interface avoids unnecessary distractions, which makes the tool easy to use even for someone who is new to AI. Its clarity, efficient navigation, and smooth performance make NotebookLM especially useful for long hours of academic reading and self-study.

2.3. Differentiating Characteristics

What truly separates NotebookLM from other AI tools is its commitment to source-grounded responses. Every answer it generates is tied directly to the user's uploaded content, reducing misinformation and preventing random or hallucinated outputs. Rather than being a generic chatbot, it works like a personalised research partner that builds a tailored 'notebook space' based on the user's learning needs. Its ability to combine information from multiple sources and generate insights across documents is a rare capability that most AI tools do not offer. Its education-focused design and structured research-friendly outputs, NotebookLM stands out as a powerful support system for students, teachers, and researchers.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

NotebookLM has been created to be simple and accessible, even for people who are not very tech-savvy. To get started, users mainly need a Google account since the tool works within the Google Workspace system. Apart from that, all that's required is a stable internet connection and a device like a laptop, computer, or smartphone that supports commonly used browsers such as Chrome, Edge, or Firefox. There is no need to download or install any extra software, which makes the setup quick and convenient for students, teachers, researchers, and working professionals. Once logged in with a Google ID, users can create their first notebook and upload or import materials such as PDFs, Google Docs, text files, or website links. NotebookLM then automatically scans and organises the uploaded content to build a personalised AI model based on the

users material, allowing them to start working right away without any complicated setup.

3.2. Step-by-Step Usage Guide

To understand how NotebookLM works in real life, consider the example of a B.Ed student preparing detailed notes for a classroom presentation. After signing in, the student creates a new notebook and uploads all the study materials, lecture notes, PDFs, online articles, or any other relevant documents. NotebookLM quickly scans these sources and gets ready to assist. From there, the student can ask the tool to shorten long chapters, break down concepts, or even generate a list of important questions from the uploaded content.

For instance, suppose the student is working on the topic '21st Century Skills'. They upload the chapter as a PDF and enter a prompt : 'Turn this chapter into main points for presentation slides'. NotebookLM produces a neatly organised summary that can be used directly for classroom work. The student can further give prompt to:

- extract important definitions, examples, and case studies
- convert information into slide-ready bullet points
- create quizzes, discussion questions, or activities
- simplify difficult explanations into easy classroom language

This step-by-step usage example shows how NotebookLM functions like a personal academic assistant. It always refers back to the uploaded sources, the notes and summaries remain accurate and trustworthy, allowing students to focus more on understanding and presenting the topic rather than spending hours organising information.



Fig. 2. Adding prompts



Fig. 3. Customize Flashcards



Fig. 4 Multiple Choice Quiz

3.3. Tips and Best Practices

To get the best results from NotebookLM, it's important to start with good and well-organised source material. The clearer and more relevant the documents you upload, the better the AI will be able to summarise and analyse them. It also helps to create separate notebooks for each subject or project so that information stays organised and easy to revisit later. When chatting with the tool, prompts that are specific and clear — for example, 'Explain this concept with examples suitable for classroom teaching' or 'Write a 10-mark answer with headings' tend to produce more precise and useful responses.

Even though NotebookLM provides highly accurate summaries and explanations, users should still cross-check the content, especially when preparing assignments or classroom material, to make sure it matches curriculum expectations. Adding personal understanding, teaching experience, or classroom-based insights on top of NotebookLM's output can make the final work richer and more meaningful. By actively exploring features like cross-document insights, citation suggestions, and automatic outlines, users can save time and improve both productivity and learning outcomes.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

NotebookLM is rooted in a strong educational philosophy that focuses on learner-centred and inquiry-based learning. Instead of students passively reading material, the tool encourages them to engage with their sources — asking questions, exploring concepts, and generating insights directly from the documents they upload. In this way, static reading material becomes an interactive learning experience. NotebookLM supports constructivist teaching principles by helping students build their own understanding through personalised explanations, summaries, comparisons, and note-making. It also reduces cognitive overload by offering help whenever needed, which supports different learning styles and paces. For teachers, NotebookLM becomes an intelligent planning partner, assisting with lesson framing, resource organisation, and clarification of complex content so that classroom time can be spent more on facilitation and meaningful interaction rather than repetitive explanation.

4.2. Impact on Teaching and Learning

NotebookLM brings a noticeable improvement to both teaching and learning. Students benefit from quicker comprehension, increased confidence, and the ability to learn independently. Since doubts can be clarified instantly and notes can be generated within seconds, revision becomes easier and engagement with study material becomes deeper and more meaningful. Teachers, on the other hand, save time while preparing lessons because NotebookLM can quickly summarize lengthy readings, create practice questions, structure content, and provide clear topic explanations aligned with the syllabus. The tool also supports inclusive education by catering to diverse learning needs, ensuring that students who require extra support receive personalised guidance. By integrating this AI tool

into everyday learning practices, students gradually develop essential 21st-century competencies such as digital literacy, analysis, information evaluation, synthesis, and reflective thinking.

4.3. Specific Classroom Applications

NotebookLM can be used in many effective ways within a classroom. Teachers can rely on it to prepare lesson summaries, generate discussion prompts, create short tests, and organise reading material for students. During the lesson, NotebookLM may also serve as a real-time helper to explain difficult definitions, theories, or case studies directly from the uploaded texts. For project-based learning, the tool becomes extremely valuable as it assists students in gathering information, organising their ideas, and producing structured presentations or reports. It is also highly effective in flipped classroom settings, where students review AI-generated summaries or notes before attending class, entering the lesson with stronger preparation and confidence. Additionally, NotebookLM supports personalised learning plans by helping students revise independently, clarify doubts instantly, and receive continuous guidance throughout the academic year regardless of their learning speed or background.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Although NotebookLM offers many impressive features, it is not without limitations. The accuracy of its responses strongly depends on the quality of the documents uploaded. If the material is outdated, poorly scanned, disorganized, or unclear, the AI may produce summaries that are incomplete or less meaningful. Another practical limitation is that NotebookLM requires steady internet access and compatible file formats, which can make it difficult to use in areas with limited digital resources. The tool may also face challenges when dealing with content that is highly subjective or open to interpretation, as the AI sometimes struggles to understand nuance or intent. For new users, there may be a small learning curve in understanding how to write effective prompts and make full use of the 'source-grounded' responses. Like all AI tools, occasional technical issues, such as misinterpretation of certain phrases or formatting inconsistencies may also occur.

5.2. Ethical and Equity Considerations

From an ethical point of view, NotebookLM raises important considerations related to data privacy, transparency, and fairness. Because the tool processes personal academic documents, users need assurance that their information will remain private and will not be used for unintended purposes. There is also a potential risk of over-dependence on AI-generated summaries, which might reduce originality and critical thinking if learners rely on the tool excessively. Furthermore, access to NotebookLM is influenced by factors such as digital skills, device availability, and reliable internet connectivity, which can create inequality between learners from different backgrounds. Ensuring that the platform supports multiple languages, offers accessibility features, and delivers unbiased responses is essential for making it useful and fair for all learners.

5.3. Future Outlook and Roadmap

Looking ahead, NotebookLM has a promising future as Google continues to refine and expand the tool. We can expect improvements in accuracy, personalisation, and multimodal capabilities, allowing users to work not just with text but also with audio, images, and other media. Deeper integration with learning management systems (LMS) may make it easier for teachers and students to collaborate and share content directly within educational platforms. Future updates could also introduce real-time collaboration features, stronger support for global languages, and smarter recommendations based on learning patterns. Enhancements in citation handling, contextual understanding, and adaptive study suggestions are likely to make NotebookLM an even more reliable academic companion. As international AI regulation becomes stronger, NotebookLM is also expected to adopt more transparent privacy practices and ethical safeguards, helping it evolve into a more trustworthy, secure, and accessible tool for teaching, learning, and research.

6. Supplementary Information and References

6.1. Tool Access Details

NotebookLM can be accessed through its official platform, which provides a clean, minimal, and learner-friendly landing page designed to immediately introduce users to its core functions—AI-assisted note-making, summarisation, and personalised study support.

Official URL: <https://notebooklm.google/>

You can access NotebookLM at *Google's official NotebookLM website*



Fig. 5 NotebookLM Website

The landing page typically includes options to sign in with a Google account, explore sample demos, and start building AI-powered study notebooks in just a few clicks.

Regarding its pricing and licensing model, NotebookLM is currently offered as a free-to-use AI tool, as part of Google's experimental product line under Google Labs. Users only need a Google account to access the platform. Since the tool is still evolving, its licensing terms emphasise responsible AI usage, data protection, and transparency. It is available for educational, personal, and research purposes without subscription fees, making it highly accessible for students, teachers, and academic institutions.

For deeper insights into the functionalities, design philosophy, and research foundations of NotebookLM, users can explore the documentation provided by Google. This includes official help guides, feature explanations, privacy and data-handling policies, and updates through Google's AI announcements or blog posts. Educators and students can also refer to Google Labs' community resources, FAQ sections, and tutorial videos that demonstrate how to integrate NotebookLM into coursework, research, or self-learning. External articles published by tech educators, AI researchers, and digital learning platforms also offer analyses, reviews, and case studies that highlight their growing role in modern education.

The references for NotebookLM typically include official Google publications, product pages, and AI research documents released under Google Labs. Additional references can include articles from educational technology journals, AI ethics reports, and blog posts produced by recognised ed-tech reviewers. These sources help validate the tool's credibility and provide scholarly backing for academic reports. Since NotebookLM is a relatively new tool, most references come from Google's official announcements, help centre documentation, AI research blogs, and reputable technology news platforms that have reviewed the tool's launch and educational impact.

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Otter AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Otter AI is an app that provides transcription and is a meeting assistant tool. It converts spoken words into written text. It helps users by taking meeting notes and providing summaries, so they can focus on discussions and conversations instead of writing. It has an Otter AI chat to



Otter AI App

Fig. no. 1 Otter AI Logo

answer questions and supports apps and connects with Zoom and Google Meet. It can also have the capacity where we upload the video and it gives written text of that video. Users can share notes through channels and groups, study together or individually. It helps users focus on talks, not just note-taking.

1.2. Brief History and Development

Otter AI app by the American Company called 'AISense' in California. It was created in 2016. Then it was modified like Real-time transcription came in 2017, Zoom integration in 2019, and AI-driven summaries in 2021-2024. The app is named after an animal called an otter, because Otter was considered one of the smartest creatures. They are creative and cute. The name was chosen because the app is also smart and creative.

1.3. Target Audience and Scope

Otter AI is used by educators from primary to college level, including teachers, principals, and staff. Students can record lectures and online meetings with teacher's

permission, as people sometimes make mistakes or forget. It's helpful for hearing-impaired students as they can't listen, thus they can take automatic generated notes by audio and learn. It also helps corporate teams, journalists, researchers, and healthcare workers by improving productivity and making information accessible in different areas.

2. Characteristics and Features:

2.1. Core AI Capabilities:

It provides proper learning notes and summaries and has features such as:

It recognizes automatic speech with high accuracy. It can identify the speaker during conversation and label their voice note separately in order to understand students the important points which are said by different teachers. By whole meeting it gives you main points and summarizes what was discussed in the meeting. It extracts actions to process language and important highlights.

2.2. Key Features and User Interface (UI)

User Interface Components:

It has a Home Dashboard which shows a list of recent events. It has a Live Transcription panel which displays ongoing transcription in real time. It has a synchronisation where a user can click any text it jumps to the exact part of that audio. Users can edit text by highlighting important words or topics and tag sections. There is also a search bar where you can search any previous meeting, conversation part. It also has a File Export Dashboard where a user can export to DOCX, TXT, SRT, MP3, etc.

Key Features:

- **Real-Time Transcription** – converts spoken words into text as the conversation happens with high accuracy, timestamps, and speaker identification.
- **Otter Pilot (AI Meeting Assistant)** – joins and schedules meetings on Zoom, Google Meet, and Microsoft Teams even if you're not there.
- **Otter AI Chatbox** – an AI chatbot that helps answer questions about past or current meetings and creates follow-up emails.
- **Collaboration Tool** – allows teams to share transcripts, highlight points, add comments, and tag colleagues.
- **Integration and Vocabulary** – syncs with tools like Salesforce, HubSpot, Notion, and Asana.

- It also lets users add custom words for better transcription.
- User Friendly – available as a web app, mobile app (iOS and Android), and a Chrome extension, making it flexible for various situations.



Fig. no. 2 Conversation and notes



Fig. no. 3 Live Meet and Video Upload



Fig. no. 4 Summary

2.3. Differentiating Characteristics

Otter AI has several different and unique characteristics, Otter AI stands out due to: Otter AI provides live transcription and gives real time not like other apps like chatbot gemini, etc thus they provide transcription but Otter AI has google calendars, schedule notes accordingly. Also, it records online meetings and notes all the conversations and identifies users is a major reason which makes otter ai differ. It also provides live summaries which is very useful for all students, teachers, etc. It has the capability of editing that transcription. It has unlimited storage according to plans.

3. Practical Implementation and Usage:

3.1. Prerequisites and Setup

- User need the following to use Otter AI:
- Devices like smartphone, desktop which has microphones.
- Users need a stable internet connection for recording lectures, meetings.
- Otter AI app account with free or plans in which it has Pro, Business, Enterprise.
- Open with Zoom, Google meet, it is optional.
Mobile users can download Otter AI from: Google Play Store (Android)

Apple App Store (iOS)

3.2. Step-by-Step Usage Guide

- Scenario 1 – Recording a Lecture
- Start Otter AI app
- Open Recording
- Click on App to allow recording audio live
- When the lecture ends user can stop recording
- User can edit in case of inaccuracy
- Can be downloaded as PDF, DOCX, or share online

This is suitable for:

- Classroom lectures- For example: Students can record lectures with permission so they can keep notes recorded in lectures for further revisions.
- Online webinars - For example : Users can record online webinars with permission to keep a record for important points discussed in it.
- Guest speaker sessions - For example : Student records Guest speaker session to maintain record and can also submit reports while taking the help of Otter AI highlighted points.

Scenario 2 – Capturing Meeting Minutes Automatically

- Click for integration of app
- Connect Zoom, Google meet,etc apps by pasting meeting links to Otter Ai
- Start Otter Ai Assistant
- Otter Ai connect the app when the meeting will start
- Otter Ai creates the following after the meeting, Summary Highlights Action Items Keyphrases



Scenario 2 – Capturing Meeting Minutes Automatically

- Click for integration of app
- Connect Zoom, Google meet,etc apps by pasting meeting links to Otter Ai
- Start Otter Ai Assistant
- Otter Ai connect the app when the meeting will start
- Otter Ai creates the following after the meeting Summary

- Highlights Action Items Keyphrases Full transcript
- Share the notes with team members.



Fig. no. 6 What discussed in Meeting

3.3. Tips and Best Practices

- Use a high-quality microphone for better accuracy. Minimize background noise and echoes.
- Let one person speak at a time for better speaker identification.
- Review and edit transcripts regularly.
- Create folders for better organisation.
- Use custom vocabulary for technical terms.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Otter AI helps in teaching and learning by enhancing:

It helps in listening more in order to understand the subject or discussion instead of writing. Students could understand by summaries which were provided by Otter AI after every recording or every online meeting which gives an idea of the meeting if someone missed some important points. Also helps students with hearing difficulties. It also supports non native english speakers thus it gives info in french and spanish,etc.

4.2. Impact on Teaching And Learning

For Students:

Gives better Comprehensive includes points if they missed some while listening. gives students an accurate revision as it has notes according to dates and time thus it reduced cognitive load for a student in which Otter AI also convert a video into text in cas they

want to understand a long video in short with summaries so they can have a clear pictures of topic which also helps to increased engagement which leads to improve retention of complex concepts.

For Teachers:

Time Saving App as it helps teachers conduct online lectures while having a proper summary of live transcription which further teachers can help absent students with notes in that particular lecture.Gives archival class of activity which create more benefits and support hybrid and online learning.

4.3. Specific Classroom Applications

Application 1. Lecture transcription and summary Students use Otter AI for recording lectures and summarizes the discussion

Application 2. Interview and project transcription Otter AI app makes easy for students while providing online platforms for meeting and taking important point which further can be used in project work

Application 3. Creating searchable class archives Students can search notes in archival for revision

5. Challenges, Ethics, and Future Directions:

5.1. Limitations and Challenges

Accuracy varies if the accents were not proper and also in background noise were high. It requires proper internet connection consistently, not ideal for crowded or highly chaotic environments and also technical jargon (a language of a specific profession) may need manual correction. Possible errors in speaker identification in case two or more speakers speak at the same time.

5.2. Ethical and Equity Considerations

Informed concern must be taken by users before recording anything on the app. Users must follow the institutional privacy policies, Otter AI ensures transparency while joining and in the meet it shows the existence of Otter AI recording the discussion in order to maintain no further objection regarding secretly recording,etc. Users need to ensure equal access for all learners and transparent communication about AI tools.

5.3. Future Outlook and Roadmap

Expected improvements include

- Multilingual transcription with higher accuracy
- Offline transcription models
- Deeper integration with learning platforms (LMS)
- Predictive analytics for learning outcomes
- Better customisation for different outcomes

6. Supplements Information and References

6.1. Tool Access Details

Official Website : <https://otter.ai>

- Pricing Model :
- Basic (Free): Limited transcription minutes
- Pro : Advanced editing, more minutes, custom vocabulary
- Business : Automated assistant, team collaboration
- Enterprise : Custom deployment, admin controls

6.2. Further Reading and Documentation

- Tutorials from Otter YouTube channel Research on speech recognition technologies Otter ai Help Center.
- Articles on AI in education and corporate environments

Conclusion

Otter AI is a more inclusive, effective, flexible app and helps in education. It supports critical thinking and active listening of students providing accurate notes and summaries while recording meetings and lectures including hearing impairment students improving academic outcomes. It not only enhances individual learning but also helps team learning and also helps teachers by providing notes and documentation.

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<https://sagepub.libguides.com/research-methods>
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<https://help.otter.ai/hc/en-us/articles/360035266494-What-is-Otter>
- Research papers on NLP and ASR systems

Books

- Jayant Deshmukh (2024)
10x Productivity Hacks: Unlocking the Secrets of AI
- Manish Soni (2024)
Artificial Intelligence Tools Book
- Melissa Corrente
Innovation in Transcribing Data
- Michael Martin (2025)
AI for Non-Technical Users: Unlocking Artificial Intelligence for Everyday Life and Work
- Jens Belner (2025)
AI, Agents and Automation for Remote Team

Padlet

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Padlet is an online platform that allows users to create digital boards, also called Padlets. The collaborators can post a variety of content such as text notes, images, documents, links, videos and more. Users can organise these posts in different layouts such as grid, timeline, map, canvas or stream, making it a flexible and intuitive tool for visual collaboration and content sharing.



Fig. 1 Logo of Padlet

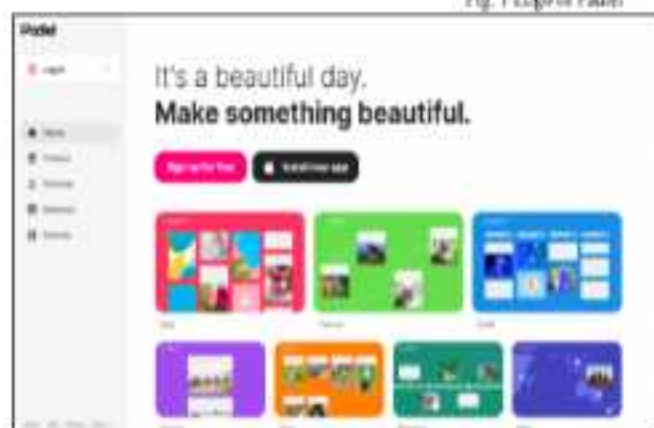


Fig. 2 Home page of Padlet

1.2. Brief History and Development

Padlet began its journey under the name Wallwisher, started by two friends from India. The company was incorporated in 2012 and later, rebranded as Padlet. Over the years, it has grown into a global service widely adopted in education and collaborative

settings. In 2024, Padlet introduced a suite of AI-powered features aimed at automating and enhancing content creation and lesson preparation, evolving from a static collaborative board into a more dynamic educational tool.

1.3. Target Audience and Scope

Padlet is designed for a wide and diverse audience who engage in collaborative learning, content creation and interactive communication. Its primary users include teachers, students, school administrators, university learners, training professionals and workplace teams. In educational environments, Padlet supports learners across multiple levels and disciplines such as science, arts, humanities, languages, commerce and vocational studies. Teachers can use it for lesson planning, formative assessments, project-based learning and resource curation, while students can collaborate on assignments, share reflections and present creative ideas.

Beyond formal education, Padlet is also used by corporate trainers, non-profit organizations and community groups for workshop facilitation, project coordination and idea sharing. Its flexibility allows both structured and open-ended learning experiences, making it an effective tool in blended learning, flipped classrooms and online learning spaces.

With its combination of simple design and powerful collaboration features, Padlet enhances participation, creativity and communication across academic subjects and professional fields.

2. Characteristics and Features

2.1. Core AI Capabilities

Padlet offers AI-powered features such as automatic board generation based on a user's prompt. Typing in a topic can yield a ready-made board structure with sample posts. AI can generate images from textual descriptions, produce starter content for boards, and design interactive learning resources including activity sheets, quizzes, sorting tasks, reading passages and flashcards. AI chat assistants help edit board content, including titles, descriptions, reorganization, and field customization. AI also supports content moderation to ensure boards remain safe and appropriate.

2.2. Key Features and User Interface

Users can create boards in formats such as Wall, Grid, Canvas, Timeline, Map, Stream or Shelf depending on the pedagogical or collaborative goal. Padlet supports multiple content types including text, images, videos, audio, documents and links. Real-time collaboration allows multiple users to contribute to the same board simultaneously, supporting synchronous or asynchronous teamwork. Sharing options include links, embedded boards on websites or blogs, and controlled permissions such as public, private or password-protected. Teachers can generate interactive activities, manage groups and export content in formats such as PDF, Slides and Docs.

2.3. Differentiating Characteristics

Padlet combines visual flexibility, multimedia support and ease of use. AI-driven automation saves time by generating boards, content suggestions and images. The platform is adaptable to multiple pedagogical strategies such as brainstorming, project-based learning, timelines, resource banks and group work. Collaborative real-time editing enables group participation while permission controls maintain order and privacy.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Sign up for an account. To access AI-powered features, ensure your account type is eligible. Familiarise yourself with the interface including creating new boards, choosing layouts, using post options and setting permissions.

3.2. Step-by-Step Usage Guide

Scenario: Creating a History Revision Timeline for Classroom Learning (Any Subject)

- Log into Padlet and click on 'Make a Padlet' to start a new interactive board.
- Select the 'Timeline' layout to visually organize events in chronological order.
- Use the integrated AI prompt feature by entering a request such as 'Create a timeline of key events related to India's

independence movement with concise notes for 12th-grade students' or any other topic from different disciplines (e.g., major scientific discoveries, evolution of economic reforms, world literature periods, environmental policies).

- Review the automatically generated posts and modify the titles, dates, descriptions and placement. Make further improvements through the AI Chat Assistant for accuracy or deeper context.
- Enhance the board by adding supporting content such as photographs, textbook excerpts, archival sources, research links or short explanation videos.
- Share the timeline with students using a secure link or QR code. Set permissions for viewing, commenting or editing depending on the learning objective.
- Encourage interactive learning by asking students to contribute their own posts, reflections, key questions or additional events. This can support revision exercises, collaborative research tasks, flipped learning or classroom presentations.

3.3. Tips and Best Practices

Review AI-generated content carefully. Use layout choices that fit the pedagogical objective. Combine AI-generated content with manual input for accuracy. Monitor permissions and privacy settings. Encourage active student engagement with the board for better learning outcomes.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Padlet supports visual organisation, collaborative learning, peer interaction and resource-rich environments. Its multimedia and AI capabilities align with constructivist and active-learning pedagogies, allowing students to co-create knowledge, reflect, contribute and engage.

4.2. Impact on Teaching and Learning

AI features reduce preparation time, enabling teachers to focus on pedagogy. Visual boards, multimedia content and interactive activities enhance student engagement. Teachers can design differentiated activities for various learning levels and styles.

Students participate in collaborative learning through commenting, adding posts and peer interaction.

4.3. Specific Classroom Applications

Padlet can be used in a variety of classroom situations across subjects and grade levels. Teachers can design visual concept maps for topics in commerce, science, history, languages and the arts. The timeline layout supports chronological understanding in history, political science or significant scientific advancements. Teachers can create resource boards with curated materials including PDFs, images, articles, infographics, links and instructional videos to support blended learning.

Padlet also enables group assignments where students collaboratively contribute posts, share reflections and offer peer feedback. Its AI-powered features help generate activities such as quizzes, flashcards, brainstorm ideas and categorisation tasks for assessment, revision or enrichment. In practical learning environments like field studies or laboratory work, students can upload observations, photos, data and reports in real time. Overall, Padlet enhances active learning, communication and creativity in a multidisciplinary classroom setting.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

AI-generated content may require teacher review for accuracy. Over-reliance on AI may reduce creative input. Free accounts have limitations on the number of boards, upload size and media length. Students with limited internet access may face challenges in using Padlet fully.

5.2. Ethical and Equity Considerations

Maintain privacy and data security when students are involved. Ensure equitable access for all students to prevent digital divide issues. Avoid over-dependence on AI-generated content to maintain critical thinking and creativity.

5.3. Future Outlook and Roadmap

Future improvements may include interactive activities, adaptive learning boards, better LMS integration and analytics to track participation. Combining Padlet with other ICT tools can create blended learning environments. Research on learning outcomes,

student engagement and collaboration will guide best practices for ethical and effective use.

6. Supplementary Information and References

6.1 Tool Access Details

Official URL: <https://padlet.com>

Pricing / License Model: Free plan with limited boards and upload sizes. Paid plans offer more boards, bigger uploads, longer media and AI features.



Fig. 3 Membership of Padlet



Fig. 4 Bookmarks Education

6.2. Further Reading and Documentation

Padlet provides detailed support resources that guide users in understanding its AI assistant features, board creation tools, account types, data security and privacy policies. Educators can explore official help pages and community documentation for practical instructions and troubleshooting. Additionally, numerous educational blogs and practitioner articles discuss real-world applications of Padlet in classroom teaching, including lesson ideas, collaborative learning strategies and reflections from teachers using it across subjects.

Academic research on digital collaboration platforms also offers insights into student engagement, knowledge sharing, creativity and learning outcomes supported by tools like Padlet. These materials collectively help educators make informed decisions and adopt effective pedagogical practices while integrating Padlet into multidisciplinary teaching and learning environments.

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PERPLEXITY AI

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1. Introduction and Tool Overview



Fig. 1. Logo



Fig. 2. Of Perplexity

1.1. Tool Name and Core Functionality

Perplexity AI is a pioneering research and productivity tool that reshapes the boundaries of digital information discovery. Developed in the early 2020s and powered by advanced large language models such as GPT and Claude, Perplexity addresses the increasing challenges posed by the sheer volume and the complexity of online data. As the digital landscape evolved, so did the need for tools capable of parsing, understanding, and validating information at incredible speed and accuracy. In response, Perplexity AI was designed not simply as another chatbot, but as a

multilayered conversational search engine and research assistant, placing an emphasis on both human-like dialogue and rigorous source citation.

At its core, Perplexity AI functions as a sophisticated answer engine, merges natural language processing (NLP), real-time internet search, and AI content generation. Users interact with an intuitive interface, asking complex questions and receiving synthesized, accurate responses accompanied by citations for every fact. The platform includes modes for deep research, document upload, visual analysis, and the organisation of insights in collaborative spaces, making it a versatile tool for precise knowledge and discovery.

1.2. Brief History and Development:

Perplexity AI originated in 2022, founded by engineers Aravind Srinivas, Denis Yarats, Johnny Ho, and Andy Konwinski in San Francisco. Their core motivation was to offer an alternative to traditional search engines which directly answers questions, citing



Fig. no. 4 Perplexity AI

reputable sources and minimizing information overload. The initial beta launched in December 2022, quickly attracted millions of users. Also, thanks to its transparent sourcing and conversational approach, it distinguishes itself from competitors like Google and ChatGPT. As the platform evolved, Perplexity added mobile apps, autonomous browsing, and enterprise features, establishing its reputation as a leading “answer engine” in the increasing field of conversational AI.

1.3. Target Audience and Scope:

Perplexity AI attracts a wide spectrum of users, including individual consumers and businesses. Its largest audience segment is young professionals (ages 25–34), students, researchers, and organisations seeking fast, accurate, and sourced information for decision-making and research tasks. The platform serves both B2C and B2B markets, offering free access for casual use and subscription options for enterprise-level productivity (such as powerful internal knowledge search features). Users value the tool's focus on accuracy, efficiency, and interactivity. Benefitting from Perplexity for academic research, business intelligence, creative work, and day-to-day information needs.

2. Characteristics and Features

2.1. Core AI Capabilities:

At its foundation, Perplexity AI uses cutting-edge large language models (LLMs) including GPT-5, Claude 4, Gemini 2.5 Pro, Grok 4, alongside its own custom models to deliver sophisticated natural language understanding and processing. This allows us to comprehend nuanced queries accurately and provide context-aware, interactive responses. Unlike many static AI models, Perplexity integrates real-time web search capabilities, ensuring that answers are drawn from the most current information from the internet. It also supports multimodal inputs such as text, PDFs, and images, enabling diverse data interpretation and analysis. Deep research functionality adds the ability to perform step by step, multi-source syntheses for in-depth topics, ideal for academic and professional research.



Fig. no. 5 Perplexity AI

2.2. Key Features and User Interface (UI):

Perplexity's UI is designed to be minimalistic, clean, and distraction-free, emphasising it on efficient knowledge discovery over feature overload. Users interact primarily via a conversational AI interface, where questions trigger concise, fact-driven answers complete with source citations for transparency and trustworthiness. Its Search Bar is central and simple to use, with additional features like the Focus Mode to modify results by context (academic, professional, casual). The tool's UI also supports drag-and-drop document uploads and easy image submission for content analysis. For organising research, the Spaces feature allows users to save, share, and manage collections of insights collaboratively.



Fig. no. 6 Perplexity AI

2.3. Differentiating Characteristics:

What sets Perplexity AI apart is its combination of automatic website searching and auto-generated citation, making it a reliable "answer engine" rather than just a creative AI chatbot. This emphasises on accuracy, transparency, and up-to-date information distinguishing it from competitors like ChatGPT, which rely solely on pre-trained datasets that may become outdated. Its autonomous Comet AI Browser is another unique feature, enabling the AI to perform complex web-based research tasks independently. Additionally, Perplexity balances brevity and depth with short, direct summaries rather than long explanations, catering to users who prioritize actionable insights quickly. The position of Perplexity as a specialised research assistant is ideal for professionals, students, and researchers who seek rapid, trustworthy information recovery.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup:

Prior to usage, users need only minimal setup; they can create an account on "perplexity.ai" and ensure they have reliable internet connection, as the platform operates fully online via web browsers on any device, desktop, tablet, or smartphone. Once signed in, users can access a range of features without additional software installation, making setup quick and straightforward.



Fig. no. 7 Perplexity AI



Fig. no. 8 Perplexity AI

3.2 Step-by-Step Usage Guide:

Step-by-step usage begins after logging in, where the user interacts through a clean, easy to use interface. For example, in research scenarios, one can select specific Focus Modes like “Academic” for scholarly work or “Writing” for content creation, then type questions directly into the search bar. The AI responds with concise, sourced answers, and users can upload documents or images to enhance the interaction. For detailed analysis, enable Pro Mode or DeepSeek for deeper insights. The platform supports smooth and easy on going conversations, allowing iterative refinement of queries and results.



Fig.9 Steps to follow

3.4. Tips and Best Practices:

Include defining clear, specific questions to enhance answer accuracy and leveraging focus modes to modify responses for different needs. It's effective to upload relevant PDFs or images for multimodal analysis and use citation links for verification or further research. For advanced users, activating Pro Mode unlocks features like extended context and faster responses, ideal for intensive research. Regularly exploring settings and experimenting with different modes optimises the experience, helping users extract maximum value efficiently.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Perplexity AI supports modern pedagogical goals by providing concise, accurate, and up-to-date information with clear citations, which aligns with the increasing emphasis on critical thinking and evidence-based learning. It encourages inquiry-based education, allowing students to ask questions and receive sourced answers in

real-time, thus it fosters autonomy and deeper engagement with content. The tool's ability to integrate multimedia inputs also supports diverse learning styles and accessibility needs, making it pedagogically useful in different ways.

4.2 Impact on Teaching and Learning

Perplexity AI transforms traditional teaching by speeding up lesson preparation with instant access to the latest research and materials, which teachers can trust due to transparent sourcing. For students, it acts as a reliable research assistant that supports homework, project work, and study by delivering focused, relevant answers rather than powerful information. It enhances classroom interactivity by enabling real-time Q&A during lessons and facilitating deeper discussions based on multiple perspectives provided by the AI. This encourages active learning and helps verify facts instantly, which raises the overall quality of educational interactions.

4.3 Specific Classroom Applications

Teachers use Perplexity AI to create dynamic lesson plans enhanced with current data and multimedia content. It enables quick fact-checking during classes to address students' spontaneous questions, making lessons more engaging. In flipped-classroom models, students independently research topics via the AI before class, improving preparedness. The platform supports debate preparations, group research projects, and interactive quizzes through integration with tools like ClassPoint, which turns AI-sourced content into game-style learning experiences. Additionally, educators benefit from professional development resources and use the tool for administrative tasks like drafting communications. These varied uses demonstrate Perplexity AI's adaptability across educational levels and subjects.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Despite its advanced capabilities, Perplexity AI believes with algorithmic biases inherited from its training data, which may result in unintentional favouritism or discrimination in responses. Its reliance on data collected from websites can also create accuracy and copyright challenges, as some sources may be outdated or improperly credited. The need to balance concise answers with comprehensive coverage is a constant tension.

Additionally, technical constraints such as handling highly complex, vague, or deeply specialised queries keep going, limiting effectiveness in certain domains.

5.2 Ethical and Equity Considerations

A major ethical concern is the risk of plagiarism and content misuse; Perplexity AI has been criticised for reproducing content from publishers without explicit permission, raising legal and moral questions about intellectual property. Transparency about data sources and AI decision processes is vital to maintaining user trust. Furthermore, equity issues arise as AI systems like Perplexity may perpetuate social biases if training data lacks diversity, disproportionately disadvantaged marginalized groups. Developers must strive for fairness by using diverse datasets, conducting audits, and promoting inclusive AI design. Privacy concerns also require safeguarding user data with strong protections.

5.3 Future Outlook and Roadmap

Looking ahead, Perplexity AI aims to enhance its ethical governance through clearer content licensing practices, transparency measures, and stronger partnerships with content creators to ensure fair source. Technologically, expanding multi-modal understanding, improving contextual reasoning, and increasing autonomy in research tasks are key goals. The platform plans ongoing refinements to reduce bias and enhance integration, supported by regular audits and community feedback. With evolving AI regulations and industry standards, Perplexity AI is positioned to pioneer responsible innovation that balances powerful capabilities with ethical integrity and equitable access.

6. Supplementary Information and References

6.1 Tool Access Details:

Perplexity AI offers an integrated entry point for users through its official platform accessible at <https://www.perplexity.ai> the landing page welcomes users to a clean and clear interface where questions can be asked and answered in real time, with easy navigation to features like Deep Research, Pro subscriptions, and organisational tools like Spaces. A screenshot of this landing page would show a minimalist design centred around a prominent search bar inviting user queries and navigation links for further resources and account management.

6.2 Further Reading and Documentation

Regarding pricing and licence models, Perplexity AI provides a layered approach. Basic access is typically free, allowing users to explore many of its powerful capabilities. For enhanced experiences, including unlimited queries with advanced Deep Research functions and large-scale features, users subscribe to Perplexity Pro or Enterprise plans. These advanced plans unlock deeper, more independent research capabilities and collaborative workspace tools.

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Pictory.ai

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Pictory.ai is an advanced AI-powered video creation platform that transforms extensive text, such as scripts and articles, into brief, eye-catching videos. It functions as an automated editing tool that simplifies the traditionally complex process of video production. The tool works by analysing written content, identifying key ideas, selecting appropriate visuals from a large media library, and assembling everything into a logical video timeline. Its ability to reduce the editing workload makes it especially useful for individuals who may not possess strong technical skills in video production. Pictory.ai smoothenes the entire process through automation, allowing users to create high-quality videos within minutes rather than hours.



Fig. 1 Logo of Pictory AI

1.2. Brief History and Development

Pictory.ai was developed during a period where short-form visual content began to dominate educational spaces, social media platforms, and professional communication. With educators, marketers, and content creators progressively shifting towards video-based formats, there was a notable gap in the availability of user-friendly tools that could generate videos quickly and efficiently. Traditional video editing software demands skill, time, and effort, Pictory's creators try to eliminate these barriers by integrating artificial intelligence into the workflow. Over the years, Pictory.ai has evolved from a basic script-to-video generator into a multi-functional platform equipped with text summarisation, voiceover generation, storyboard creation, and advanced editing tools. Its development reflects the broader global trend towards normalizing video creation and meeting the rising demand for digital content in education and marketing.

1.3. Target Audience and Scope

Pictory.ai can serve varied users, each benefiting from the ability of the tool to make video creation simpler.

Its primary users include:

- **Educators** who then use the tool to develop instructional videos, lecture summaries, and digital learning modules.
- **For the students**, who can create visually rich project presentations and assignments.
- **Content creators/marketers** who create videos consistently and with great speed for social media, branding, and promotional campaigns.
- **Businesses** that utilize the platform for training materials, advertisements, and corporate communication.

Because Pictory.ai can transform any form of text into an attractive video output, its scope extends to almost every domain where storytelling, explanation, or presentation is required.

2. Characteristics and Features

2.1. Core AI Capabilities

Pictory.ai has several AI features that automate video creation effectively. These features include text summarization models that shorten long articles into key points, semantic analysis tools that identify major themes, and intelligent scene detection systems that break down content into clear segments. The platform also includes AI caption generators that create accurate subtitles and synchronization tools that align text with suitable visuals. Together, these features turn raw text into a polished video with minimal manual work.

2.2. Key Features and User Interface (UI)

The Pictory.ai user interface is an intuitively designed and reachable tool, which practically an unwary user can boldly venture and still come out successful. After gaining access to the dashboard, users are free to pick any of the different video creation modes available such as 'Script to Video,' 'Article to Video,' or 'Edit Videos Using Text.' The left-side panel of the editor is meant for the text or script that is being edited, the middle is the preview

window, and the right-side is the library of stock videos, pictures, and widgets as well as the background music.

Different template designs are available for various styles, e.g., educational, professional, modern, or aesthetic kinds of layouts. Besides, users may apply brand settings, personalize colors, change transitions, and upload their media. The interface is designed to foster the users' creativity; however, it is still structured and straightforward.



Fig.2 User Interface

2.3. Differentiating Characteristics

What differentiates Pictory.ai from other video editing tools is its primary focus on automation and accessibility. In contrast to conventional editing tools which necessitate manual handling of clips, Pictory.ai visually arranges the content, synchronizes the captions, and even picks up the transitions automatically. It is perfect to simply cut and create clips from a long video especially with short-format videos, thus being great for micro-learning, marketing, and social media platforms. Furthermore, the accuracy of its auto-captioning feature is far better than most of its competitors, which is very important for accessibility and educational clarity. Moreover, as the tool is 100% web-based, users are not required to have very powerful devices or software installations - everything can be done effortlessly through a browser.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Pictory.ai, you need to have an internet connection and a device that can access the web, along with a Pictory account. There

is nothing additional you will have to purchase or install on your computer. This makes it very easy for all types of users from teachers, students, and remote employees as well. Pictory.ai offers users the ability to test out the platform for free or purchase a monthly plan that fits their specific needs.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Below is a scenario showing how a user can convert a written script into a video

Scenario: Creating a Video from Text

Step 1: Logging In

Users begin by accessing the Pictory.ai website and signing into their account.

Step 2: Selecting 'Script to Video'

On the dashboard, users choose the "Script to Video" option, which is designed specifically for converting written scripts into scene-based videos.



Fig. 3 Script to Video



Fig. 4 Entering the Script

Step 3: Entering the Script

The user pastes the script into the provided text field. The AI parses the text, identifies major ideas, and prepares it for scene division.

Step 4: Automatic Storyboard Creation

The platform generates a storyboard where each major point becomes a separate scene. This helps users visualise the structure of the final video.



Fig. 5 Story Board Creation



Fig. 6 Customizing Visual Elements

Step 5: Customising Visual Elements

Users can replace stock footage, add icons, insert personal media, and adjust background music. They may also modify the text placement, color scheme, and transitions.

Step 6: Adding Voiceover

Pictory.ai allows users to record their own narration or choose from several natural AI-generated voices. These voices automatically sync with the script.

Step 7: Exporting the Video

The final step is exporting the finished video in MP4 format. Users can choose resolution, duration, and branding options before downloading.



Fig. 7 Export Video

3.3. Tips and Best Practices

- Writing in short, concise sentences and using fewer sentences to convey the same information is beneficial to the user experience.
- Verifying selected visuals will help educators ensure that the visuals are relevant to the content that the AI presents, and that they represent the content accurately.
- Using captions improves access for all learners.
- Educators can incorporate their school logo or branding colours consistently.
- It is a good idea to preview the video before exporting to ensure smooth transitions, and that all audio is clear.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Pictory.ai upholds essential principles of contemporary teaching, particularly in digital education and constructivist learning

environments. Transforming text into a visual representation addresses various learning styles, including visual, auditory, and read/write learners. It also encourages active involvement, since students tend to focus more on brief, visually engaging material than on long written descriptions.

4.2. Impact on Teaching and Learning

The platform improves both instructional effectiveness and student achievement results. Instructors can transform lesson plans, notes, and explanations into reusable videos that learners can watch at any time. This promotes flipped classroom approaches and self-directed learning settings. For students, video material improves memory, strengthens ideas, and boosts enthusiasm. Pictory.ai enables students to engage in video production, enhancing their digital literacy and creative skills.

4.3. Specific Classroom Applications

Pictory.ai can be used in various educational contexts, such as:

- Summarising chapters into short visual explainers
- Creating introductory videos for new lessons
- Designing revision material for exam preparation
- Guiding project-based learning activities
- Encouraging students to develop their own digital stories or presentations

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

In spite of its advantages, Pictory.ai has some drawbacks. The platform needs a steady internet connection, and its free version has limitations like watermarked outputs and a restricted time frame. At times, the AI might choose images that don't precisely reflect the desired meaning, necessitating manual modifications. Extended videos may require additional time to process, and users need to check auto-generated captions for correctness.

5.2. Ethical and Equity Considerations

Users should ethically verify that visuals and scripts included in videos adhere to copyright regulations and maintain cultural sensitivity. Given that Pictory.ai utilizes automated content generation, educators need to refrain from excessive reliance on AI and consistently assess the correctness of the generated materials. From an equity standpoint, the tool aids only those who can access

digital devices and dependable internet, possibly exacerbating the digital divide if not tackled.

5.3. Future Outlook and Roadmap

Pictory.ai is anticipated to include innovations like AI avatars for educational videos, live collaboration tools for team projects, support for scripts in multiple languages, and enhanced integration with learning management platforms. Upcoming updates might also bring interactive video components and advanced editing features to improve educational applications.

6. Supplementary Information and References

6.1. Tool Access Details

Official Website: <https://pictory.ai>

Users can explore tutorials, pricing plans, and additional resources directly on the website.

6.2. Further Reading and Documentation

Additional learning resources may include:

- Pictory.ai tutorials on YouTube
- Blog articles on AI in video creation
- Guides on digital storytelling
- Educational technology research papers discussing video-based learning

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Poe by Quora

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Poe gives access to numerous AI models in a single app (Platform Open for Exploration). Programming knowledge is not required; simply launch the application, choose a chatbot such as Claude or ChatGPT, and begin the conversation. Therefore, the software immediately gained popularity due to its ease of use, speed, and smoothness.



Fig 1 Logo of Poe

1.2. Brief History and Development

Under the direction of CEO Adam D'Angelo, Quora debuted Poe in early 2023. It was created to make AI more user-friendly, quicker, and simpler for developers, instructors, students, and regular users. With the addition of features like image generation, workflow automation, and bot-to-bot communication, the platform developed rapidly.

1.3 Target Audience and Scope

Poe is intended for anyone who needs a single platform for several AI models, including educators, researchers, developers, content producers, business people, and students.

2. Characteristics and Features

2.1. Fundamental AI Features:

Poe can assist with nearly anything that needs to be written or created. Assistance with homework explanations of coding, composing stories, poetry, and screenplays chapters or article summaries, the creation of images (based on the model), and even

the ability to build your own chatbot.

2.2. Key Features and User Interface (UI)

Poe's interface is simple and uncultured. All of the available bots are shown on the left sidebar which makes switching quick and easy. It also has the ability to copy, distribute, and take screenshots, and chats are clearly shown. The user interface is designed to make the use of AI quick and easy.

2.3. Differentiating Characteristics

Poe is notable for: It integrates several AI models into a single application. Bots can be made by users. Both private and public bots are supported. It provides incredibly quick reactions and it boasts a sizable community of personalised bots.



Fig 2.1 Poe's Features

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Make an account on Poe.

Open the Poe app online or you can download it.

Choose any AI bot and start a conversation.

To build a bot: Give instructions to "Create Bot", enter instructions, enter AI model, and publish.

3.2. Step- by- Step Usage Guide



Fig 2.2 Poe's Web

(Scenario-Based)

Scenario 1: Using Poe for Assignments

- Launch Poe.
- Select Claude or ChatGPT.
- Enter your query or upload a file.
- Edit, check and complete your response.



Fig 2.2 Types of Bots

Scenario 2: Building an AI Bot of your own choice

- Select “Create Bot”.
- Include instructions on what your bot is supposed to perform.
- Decide on the AI model.
- Give your bot a test.
- Make the bot public or keep it confidential.

3.3. Tips and Best Practice

- Always verify crucial information twice.
- write precise and comprehensive prompts.
- To improve accuracy, try a few alternative models
- Save crucial conversations.
- Workflows can help you avoid doing repetitive chores.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Poe truly encourages education by: Promoting originality and letting students study at their own speed and assisting them with problem solving and critical thinking. It helps in encouraging digital literacy.

4.2. Impact on Teaching and Learning

Teachers are able to make lesson plans and notes to save time. Assist pupils in comprehending challenging ideas and obtain immediate feedback. AI can also be utilised in educational tasks.

4.3. Specific Classroom Applications

Poe is useful for creating worksheets. Research assistance and prompts for creative writing and also for planning lessons.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

It requires a reliable internet connection and for the premium version subscription is required. AI sometimes provides inaccurate or outdated information and students might get overly reliant on it. We should also be careful about sharing our personal information to the AI.

5.2 Ethical and Equity Consideration

To avoid plagiarism, students should refrain from copying and pasting and equal access must be created

5.3. Future Outlook and Roadmap

Poe wants to increase the number of its custom bots, provide more sophisticated collaboration tools, enable richer multimedia responses, and further incorporate AI into actual educational systems.

6. Supplementary Information and References

6.1. Tool Access Details

Poe can be accessed via app or website. Free versions are available, with paid upgrades for advanced models. Official URL: <https://poe.com>

- Free access for new users, including free basic models and a daily message cap.
- Subscription packages like Poe Pro, which provide access to more sophisticated models, increased message limitations, and quicker response times.
- Features and usage determine pricing; monthly subscriptions for individual users are reasonably priced, while those for heavy or professional use have higher limits.

6.2. Further Reading and Documentation

- Features and bot usage are explained in the Poe Help Centre and FAQs.
- Poe-related updates and thoughts are shared on the Quora blog.
- Community conversations and user evaluations provide useful advice and examples.

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Ponder AI (Research Flow)

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1. Introduction and Tool Overview

1.1. Tool Name and Core

Functionality:

Ponder AI helps you think clearly by breaking down complex ideas, understanding them better, and organising information logically. It's like a guided workspace for learning, analysing, and reflecting.



Fig.1 Ponder Ai Logo

1.2. Brief History and Development:

Ponder AI was created to help people think deeply, not just get quick answers. It helps users slow down, break information into clear parts, build logical reasoning, and improve learning and problem-solving. Launched during the 2023–2024 AI boom, it's aimed at students, researchers,

1.3. Target Audience and Scope:

The tool is mainly used by

- Students – to help with reading, taking notes, summarising, and understanding academic texts
- Teachers – to create lesson plans and guide students' thinking
- Researchers – to organise articles, papers, and arguments
- Professionals – to plan tasks, outline ideas, or analyse complex information

2. Characteristics and Features

2.1. Core AI Capabilities:

- **Text Breakdown:** Turns long texts into clear points and sections
- **Step-by-Step Thinking:** Guides users through logical reasoning
- **Idea Structuring:** Organises content with headings and bullet points

- **Reflection Support:** Suggests questions to deepen understanding
- **Concept Mapping:** Shows connections between ideas and topics

2.2. Key Features and User Interface (UI):

- **Clean Workspace:** Simple design with no distractions
- **Input Box:** Paste or type text to analyse
- **Point Expansion:** Click prompts like “Break this down” or “Add details”
- **Section Headers:** Organises main ideas, points, examples, and reflections
- **Sidebar Navigation:** Easily switch between sessions or notes
- **AI Prompts:** Suggests next steps, questions, or ways to break down content

2.3. Differentiating Characteristics:

- **Focus on structure:** Emphasise clear, logical organisation instead of just generating text
- **Point-based organisation :** Breaks information into points, subpoints, steps, and sections for easier understanding
- **Reflection-focused:** Encourages active thinking, not passive reading
- **Academic-friendly:** Great for essays, research notes, reading logs, and breaking down concepts.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

To use Ponder AI, you need:

- An internet connection
- A web browser (Chrome, Edge, or Safari)
- A Ponder AI account (sign up with Google or email)



Fig. 1 User Interface

3.2. Step-by-Step Usage Guide

<p>Step 1: Open Ponder AI</p> <ul style="list-style-type: none"> Go to the Ponder AI website using Chrome, Edge, or Safari. Log in with your Google account or email.
<p>Step 2: Start a New Session</p> <ul style="list-style-type: none"> Click on "New Session" or "Start Here." You'll see a clean workspace ready for input.
<p>Step 3: Add Your Text - Paste or type the text you want to analyse into the input box.</p>
<p>Step 4: Break Down the Text</p> <ul style="list-style-type: none"> Use prompts like "Break this down," "Explain further," or "Add details." The text will be organised into points, subpoints, and sections.
<p>Step 5: Organise Ideas</p> <ul style="list-style-type: none"> Let Ponder AI create headings, bullet points, and logical frameworks. Use the sidebar to track sessions or notes.
<p>Step 6: Reflect and Explore</p> <ul style="list-style-type: none"> Review the AI's suggested questions or prompts to deepen your understanding. Map connections between ideas or topics if needed.
<p>Step 7: Save or Export</p> <ul style="list-style-type: none"> Save your session for later reference. Export notes or outlines if you want to use them elsewhere.

3.3. Tips and Best Practices:

- Use clear prompts.
- Paste full paragraphs for better breakdowns.
- Expand points to make ideas clearer.
- Use the structured output for essays or notes.
- Answer reflection prompts to deepen understanding.
- Avoid short or unclear text.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

Ponder AI encourages active learning and step-by-step thinking. It fits well with several educational approaches:

- Bloom's Taxonomy:** Supports higher-order thinking by helping students analyse, evaluate, and create.

- **Example:** A student reading a research article can use Ponder AI to break it into key points, analyse the arguments, and then create a summary or critique.
- **Constructivist Learning:** Helps learners build knowledge actively rather than just receiving information.
 - **Example:** Students studying a history topic can input a text, organise it into timelines or main ideas, and connect it to their prior knowledge.
- **Inquiry-Based Education:** Encourages questioning and exploration of ideas step by step.
 - **Example:** In a science class, students can use Ponder AI to generate questions about an experiment, map out hypotheses, and plan investigations.
- **Reflective Thinking Models:** Promotes awareness of one's own learning and reasoning process.
 - **Example:** After reading a case study, students can use Ponder AI's reflection prompts to consider what they learned, how they understood it, and what questions remain.
- **Literature analysis:** Breaks down themes, characters, and plots for better comprehension.

Example: A literature student can analyse a novel, identifying themes, character arcs, and key quotations in an organised format

4.2. Impact on Teaching and Learning:

Increases student clarity: Helps students understand complex texts by breaking them into clear points.

Example: In a biology class, a student can input a dense textbook section on cell biology and get a simplified outline highlighting key concepts and definitions.

Supports slow, deep thinking: Encourages step-by-step reasoning rather than rushing to conclusions.

Example: In philosophy or ethics discussions, students can analyse arguments point by point, reflecting on each before forming their own opinion.

Reduces cognitive overload: Organises information so students are not overwhelmed by too much content at once.

Example: When reading a long research article, students can focus on key points, subpoints, and examples instead of trying to process everything at once.

Improves reading comprehension: Breaks down texts, highlights main ideas, and shows relationships between concepts.

Example: A literature student can summarise chapters of a novel, identifying themes, characters, and plot developments clearly.

Aids in structured academic writing: Provides a framework for essays, reports, or research notes.

Example: Students writing a history essay can use the structured points from Ponder AI as the basis for an outline, then expand each point into paragraphs.

Enhances teacher lesson planning: Helps teachers organise content, create discussion questions, and structure lessons logically.

Example: A teacher preparing a lesson on climate change can use Ponder AI to generate clear sections for causes, impacts, and solutions, along with reflective questions for students.

4.3. Specific Classroom Applications:

Breaking down chapter readings: Helps students understand complex texts by summarising key points and sections.

Example: In a history class, students can input a chapter on the Industrial Revolution and get a clear breakdown of causes, events, and effects.

Organising essay outlines: Provides a structured framework for writing.

Example: An English student can outline a persuasive essay with main arguments, supporting evidence, and counterpoints before writing.

Creating study notes: Converts detailed readings into concise, organised notes.

Example: A biology student can turn a dense chapter on human anatomy into bullet-point notes for easier revision.

Reflective journal writing: Encourages metacognition and deeper learning.

Example: After a science experiment, students can use Ponder AI to answer reflection prompts like 'What worked?' or 'What could I improve?'

Group discussion prompts: Generates questions to guide classroom conversations.

Example: In a social studies class, the teacher can use Ponder AI to create discussion prompts on current events, helping students engage critically.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

Limitations:

- ✓ Not ideal for creative writing or free-form content generation.
- ✓ Works best when users actively guide it; it doesn't expand points automatically.
- ✓ Limited to structured thinking and analysis tasks.
- ✓ May struggle with highly technical or specialised data.
- ✓ Dependent on the quality and clarity of user input—unclear text gives weaker results.

Challenges:

- ✓ Users may need training to use prompts effectively.
- ✓ Integrating Ponder AI into existing workflows can take time.
- ✓ Over-reliance on AI could reduce independent critical thinking if not monitored.
- ✓ Handling large volumes of text may require patience and careful organisation.
- ✓ Balancing AI guidance with human judgment is necessary to maintain learning depth.

5.2. Ethical and Equity Considerations:

Ethical Considerations:

- ✓ Ensure academic integrity - students should not use Ponder AI to plagiarise.
- ✓ Avoid overreliance - students should still develop independent thinking skills.
- ✓ Use AI responsibly - teachers and students should guide output critically.

Equity Considerations:

- ✓ Accessibility - students need reliable internet and devices to use Ponder AI.
- ✓ Digital divide - unequal access can widen learning gaps.
- ✓ Inclusivity - AI should support diverse learning needs and styles.

- ✓ Protect privacy - student data should be handled securely.
- ✓ Promote transparency - clearly communicate when AI support is used in assignments.
- ✓ Teacher support - schools must provide guidance so all students benefit equally.
- ✓ Training - ensure all students understand how to use AI tools ethically and effectively.

5.3. Future Outlook and Roadmap:

Future Outlook:

- ✓ Expanded student templates: More ready-to-use structures for essays, projects, and study notes.
- ✓ Learning platform integration: Seamless use with LMS like Google Classroom or Canvas.
- ✓ Enhanced visual tools: Improved concept maps, diagrams, and interactive charts.
- ✓ Mobile optimisation : Better performance and usability on phones and tablets.
- ✓ Collaborative features: Tools for group work, shared notes, and classroom discussions.

Roadmap:

- ✓ Develop new templates for different subjects and learning levels.
- ✓ Build integrations with popular educational platforms.
- ✓ Introduce advanced visualisation and mapping capabilities.
- ✓ Launch and refine mobile applications for students and teachers.
- ✓ Implement collaborative features to support teamwork and peer learning.

6. Supplementary Information and References

6.1. Tool Access Details:

- Official URL: <https://ponder.inq/>
- Pricing/License Model:
 - Free version with basic features
 - Pro plan for advanced capabilities (if available)



6.2. Further Reading and Documentation:

All information comes from the ponder AI website

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POP AI

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1. Introduction

Pop AI is an emerging artificial intelligence platform designed to enhance productivity across academic, professional, and creative environments. It integrates a suite of intelligent tools—such as document analysis, AI-driven chat interaction, writing assistance, and automated presentation generation—into a single, user-friendly workspace. The platform enables users to upload documents, extract key information, ask contextual questions, generate summaries, and convert materials directly into presentation formats. Through these capabilities, Pop AI aims to streamline the entire process of understanding, organising, and presenting information.



Fig.1 Pop Ai Logo

1.1. Core Functionality

- **Document Interpretation:** Uploading PDFs, Word files, or images for AI-assisted reading, summarisation, and explanation.
- **Interactive Chat:** Engaging with the uploaded content through natural-language queries to clarify, analyse, or expand on information.
- **Presentation Generation:** Automatically producing structured PowerPoint slides based on user input or document content.
- **Writing and Content Creation:** Providing assistance in drafting reports, essays, emails, and other written materials.
- **Image Generation:** Creating AI-generated visuals to support presentations and creative work.
- **Workspace and File Management:** Organising documents, chats, notes, and projects within a centralized platform.

1.2. Brief history and development

Pop AI was developed in response to the growing demand for AI solutions that support academic research, business communication, and digital content creation. Initial versions focused primarily on AI chat and document reading. Over time, the platform expanded its capabilities to include advanced presentation generation, improved file management, and multimodal features such as image creation.

1.3. Target audience and scope

Pop AI serves a wide and varied audience due to its versatile toolset. Its primary user groups include:

- **Students and Academic Learners:** For summarising readings, understanding complex material, generating study notes, and preparing presentations.
- **Professionals and Office Workers:** For analysing reports, producing business documents, organising files, and creating slide decks for meetings.
- **Researchers and Analysts:** For comparing documents, extracting key insights, and organising data-driven materials.
- **Content Creators and Designers:** For producing visual content, generating drafts, and supporting creative workflows with AI-generated images and text.

Pop AI's main goal is to streamline tasks that normally take a lot of time—reading through documents, extracting key points, writing drafts, designing slides, or generating supporting visuals. Its scope stretches across both educational and professional environments. Whether someone needs to break down a dense PDF, prepare a quick presentation for a meeting, draft written content, or manage files in one space, Pop AI offers tools that help reduce effort and improve clarity.

2. Characteristics and Features:

2.1. Core AI capabilities:

Pop AI is designed to make handling documents, creating content, and preparing presentations much simpler. It can read PDFs, Word files, and other materials, summarise the main points, explain tricky sections, and even answer questions about the content. On top of that, it can automatically turn your documents or topics into polished PowerPoint presentations, taking care of layouts, design, and organisation for you. Pop AI also helps with writing by drafting, rewriting, or summarising

text in multiple languages. Its image-generation capabilities allow you to create visuals from prompts or analyse images you upload. All of this is organised in a smart, AI powered workspace that keeps your files, notes, and projects easy to access. Backed by advanced models like GPT-4o, Pop AI offers strong understanding across text, visuals, and languages, making it a versatile assistant for both study and work.

2.2. Key Features and User Interface

Key features: Key features: Pop AI helps users handle documents, create content, and generate presentations efficiently. It can read PDFs and Word files, summarise content, answer questions, and compare multiple documents. The platform can automatically turn topics or documents into professional PowerPoint presentations, complete with layouts, visuals, and design suited to different audiences. It also provides AI-assisted writing for drafting, rewriting, or summarising text, supports image generation and analysis, and organises all files, chats, and projects in a smart workspace. Pop AI uses advanced AI models like GPT-4o and supports multilingual input, making it a versatile productivity tool.

User Interface: Pop AI has a clean workspace dashboard where all your files and projects are organised. A simple sidebar lets you switch between AI Chat, Writing, Image, and Presentation modes. You can open documents for side-by-side reading and Q&A, generate and edit presentations within the platform, annotate or save important content, and export or share files easily. Language and AI model settings are accessible for customising outputs.

2.3. Differentiating characteristics:

- **End-to-End Workflow:** Quickly turns documents into polished presentations.
- **Smart Design & Customisation:** Automatically formats slides and tailors content for different audiences.
- **Organised Workspace:** Keeps files, notes, and projects easy to access and manage.
- **Multi-Document Analysis & Reuse:** Compare documents, annotate, and save key points for later.
- **Multimodal & Collaborative:** Handles text and images, supports team collaboration, and exports PPTX/PDF.

2. Practical Implementation and Usage:

3.1. Prerequisites and setup:

- **Account Creation:** Sign up and log in to access the Pop AI workspace.
- **Supported File Uploads:** Upload PDFs, Word docs, text files, or images for document chat and presentation creation.
- **Device & Internet:** Use a stable internet connection; desktop browser recommended for full functionality.
- **AI Model Selection:** Choose GPT-4o for advanced document analysis and multimodal tasks.
- **Workspace Navigation:** Use the sidebar or dashboard to access AI Chat, Presentation, or Image features.
- **File Management & Annotation:** Organise files in the workspace; highlight or annotate important content.
- **Export Options:** Download generated presentations as PPTX or PDF.
- **Team Collaboration (Optional):** Set up a shared workspace for multiple users to collaborate and maintain workflow consistency.

3.2 Step by Step Usage:

- **Log in and access your workspace:** Start by signing in to your Pop AI account. Your dashboard will show all your projects and files.
- **Upload your document:** Click on the "Upload Document" button and select your PDF or Word file that you want to convert into a presentation.
- **Explore your document (optional):** Use the AI Chat feature to ask questions, summarise sections, or clarify complex parts. Highlight and annotate key points that will be important for your slides.
- **Generate your presentation:** Click "Generate PPT" and select your audience type (business, academic, etc.) and any design preferences. Pop AI will automatically structure your slides, add visuals, charts, and appropriate layouts.
- **Review and edit slides:** Open the generated presentation in the editor. You can reorder slides, edit text, swap visuals, and add speaker notes to fine-tune the presentation.
- **Save and annotate (optional):** Keep your slides in the workspace and create knowledge cards for key points to reuse in future projects.

- **Export and share:** Download the final presentation as PPTX or PDF. If working with a team, you can also collaborate in the shared workspace.

3.3. Tips and Best Practices:

To make the most of Pop AI, start by giving clear prompts and specifying your audience and objectives so the AI can tailor your presentation effectively. Upload your documents and let the platform summarise, analyse, and generate slides automatically. While reviewing the output, highlight important points, save reusable knowledge cards, and adjust slides for clarity, flow, and visual balance. Customise content for your audience, save templates for future projects, and collaborate seamlessly with your team in shared workspaces. Finally, always double-check the final presentation to ensure accuracy and readability before sharing.

4. Educational Implications and Application:

4.1. Pedagogical rationale

Pop AI enhances teaching and learning by providing an AI powered workspace that supports self-directed and personalised learning. Students can explore concepts at their own pace, clarify doubts, and interact with content through AI chat, while teachers save time with automated slide creation, summaries, and visual aids. The platform promotes differentiated instruction, multilingual support, and reusable templates, helping both students and educators organise and retain key information. Overall, Pop AI encourages engaging, accessible, and reflective teaching, combining AI tools with effective pedagogical practices to improve the learning experience.

4.2. Impact of teaching and learning

Pop AI transforms teaching by saving educators time on slide creation and lesson design, allowing them to focus on instruction and student engagement. For students, it makes learning more interactive and visually appealing, supports different learning styles, and allows content to be tailored to individual needs. By automating repetitive tasks, Pop AI reduces teacher workload, promotes personalised learning, and helps create a more engaging, reflective, and effective classroom.

4.3. Specific Classroom Application

- **Create Engaging Slides Quickly:** Teachers can upload their notes, and Pop AI instantly turns them into polished, visually appealing slides with helpful images and speaker notes.
- **Encourage Class Interaction:** The AI adds questions and prompts that spark discussion and let teachers explain concepts on the spot.
- **Personalise Learning:** Different versions of the presentation can be made to suit beginner, intermediate, or advanced students.
- **Share with Ease:** Completed slides can be easily exported and shared with students for review or homework.

5. Challenges, Ethics and Future Direction:

5.1 Limitations and Challenges:

- **Quality of Input Matters:** Pop AI may misinterpret information if the uploaded documents are poorly formatted or of low-quality.
- **Human Judgement Still Needed:** While it can summarise and analyse content, relying solely on AI can lead to errors—teachers and students still need to verify results.
- **Privacy Concerns:** Uploading sensitive or confidential documents raises potential data security issues.
- **Internet Dependency:** Pop AI requires a stable internet connection, so it cannot be used effectively offline.
- **Learning Curve:** New users may need time to master prompt writing and all the platform's features to use it effectively.

5.2. Ethical and Equity considerations:

Pop AI is a powerful tool for teaching and learning, but it comes with ethical and equity considerations. Users need to verify the accuracy of the AI-generated content to avoid relying on it blindly, as mistakes can occur. Access can be unequal, since some students or schools may lack the necessary devices or stable internet. Privacy and data security are also important when handling sensitive educational materials. To ensure fairness, educators should use Pop AI alongside careful human oversight, making sure all students benefit responsibly from the technology.

6. Supplementary Information

Pop AI has a flexible pricing model to suit different users. There's a Free plan that gives you basic features like a limited number of daily GPT-3.5 and GPT-4 queries, support for more than 200 languages, and up to two file uploads per day. For more serious use, the Monthly Pro plan costs US\$9.90 per month and unlocks full access to PDF/Doc tools, AI creation, image chat, and a "Boost Mode" for stronger responses. If you need unlimited access, the Monthly Unlimited plan (US\$40/month) offers unrestricted usage of all major features, including unlimited file uploads and unlimited AI generation with Boost Mode.

OFFICIAL URL: <https://www.popai.pro>

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Presentation AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Presentation AI is a smart computer program that helps ease the process of making professional presentations. It enables users to generate slide decks automatically using text input, templates, and AI-powered design suggestions. Using Presentation AI, teachers, learners, and content designers will be able to create graphically appealing slides without having prior knowledge of graphic design tools. It is mainly employed to maximize productivity and creativity by automating the layout, structuring and formatting.



Fig 1. Logo of Presentation AI

1.2. Brief History and Development

The AI in the presentation field received some attention in 2021 - 2022, when the design tools started changing document creation with AI. The vision of the developers was a platform that would transform ideas into a presentable platform at a touch of a button. The ability to sequence smart slides, text summarization triggered by AI, image recommendations and automatic branding evolved with time. Today, Presentation AI allows customizing designs, generating scripts, speaker notes, and connecting with other digital technologies - and this way presentation creation becomes less complicated, quicker, and more user-friendly.

1.3. Target Audience and Scope

Presentation AI serves a wide range of users.

- Teachers designing lessons
- Students writing assignments.
- Corporate professionals report.
- Entrepreneurs who are presenting their ideas.
- It involves investigators reporting their results.

- It deals with scholarly talks, corporate proposals, marketing slides, classroom materials, workshop visuals, and other personal creative works.

2. Characteristics and Features.

2.1. Core AI Capabilities

Presentation AI has a number of advanced features that add to the development of the presentation:

- **Slide Auto-Generation** is Transferring the text or topic entries into organized slide designs.
- **AI Content Suggesting** the bullet point, summary and talk note.
- **AI Visual Design:** The AI is taking control of the colours, icons, and layouts automatically depending on the themes.
- **Brand Alignment:** Uses logos, colour schemes, and fonts in order to have a professional identity.
- **Media Integration:** Proposes images, charts, and icons that can be used on content.

2.2. Major Characteristics and User Interface.

- Presentation AI has a clean and intuitive interface using templates, text input fields, and editing panels.
- Users can:
 - Enter a topic or paste text
 - Select a style or theme
 - Auto-generate slides
 - Edit and rearrange content
 - Export formats are either in the form of PPT, PDF, or Google Slides.
- It has a simple learning curve thus allowing beginners but also provides flexibility to the advanced users.

2.3 Characteristics Differentiation.

Presentation AI is unique due to:

- What automatic storytelling alignment is missing is akin to (beginning → middle → conclusion)
- AI-generated speaker notes
- Smart visual suggestions
- Time-saving automation
- Consistency in formatting
- It minimizes the process of manual slide designing and helps in a smoother presentation delivery.

3. Real-life Implementation and Usage

3.1. Prerequisites and Setup

In order to start the Presentation AI.

- It must have a stable internet connection.
- An account (free trial or premium plan) is registered.
- The premium plans provide access to more templates, export versions, branding, and the size of content.

3.2 Step-by-Step Usage Guide

- Background: Preparation of a Voiceover to a Lesson.
- Log in to Presentation AI.
- Enter the topic - e.g. E-commerce and Online Trading.
- Select a layout or style.
- Let the AI generate content.
- Re-read all slides and make changes to bullets.
- Add some kind of images or charts recommended by AI.
- Export the presentation including ppt.
- Background: Background Music Generation to use in a Video or a Podcast.



Fig 2. AI Presentation chat

- Select "Pitch Deck" preset.
- Concept idea summary, audience, and objectives.
- Enables the AI to produce competitive analysis, features and financial highlights.
- Branding and customisation.
- Direct or downloading presentation. Suggestions and Worst Practices. Redo).
- Be clear in the description of the topic in order to attain optimal outcomes.

- Examine the texts of AI with the correct tones. So, you are free to contribute your own individual ideas to enhance the originality of the same.
- S: Pre-Proving Proofread before presenting.
- Assuring the branding consistency by AI theme controls.

4. Implications and Applications of education.

4.1. Pedagogical Rationale

Presentation AI also enables teachers because they spend less time visual designing. It promotes active learning, content chunking and multimodal teaching. The advantages of visual materials in an interactive format, joint projects, and the development of assignments without any difficulties are beneficial to students.

The impact on learning and teaching: It is believed that the proposed research can alter the teaching and learning process of English learners in the UAE because it highlights the challenge of lack of teaching and learning materials in various learning environments.

4.2. The implication on teaching and learning:

It is expected that the proposed study will impact the English students in the UAE in the sphere of teaching and learning by pointing to the issue of poor teaching and learning resources in all forms of learning setting.

With Presentation AI:

- Classes are made interesting to see.
- Through diagrams and layouts, the complex ideas are simplified.
- Educators are able to create rapid revision slides.
- Students learn how to make presentations in a creative manner.
- The tool promotes inclusive learning as it supports different styles of learning.

Application: students are invited to select one specific classroom app, which they have encountered previously.

Activity: the students will be asked to pick one particular classroom application, one they have come across before.

Educators can use it for:

- Lecture-based content
- Chapter summaries
- Case study visuals
- Project presentations
- Learning tasks based on skills.

Students will be able to make reflective journals, portfolios and seminar presentations more confidently.

5. Challenges, Ethics and Future Directions.

5.1. Limitations and Challenges

- Generated content based on AI might not be as deep or contextually sensitive.
- Internet addiction restrains real-life use.
- Premium versions Premium versions may be required to support more advanced functioning.

5.2. Ethics and Equity Issues

Users must ensure:

- Information accuracy
- There should be citations of the external sources.
- Equal access to tools in students.
- One might be under-reliant on AI, which decreases original thought, so it is recommended to use it in moderation.

5.3 Future Outlook and Roadmap

- Improvements in the future can be:
- Voice and narration within various slides.
- The live presenter feature is coached by AI.
- Collaborative real time editing is involved.
- Greater collaboration with LMS systems.
- Presentation AI will likely become a classroom helper, business trainer, and generator of content assistance tools.

6. Additional Materials and Resources

6.1. Tool Access Details

Official Webpage: <https://presentationai.com>

Pricing: Free and premium subscriptions are subscriptions that have advanced templates, exports and branding options.

6.2 Reading and Documentation

- Documentation and support centre.
- Articles on presentation design, blog posts.
- Independent tool reviews

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QODO

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Qodo is an advanced AI-powered coding assistant that provides intelligent code review, automatic test case generation, and clear documentation support. It analyzes the structure, logic, and coding standards of a program to deliver real-time feedback, helping users identify errors early and improve overall code quality. In addition to reviewing code, Qodo can automatically generate meaningful unit tests to validate program correctness across different scenarios, ensuring reliability for both beginners and professional developers. The tool also transforms complex code into simplified documentation, such as explanations and docstrings, making it easier for students to understand programming concepts and enabling educators to prepare clear instructional materials for teaching and collaboration.



Fig. 1 Qodo Logo

1.2 Brief History and Development

Qodo originally began as Codium AI, a tool focused primarily on automated test generation to improve software reliability and reduce debugging time. As its user base grew, the platform evolved by integrating deeper code reasoning, intelligent bug detection, and advanced documentation support, transforming it from a single-purpose tool into a versatile, multi-function AI coding assistant capable of enhancing code across various programming languages. The transition to the name "Qodo" reflects this expanded vision, positioning it as a comprehensive, all-in-one coding companion designed to support students, educators, developers, and researchers through enhanced features and broader functionality.

1.3 Target Audience and Scope

a. Students Learning Programming

Qodo supports students by offering step-by-step explanations of errors, helping them understand fundamental logic. It simplifies coding concepts through examples and suggestions. This makes it ideal for learners who are new to programming or facing difficulty with debugging.

b. Teachers and Educators

Teachers can use Qodo for evaluating assignments, designing coding activities, and preparing instructional materials. The tool reduces time spent on manual code checking and supports evidence-based teaching. It also assists in providing differentiated feedback for diverse learners.

c. Professional Programmers and Developers

Qodo serves as a productivity tool for developers by detecting hidden bugs, generating tests, and optimizing code. It ensures clean, maintainable, and industry-standard coding practices. This makes it suitable for use in technical projects, research, and software engineering workflows.

2. Characteristics and Features

2.1 Core AI Capabilities

a. Logic-Based Code Understanding

Qodo analyses code using deep reasoning rather than simple pattern matching. It understands program flow, conditions, and logic structures, allowing it to identify both functional and logical errors. This supports more accurate feedback for learners and developers.

b. Semantic Code Suggestions

The tool uses semantic intelligence to suggest improvements in readability, efficiency, and organization. Rather than producing random corrections, Qodo aligns its suggestions with recognized programming standards. This feature enhances code clarity and performance.

c. Multi-Language Compatibility

Qodo supports popular languages such as Python, Java, C, C++, and JavaScript. This broad compatibility allows educators to use it across different courses and development settings. It also enables learners to transition smoothly between languages.

2.2 Key Features and User Interface (UI)

a. Code Review Dashboard

The dashboard provides a structured display of errors, warnings, and improvement areas. Each issue is accompanied by detailed explanations and reasoning. The interface is designed for easy navigation, enabling users to explore insights without technical difficulty.



Fig.2 Features

b. Suggestions Panel with Refactored Code

This panel shows optimized versions of the user's code alongside explanations for each change. It helps users compare their original work with improved alternatives. This supports reflective learning and helps students understand best practices.



c. Export Tools (Reports, Tests, Documentation)

Qodo allows users to export code reviews, generated tests, and documentation for academic or professional use. This is helpful for preparing assignments, project reports, portfolios, and teaching materials. Export options enhance the tool's flexibility.



2.3 Differentiating Characteristics

a. Educationally Oriented Error Explanation

Unlike typical AI coding tools, Qodo focuses heavily on teaching rather than just correcting. Its explanations include reasoning, examples, and hints, supporting conceptual clarity. This makes it especially valuable in academic environments.

b. Integrated Test Generation and Validation

Most AI tools focus on writing code, but Qodo emphasizes quality assurance. Its ability to create meaningful test cases helps ensure

program reliability. This feature prepares students for real-world software testing practices.

c. Real-Time Logical Feedback

Qodo provides real-time reasoning-based feedback rather than pointing out obvious errors. It highlights logical flaws that may cause unexpected behavior. This supports deeper understanding and long-term skill development.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

a. Device with Internet Access

Qodo operates entirely online, requiring only a stable internet connection. This makes it accessible for students in labs, teachers in classrooms, and professionals working remotely. No advanced hardware is needed.

b. Qodo Account (Free Tier Available)

Users can create an account to save work, track progress, and explore advanced features. The free tier provides essential functionalities suitable for classroom workflows. Premium plans offer enhanced analysis and testing features.

c. Browser-Based Use (No Installation Needed)

Qodo runs on major browsers like Chrome and Firefox, eliminating installation barriers. This ensures easy and instant access, especially in institutional settings. The cloud-based model reduces technical challenges for beginners.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Let's take **Scenario 1: Improving a Student's Code Submission** and create a **step-by-step guide** including space for screenshots, and instructions on what, where, when, and how to upload.

Scenario 1: Improving a Student's Code Submission Using Qodo

Step 1: Open Qodo



Step 2: Submit Your Code



Step 3: View Detailed Feedback



Step 4: Revise Code



Step 5: Re-submit and Confirm



3.3 Tips and Best Practices

a. Use Clear and Well-Structured Code

Submitting clean, indented code improves the accuracy of Qodo's analysis. Good structure helps the tool understand logic flow more effectively. This leads to better quality feedback.

b. Compare Multiple Suggestions

Users benefit by reviewing Qodo's various suggestions, such as optimized code or alternative logic. This helps learners explore different programming approaches. It also builds flexibility in problem-solving.

c. Validate Output with Personal Understanding

While Qodo provides excellent guidance, users should cross-check answers independently. This prevents over-reliance on AI and promotes critical thinking. Verification strengthens coding confidence.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

a. Supports Inquiry-Based Learning

Qodo encourages learners to question why errors occur and how to correct them. Its explanations promote deeper cognitive engagement. This strengthens reasoning and analytical skills.

b. Enhances Digital Literacy and Coding Confidence

By interacting with an AI-driven tool, students develop essential digital skills. They become more comfortable experimenting and revising code. This autonomy encourages lifelong learning.

c. Promotes Constructivist Learning Approaches

Students actively build knowledge by comparing original and suggested code versions. They engage in self-correction and reflection, essential for mastering programming. This aligns well with modern pedagogical frameworks.

4.2 Impact on Teaching and Learning

a. Streamlines Lesson Planning

Qodo assists teachers by generating examples, documentation, and test cases. This reduces workload, allowing more time for interactive teaching. Educators can modify AI-generated materials to suit learning objectives.

b. Supports Differentiated Instruction

With Qodo's tailored explanations, students receive individualized learning support. It caters to varying skill levels within the same class. This enhances classroom inclusivity and learning outcomes.

c. Increases Learning Efficiency

Immediate feedback shortens the learning cycle for coding tasks. Students can correct mistakes instantly and move ahead confidently. This accelerates progress in both classroom and self-learning environments.

4.3 Specific Classroom Applications

a. Creating Debugging Activities

Teachers can use Qodo to generate faulty code examples for students to debug. This helps learners practice analytical thinking and develop problem-solving skills. It also supports hands-on classroom engagement.

b. Building Mind-Map Style Code Structures

Although Qodo focuses on code, teachers can convert its structured output into mind maps for instruction. This helps students understand relationships between functions, conditions, and logic blocks.

c. Supporting Research and Project Development

Students working on large projects can use Qodo to ensure error-free and well-documented code. This supports academic research and improves the quality of final submissions. It also encourages systematic coding practices.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

a. Dependence on Input Quality

Qodo's accuracy depends on the quality of the code submitted. Poorly formatted or incomplete code may produce unclear suggestions. Users must provide well-structured inputs for optimal results.

b. Over-Reliance Risk

Excessive dependence on automated suggestions may reduce students' independent debugging abilities. Educators must promote balanced use. AI should enhance and not replace human logic.

c. Some Features Locked Behind Premium Plans

Advanced analysis, extended test generation, and deeper insights may require paid access. This may affect institutions with limited resources. However, essential learning features remain accessible.

5.2 Ethical and Equity Considerations

a. Ensuring Academic Integrity

Students may misuse the tool to complete assignments without genuine understanding. Teachers should encourage ethical usage and integrate reflective tasks. Responsible use preserves academic honesty.

b. Avoiding Misinterpretation of AI Suggestions

Users must verify Qodo's recommendations to avoid errors from misinterpretation. Critical thinking is essential when applying AI-generated fixes. This ensures safe and effective coding practices.

c. Equal Digital Access

Institutions must ensure all learners have equal access to devices and the internet. This prevents inequality in AI-supported learning. Equitable access enhances collective classroom progress.

5.3 Future Outlook and Roadmap

a. Integration with IDEs and Development Platforms

Future versions may integrate directly with VS Code, PyCharm, and GitHub. This will make coding assistance seamless and real-time. It will also benefit advanced learners and developers.

b. Expansion into Multimodal Code Analysis

Upcoming updates may include debugging for full projects, APIs, and databases. This will enhance its capability for real-world applications. It may also support more visual explanation modes.

c. Improved Transparency and Learning Tools

Qodo may incorporate clearer reasoning, step-by-step code walkthroughs, and interactive learning modules. This will improve classroom usability. Such features make it even more suitable for educational settings.

6. Supplementary Information and References

6.1. Tool Access Details

Official Website:

<https://www.qodo.ai/>

Qodo can be accessed through its official website, where users can review code, generate tests, and improve logic using AI-powered tools. The platform is suitable for students, teachers, and professional developers who require intelligent coding assistance.

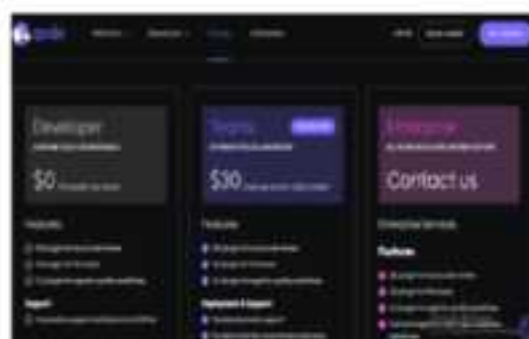


Fig. 3 Pricing

Pricing:

- **Free Plan:**
Provides limited access to core features such as basic code review, syntax checking, and simple suggestions. Ideal for students or occasional users.
- **Premium Plans:**
Offer advanced tools including deep code analysis, unlimited test generation, enhanced debugging support, documentation creation, and multi-language coverage. This tier is best suited for regular coding tasks, academic submissions, and professional development work.

6.2. Further Reading and Documentation

- **Qodo Help Centre and User Guide:**
Offers detailed instructions, feature explanations, and troubleshooting support to help users understand and use the platform effectively.
- **Articles on AI in Programming Education:**
Provide insights into how AI tools like Qodo support coding literacy, debugging skills, and classroom learning.
- **Research on AI-Assisted Code Review Tools:**
Investigates the benefits of automated testing, debugging assistance, and code optimization in educational and software engineering environments.
- **Studies on LLM-Based Programming Models:**
Explore how large language models enable reasoning over code, generate tests, and provide logical suggestions that improve programming efficiency.

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QUILLBOT

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality:

QuillBot is an advanced AI-powered writing assistant designed to help users improve the clarity, style, and overall quality of their written work. Built on natural language processing (NLP) technology,

QuillBot provides intelligent suggestions that make writing faster, easier, and more effective for students, educators, researchers, and content creators.



Fig 1. QuillBot Logo

At its core, Quill Bot primarily aims to alter and enhance text while maintaining its original significance. Its key benefits include rewording, correcting grammar, summarizing and improving content. The platform provides various writing tools each designed to address particular needs, allowing users to effortlessly create consistent, polished, and unique content. QuillBot's intuitive interface and integrated customization options make it a vital tool for everyday writing tasks, academic projects, research endeavors, and professional correspondence. QuillBot offers dependable, high-quality assistance via its AI models for rephrasing content, fixing grammar mistakes, minimizing plagiarism, or modifying tone.

1.2 Brief History and Development:

QuillBot began its journey in 2017, born in a small college dorm room where three university students, Anil Jason, Rohan Gupta, and David Silin decided to solve a real academic problem. The idea first came from Anil, who wanted to build a tool that could specifically support ELL (English Language Learner) students struggling with rewriting and expressing ideas clearly. Acknowledging the demand for an intelligent, user-friendly writing assistant, he collaborated with his friends Rohan

and David to create what turned out to be QuillBot's most recognizable and iconic feature: the Paraphraser. Originally created to assist students in rewording sentences while maintaining their meaning, this tool swiftly became popular for its precision and ease of use. With its expanding user base, QuillBot transformed from a paraphrasing tool into a comprehensive AI writing ecosystem by incorporating grammar correction, summarization, plagiarism detection, citation generation, and translation features. What started as a small dorm-room experiment soon became one of the world's most widely used AI writing assistants, empowering students, educators, researchers, and professionals to write better, faster, and with greater confidence.

1.3 Target Audience and Scope:

QuillBot serves a wide range of users, including students, teachers, researchers, and content creators looking for support to improve their writing. Its functions support scholarly writing, business communication and everyday content generation, demonstrating advantages for rephrasing, condensing, grammar fixing, and producing clear, polished text. QuillBot provides various features and accessible tools that help anyone looking to write more effectively and efficiently.

2. Characteristics and Features

2.1 Core AI Capabilities:

QuillBot is functionally based on advanced Natural Language Processing and Generative AI models. At the core of its capability, the Paraphraser is based on sophisticated large language models that are trained on the deep meaning or semantics of an input sentence or passage rather than mere word substitution based on a thesaurus. The resultant contextual understanding by the app will then allow it to restructure, reorder, and replace words and phrases while preserving the original meaning intact. Additionally, the AI makes possible different rewriting modes such as Fluency, Formal, Simple, and Creative by altering its generative parameters to match particular stylistic requirements. Apart from paraphrasing, QuillBot relies on specialized deep learning models for its other important tasks, such as the AI Detector, which checks textual metrics like burstiness or sentence variation and perplexity or predictability to conclude whether the material has been generated by a machine or a human being.

2.2 Key features and User-Interface

QuillBot is designed to be an all-in-one writing assistant, providing a complete suite of tools in an easy-to-use interface. Its core functionality, the Paraphraser, often uses a dual-pane UI where the source text is

entered on the left, and the AI-powered revision appears on the right, with changed words highlighted for ease of review. The Grammar Checker for real-time error correction, the Summarizer that can synopsise long text into paragraphs or bullet points, the Citation Generator for major styles like APA, MLA, and Chicago, and AI Chat for general brainstorming and idea generation are some of the main features beyond paraphrasing. One critical UI feature is the Co-Writer: a unified workspace that smoothly integrates all the abovementioned tools—paraphraser, grammar checker, and citation generator—into one environment that enables users to create, edit, and cite long-form content without having to switch tabs. The proof of its commitment to accessibility is found in its extensions and add-ins within popular writing applications like Chrome, Microsoft Word, and Google Docs.

2.3 Differentiating Characteristics:

Quill Bot stands out because it specializes in being the most effective paraphrasing engine in the world as compared to larger companies like Grammarly that focus on grammar and tone, or generalized AI platforms like ChatGPT. It distinguishes itself through features like the Synonym Slider. This revolutionary user interface (UI) component allows the adjustment of user preference for how assertively the AI replaces words during paraphrase creation. Users can favour accuracy (making fewer changes) over creativity (making more changes) as they utilise the AI. QuillBot has developed tools that allow users to combat current AI writing authenticity challenges. One such tool is the AI Humanizer, designed to help users convert mechanical or predictable AI output into naturally-appearing human language. By combining this AI Humanizer with both strong AI Detection and Plagiarism Checking capabilities into one integrated academic and professional platform, Quill Bot creates a unique solution that can be used to improve and check the originality and authenticity of everything produced by its current users.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup:

Before using QuillBot effectively, users need to ensure a few basic prerequisites are in place. First, a stable internet connection is required since QuillBot is a web-based AI writing platform. Users should also have access to a browser such as Chrome, Firefox, Safari, or Edge, or alternatively download the QuillBot extension if they prefer working directly through Google Docs, Word, or their browser. Signing up for a QuillBot account allows access to saved documents, custom modes, and premium features. Once logged in, the setup is simple—selecting the

preferred writing tool such as the Paraphraser, Grammar Checker, Summarizer, or Plagiarism Checker. With these basic requirements, the user is fully prepared to begin using QuillBot's capabilities.

3.2 Step-by-step Usage Guide:

To use QuillBot, the user selects a tool such as the Paraphraser, Summarizer, or Grammar Checker from the homepage. They paste or upload their text, choose a mode (like Standard, Fluency, or Formal), and click Paraphrase or Summarize to generate results. QuillBot instantly rewrites or condenses the text and highlights changes for easy review. Users can switch tools as needed—for example, moving from paraphrasing to grammar correction or creating citations with the Citation Generator. This simple, step-by-step flow helps users quickly improve clarity, accuracy, and originality in any writing task.

For Example Scenario 1: Summarizing Research Articles

If a user wants to shorten long research material, they can open the Summarizer tool from the menu. After inserting or uploading the text, they can choose between Key Sentences mode or Paragraph Summary mode depending on how condensed they want the information. They then click "Summarize", and QuillBot instantly generates a concise version of the content. The tool highlights main ideas, making it easier for users to quickly understand large amounts of information without losing meaning. This scenario is especially useful for students and researchers who need quick academic insights.

For Example Scenario 2: Improving Academic Writing Using the Paraphraser

In this scenario, imagine a student who wants to paraphrase a paragraph for an assignment. First, the user logs in to QuillBot and selects the Paraphraser tool from the main dashboard. Next, they paste the original text into the input box. After this, the user chooses a mode—such as Standard, Fluency, Formal, or Creative—based on their writing goal. Then, they adjust the synonym slider to control how much rewriting QuillBot should perform. Once everything is set, they click "Paraphrase", and QuillBot generates a reworded version on the right side. The student can compare both texts side by side, highlight differences, and even click individual synonyms to customize the output. Finally, they copy the refined text and paste it into their assignment.

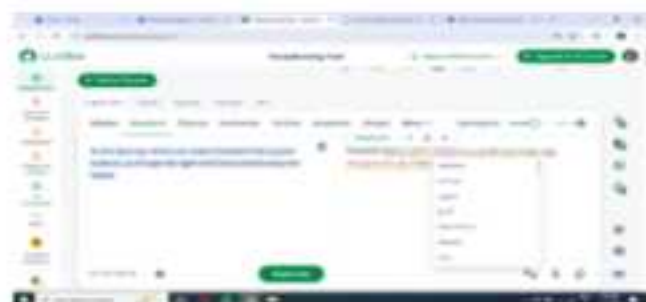


Fig 3 . Customization of paraphrase

3.3 Tips and best Practices:

To get the most out of QuillBot, users should apply its tools thoughtfully rather than relying on it as a final answer. It is best to paraphrase full paragraphs instead of isolated lines so the AI can maintain context and coherence. Users should select modes based on purpose—Formal for academic or professional work, Creative for marketing content, and shorten for summaries. Following the “Four Rs” helps ensure quality: Review the original text, rephrase using QuillBot, check for similarity, and refine the output with your own adjustments and proper citations. Before finalizing any work, users should run the text through the Grammar Checker and, if needed, the Plagiarism Checker to ensure clarity and originality. Overall, QuillBot should support the writing process, not replace critical thinking or personal input.

4. Educational Implications and Applications



Fig 4 . Grammar checker feature of Quillbot

4.1 Pedagogical Rationale:

QuillBot assists teachers when supporting students as they write better, understand what they are reading well, and not copy. Students learn because they have to think about the structure of the sentences and the vocabulary instead of just memorizing the text, whether through its grammar-checking, paraphrasing, or summarizing features. Students who struggle and/or speak two languages are further assisted in breaking down complex information and receiving step-by-step support. This is why QuillBot supports good practices when working on reading, writing, and self-learning.

4.2 Impact on Teaching and Learning:

QuillBot assists in "cleaning up" writing assignments for students, allowing clarity and making assignments easier for students - learning again is taking place. It increases student confidence and reduces errors for students when they feel better about themselves and the assignment. QuillBot saves teachers time and allows them to produce simpler versions of lessons or texts for students who are at different levels of support. It supports efficient use of time in classrooms and improves student writing and technology.

4.3 Specific Classroom Applications:

There are various ways to apply QuillBot in the classroom. The Paraphraser supports students in writing essays and notes by rewriting what they have read in their own words. The Summarizer helps condense long lessons and articles into more manageable and easier to understand formats. The Grammar Checker aids you to write more precisely on assignments and projects, and the Citation Generator helps support research. QuillBot, with its similar features mentioned, could also be used by teachers to change texts based on their students' understanding level, so this tool can be used to support any subject.

5. Challenges, Ethics, and Future Directions

5.1 Limitation and Challenges:

QuillBot has a lot of benefits, but it also faces several challenges. When it comes to challenges, the foundations of AI are currently unable to handle highly technical, specialized vocabulary, which leaves paraphrased text missing nuanced meaning or even factual inaccuracies when used in fields of technical writing, such as the legal or scientific disciplines. On top of this, sometimes, especially when the text is heavily rewritten, the output reads awkwardly, is not intuitive, and requires a lot of textual and grammatical modifications to ensure clarity. For users, the character limits in the free and basic plans is a limitation

for those looking to make longer documents. Educators worry about students overusing the tool impeding their development of basic writing and critical thinking skills. For business or corporate users, these AI platforms house a real concern of data privacy issues when involuntarily submitting sensitive to an AI platform, not developed or owned by the business.

5.2 Ethical and Equity Considerations:

QuillBot raises real ethics and fairness problems, especially in schools. The primary concern is the potential for easy cheating under the appearance of substitutive writing without the ability to distinguish legitimate writing

support versus cheating. As a result, many education institutions have established strict regulations regarding its use. Conversely, the ethical implications of AI technology reach far greater limits than just plagiarism. One ethical consideration associated with AI is algorithmic bias from the training data, which creates a potential for unfair outcomes. There are also persistent questions about who owns any intellectual property rights to the original source that AI models are trained on. To respond to these ethical dilemmas, QuillBot has introduced features such as its AI Detector and Plagiarism Checker. This characteristic positions QuillBot as a writing assistant, rather than a tool to promote unoriginal work.

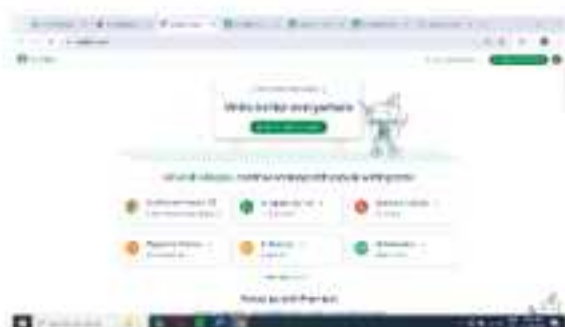
5.3 Future Outlook and Roadmap:

QuillBot's future is all about toolkit expansion and being responsible in AI development. Its roadmap suggests continuing to develop its AI writing and research capabilities. For example, it just launched AI Humanizer and will roll out a set of PDF and image processing tools to help users finalize their tasks more efficiently, even when working with other types of content. The company would like to make itself more accessible globally through the significant increase in multilingual capability in the near term and offering even more languages, on top of English. It wants to be more research-based to make sure that it prioritizes its product development according to user experience and the latest developments in natural language processing. Ultimately, QuillBot is focused on a future in which AI responsibly supports writers while opening up efficiency and transparency in the writing process.

6. Supplementary Information and References

6.1 Tool Access Details:

To access the tool, follow the instructions given below:



Official URL:

QuillBot can be accessed through its official website:
<https://QuillBot.com>

6.2 Pricing / License Model: 6.3 References

Plan Type	Cost	Billing	Savings	Key Benefit
Free	\$0	—	—	Basic rewriting & summarizing
Monthly	\$9.95	Monthly	0%	Full access without commitment
Quarterly	\$6.65/month	Every 3 months	33%	Affordable short-term option
Annual	\$4.17/month (\$49.95/year)	Yearly	58%	Best Value

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Quizlet AI

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Quizlet AI is an integrated suite of intelligent tools designed to streamline studying through automation, personalisation, and adaptive learning. It generates study materials automatically, builds customised practice tests, supports learners through Q-Chat—its AI-driven interactive tutor—and adjusts study pathways based on performance. These tools help students study more effectively by offering guided support, personalised recommendations, and simplified content tailored to individual learning needs.



Fig 1. Quizlet logo

1.2 Brief History and Development

Quizlet is an American multi-national educational technology company best known for offering digital learning tools such as flashcards, practice quizzes, and interactive classroom games. The platform was created in 2006 by Andrew Sutherland after he struggled to memorise French vocabulary using traditional methods. His frustration led him to design a web-based tool that allowed users to input terms and definitions and study them through multiple activities. With no outside funding and no formal marketing, Quizlet grew rapidly as students shared it with peers, sparking widespread adoption.

By 2009, Quizlet had amassed millions of users, thriving on its free access, straightforward design, and ability to support a wide range of subjects. Over the next decade, the platform expanded significantly with the release of mobile apps, new study modes such as Learn, Write, Speller, Test, and Match, and continuous improvements grounded in user feedback. During the COVID-19 pandemic, when digital learning tools were essential, Quizlet experienced another surge in use.

The company broadened its capabilities by acquiring Slader in 2021 to provide textbook-based homework support and Brainly in 2022 to offer more community-style explanations. In 2023, Quizlet launched a new generation of AI-powered tools—including Q-Chat, its conversational AI tutor built with OpenAI technologies, and Magic Notes, which converts documents into structured study materials—marking a major step toward personalised, AI-enhanced education.

1.3 Target Audience and Scope

Quizlet's audience includes students and educators across K–12 and higher education, with the platform reaching nearly two-thirds of U.S. high school students and around half of college learners. Teachers rely on Quizlet to create classroom materials, organise lessons, and support revision, while students use it for exam preparation, vocabulary practice, and self-paced learning across subjects like languages, science, social studies, and mathematics. Because more than 70% of users access Quizlet on mobile devices, its mobile-first design is crucial to its global success.

In addition to students, Quizlet supports adult learners, professionals preparing for certifications, and anyone seeking convenient study tools. The platform's freemium model gives broad access to basic features while offering premium plans with expanded AI tools, offline studying, and advanced customisation for deeper learning.

2. Characteristics and Features:

2.1 Core AI Capabilities

- **Q-Chat:** AI tutor offering personalised explanations, guided reasoning, and interactive quizzes.
- **Magic Notes:** Converts handwritten notes, digital documents, and PDFs into flashcards, outlines, summaries, or practice questions.
- **Dynamic question difficulty:** Automatically increases or decreases complexity based on performance.
- **Memory Score:** Measures how well users know terms and schedules reviews for improved long-term retention.
- **AI-generated summaries:** Break dense readings into digestible key ideas.
- **Concept mapping:** Creates visual connections between topics for clearer understanding.
- **Instant feedback:** Explains incorrect answers immediately to reinforce learning.

- **Study recommendations:** Suggests what users should revise next based on progress.
- **Multi-lingual support:** Generates examples and explanations for language learners.
- **Reading comprehension prompts:** Generates guiding questions for textbooks or long documents.

2.2 Key Features and User Interface

Quizlet's interface is designed for simplicity and accessibility, making it easy for learners to create, customise, and share study sets. Its AI-powered features stand out: Q-Chat uses conversational tutoring to support understanding, while Magic Notes can turn any set of notes into structured study materials instantly. Quick Summary reduces complex texts into manageable sections, and Memory Score introduces smart review cycles based on spaced repetition.

The interface supports multimedia elements—images, diagrams, charts, and audio—allowing users to adapt study sets to their preferred learning style. Quizlet's mobile-first design ensures smooth transitions between devices, and collaborative options enable group study, class assignments, and shared resource creation.

2.3 Differentiating Characteristics

- AI-powered tutoring with personalised explanations through Q-Chat
- Instant material generation via Magic Notes
- Quick Summary for simplified understanding of complex material
- Brain Beats turning flashcards into songs for easier memorisation
- Memory Score offering tailored review timing
- Millions of publicly shared study sets for fast access
- Classroom integration with tools like Google Classroom
- Full multimedia support including audio pronunciation
- Collaborative editing for teams and study groups
- Cloud syncing across devices for uninterrupted learning

3. Practical Implementation and Usage

3.1 Prerequisites and Set-up

Quizlet is widely regarded as an effective, flexible, and user-friendly study tool. Students appreciate its wide variety of flashcards, its ability to support multiple subjects, and the depth added by AI features such as Q-Chat and Magic Notes. Many rely on it for vocabulary building, exam review, language study, and concept mastery. However, some

users have reported concerns regarding increased ads, restricted free features, and paywalls around advanced tools. Despite this, Quizlet continues to be a trusted global platform, particularly for those who subscribe for full access to its AI-powered tools.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario: Creating a New Study Set

- Log in or create a Quizlet account.
- Select **Create** and choose **Study set**.
- Add terms and definitions manually or import from your documents.
- Enhance your study set with images, audio clips, or diagrams (premium features vary).
- Save the set, organise it into folders, and share it with classmates or groups for collaboration.
- Scenario: Studying with Flashcards and AI Tools
- Select a study set from your library or browse public collections.
- Use **Flashcards** mode to reveal terms, flip cards, and listen to audio.
- Switch to **Learn** mode for adaptive practice until mastery.
- Use **Q-Chat** for personalised tutoring, quizzes, and explanations.
- Review your **Memory Score** and follow spaced repetition prompts for optimal retention.

3.3 Tips and Best Practices

- Keep flashcards short, clear, and focused on key concepts.
- Add visuals like images or diagrams to improve comprehension.
- Use tags and folders to organise multiple subjects.
- Regularly update flashcards as your understanding deepens.
- Study aloud with Quizlet's audio tools to reinforce memory.
- Mix recall questions with application-based prompts.
- Rotate through Flashcards, Learn, Match, and Test modes for varied practice.
- Study in short, spaced sessions rather than cramming.
- Track weekly progress through Memory Score and activity stats.
- Work with study groups for peer learning and shared resources.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Quizlet applies proven strategies like active recall, spaced repetition, and retrieval practice, all essential for long-term memory. It provides

multimodal learning through images, text, audio, and interactive features, helping users with different learning styles. The platform encourages independent, self-paced learning while also supporting classroom collaboration. It also strengthens metacognition by showing learners where they need improvement and giving them tools to monitor their progress.

4.2 Impact on Teaching and Learning

Quizlet has been shown to improve student engagement, vocabulary development, and overall retention of information. It supports independent study while helping teachers reinforce classroom content. Gamified elements such as Match and Quizlet Live keep students motivated. Teachers save time by automating flashcard and quiz creation and can monitor student progress to guide instruction more effectively.

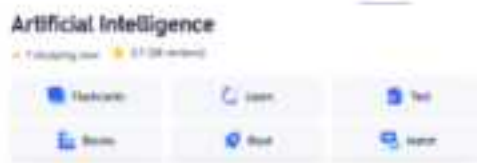


Fig 2

4.3 Specific Classroom Applications

- Vocabulary practice using flashcards and matching games
- Team-based competitions via Quizlet Live
- Adaptive practice in Learn mode for self-paced revision
- Language learning through audio pronunciation tools
- Custom practice tests for exam preparation
- Progress tracking reports for teachers
- Warm-up activities using quick Match rounds
- Exit tickets using short review sessions
- Differentiated study sets for advanced or struggling learners
- Peer teaching through student-created sets
- Revision stations with Quizlet as one rotation activity

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- Limited offline access without a premium subscription
- Potential inaccuracies in user-generated content

- Heavy focus on memorisation rather than deep conceptual learning
- Limited assessment formats compared to full learning management systems
- Ads in the free version may distract learners
- Premium costs can reduce accessibility
- Public study sets may be misused for cheating
- Some complex subjects (like advanced maths) are harder to represent
- Students may rely too much on premade sets
- AI-generated content may oversimplify challenging topics

5.2 Ethical and Equity Considerations

- Address technology gaps to ensure equal access for all students
- Protect student data privacy and manage permissions responsibly
- Provide alternative materials for students without premium access
- Support learners with disabilities through accessible formats
- Encourage digital citizenship and responsible tool use
- Communicate clearly with parents and students about how Quizlet is used

5.3 Future Outlook and Roadmap

- Expanded course-powered learning experiences with milestone-based guidance
- Improved accessibility to support diverse learners
- Development of specialised content for new subject areas
- Broader revenue models beyond flashcards and quizzes
- Enhanced analytics to support personalised learning
- Potential integration of VR/AR learning environments
- More advanced teacher dashboards with predictive insights
- AI tools aligned with regional curriculum standards
- Greater collaboration features for group learning

6. Supplementary Information and References

6.1 Tool Access Details

Official Website: <https://quizlet.com/latest>

Quizlet offers a free plan supported by ads.

Quizlet Plus, the premium version, costs about \$7.99/month or

\$35.99/year, providing ad-free studying, offline access, and full AI tool functionality.

6.2 Further Reading and Documentation

The Quizlet Help Center offers comprehensive guides on studying, teaching tools, billing, and troubleshooting. Additional tutorials, educator guides, and walkthroughs are available on educational blogs such as Training Foundry, as well as YouTube's official Quizlet tutorials.

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R Discovery

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1. Introduction and tool overview

1.1. Tool name and core functionality

R Discovery (by Cactus/ Editage) is a mobile and web app that recommends research papers tailored to your interests, a bit like a "Netflix feed" for journal articles. It combines a huge database of more than 250 million papers with AI that learns what you like to read and surfaces the latest, most relevant work automatically.



Fig. 1 Logo of R discovery AI

1.2. Brief History and Development

First released as a reading app around 2020, R Discovery has grown through partnerships with major publishers and now claims one of the world's largest open-access repositories. It was built to solve a simple problem: researchers wasting time scrolling through irrelevant search results instead of actually reading good papers.

1.3. Target Audience and Scope

R Discovery is mainly designed for people who read research regularly, especially university students and academic researchers who need a quick way to discover and organise papers for assignments, thesis, and projects. It also targets professionals in heavy research fields (such as medicine, engineering, and policy) who must stay updated with new studies but have limited time to search manually.

2. Characteristics and Features

2.1. Core AI Capabilities

1. My Feed- This is your personalised home page. After you select subjects (for example Health, Social Sciences, Engineering). R

Discovery shows a continuous stream of recommended papers that match those interests.

2. Search Papers -This section is for targeted searching. You type a title, author name, keyword, or phrase and R Discovery returns matching articles.

3. Library- The Library works like a research bookshelf. Any paper saved from the feed or search result appears there. You can organise items into folders or lists and quickly find previously saved articles without searching again.

4. Explore- It highlights trending research areas, curated collections, or editor-picked papers across disciplines. This is helpful when you want to broaden your reading or discover ideas outside your main field.

5. Ask R Discovery - It is the built in AI assistant. You can type a natural-language question such as What do recent studies say about flipped classrooms in higher education ? It generates a short explanation based on many papers, with links to the cited articles.

6. Chat PDF -It lets you upload a PDF article and then chat with it. After uploading, you can ask questions like 'Explain the methodology in simple words.'

7. Chrome Extension -The Chrome Extension brings R Discovery into your browser. When you are on journal websites or databases, the extension can suggest related papers, show quick summaries, or save articles straight to your R Discovery Library without returning to the main app.

8. Use on ChatGPT- This option connects your R Discovery account with ChatGPT. It allows you to bring papers or summaries from R Discovery into a ChatGPT conversation so you can ask follow-up questions, generate outlines, or draft text.

9. iOS App / Android App- These links take you to the App Store or Google Play so you can install R Discovery on your phone or tablet.

2.2. Key Features and User Interface (UI)

R Discovery has a simple, app-style interface built around a left-hand menu and a central reading space. The main screen, 'My Feed,' shows a personalized stream of recommended papers.

Key features include a Search Papers tab for keyword and author searches, a Library where all saved articles and reading lists are organised, and Explore to browse trending topics. There is also Ask R Discovery (an AI Q&A assistant about the literature) and Chat PDF to chat with individual articles, plus quick links to install the Chrome extension and mobile apps for seamless use across devices.

2.3. Differentiating Characteristics

1. It focuses on research discovery and reading, not just search. The home screen is a continuous, personalised feed of papers rather than a blank search box.
2. It offers audio summaries and translation, which many competing tools still lack, making it friendlier for on-the-go and global users.
3. "Ask R Discovery" is tightly linked to its article database, so AI answers always come with citations you can open, save, or read in full.

3. Practical Implementation and Usage

3.1. Pre-requisites and Setup

To Install and sign in -Download R Discovery from Google Play or the App Store and sign in with email or an academic account. It will ask you to provide a basic knowledge of why you want to use this app, what background of qualification you belong to and which subjects you are pursuing to read papers on this app.



Fig. 2 Homepage of R discovery after logging in

3.2. Step-by-Step Usage Guide

- Set your interests -Choose broad areas like 'Education,' then add keywords such as 'online learning,' 'blended learning,' or 'student engagement.' The app will start building a personalized reading feed based on these choices.
- Browse your feed- On the home screen, scroll through recommended articles. When you see a useful title, tap it to read the abstract or full text if available.
- Run a focused search -Use the search bar and type 'online learning student engagement higher education.'
- Apply filters (for example, last 5 years, open access) to narrow the list. Use 'Ask R Discovery' for a quick overview.
- Open Ask R Discovery and type: 'What do recent studies say about how online learning affects student engagement in higher education?'
- Read the short AI answer and then tap the cited papers you find most trustworthy. Save and organize.
- Add important papers to a reading list called 'Thesis – Engagement' and mark those you have already read.
- You can listen to abstracts while commuting or translate them if they are not in your first language.



Fig. 3 Example of searching papers according to interest of Core subjects

3.3. Tips and Best Practices

1. Be specific with interests and keywords so the recommendation feed becomes smarter over time.
2. Use Ask R Discovery only as a starting point; always open and read the original papers before citing them in assignments or theses.
3. Take advantage of audio and translation when you are tired of screen reading or working with papers outside your native language.

4. Educational Implications and Applications.

4.1. Pedagogical Rationale.

R Discovery supports inquiry-based learning by giving students fast access to current, peer-reviewed studies instead of random web pages. It encourages evidence-informed thinking because every AI explanation links back to real research articles that learners can read and critique. It is useful for subjects with modules of research. It is helpful for various subject purposes.

4.2. Impact on Teaching and Learning

Students can build reading lists for assignments or theses in minutes, which lowers the barrier to doing proper literature reviews. Teachers can use it to quickly find up-to-date examples, case studies, and empirical findings to enrich lectures and classroom discussions.

4.3. Specific Classroom Applications

In research-methods courses, students can use R Discovery to search a topic, shortlist 5–10 papers, and present how different studies answer the same question. In seminar classes, the instructor can share a curated reading list from their R Discovery library so everyone starts from the same core articles.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

AI recommendations can miss important but low-visibility papers, so manual searching in other databases is still necessary for systematic reviews.

Access to full text may depend on open-access status or institutional subscriptions, which can limit what some users can read.

5.2. Ethical and Equity Considerations

Heavy reliance on AI summaries may tempt some students to cite papers they have not actually read; teachers need to stress critical reading and proper citation, content is drawn mostly from indexed journals, research from under-represented regions or languages may receive less visibility.

6. Supplementary Information and References

6.1. Tool Access Details - Official URL: <https://www.rdiscovery.com>

R Discovery can be accessed via the web and as Android/iOS apps; users create a free account and optionally upgrade to a paid 'Prime' plan for higher limits and extra AI features. For an individual it is Rs. 417 Monthly for Prime features and Rs 583 monthly for Bundle prime features .

6.2. Further Reading and Documentation

R Discovery AI FAQ, user guides, and training webinars are available on the official website as well as on youtube for easy guidance.

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Research Pilot

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Research Pilot is an AI-powered research assistant designed to help students, teachers, investigators, and academic writers conduct deep, structured research efficiently. It collects information from credible online sources, generates structured research summaries, creates timelines, performs comparative analysis, extracts key findings, and organizes complex information into academically usable formats. The tool provides specialized research workflows such as evidence review, stakeholder analysis, timeline investigation, media analysis, policy assessment, and fact verification. It helps reduce the researcher's workload by automating the time-consuming steps of source collection, scanning, filtering, and summarizing.

1.2. Brief History and Development

Research Pilot was created to solve the universal problem of scattered, time-consuming research. Students and researchers often waste hours navigating unreliable sources, outdated information, and overgeneralized search engine results. With the rise of misinformation online, it became essential to have a tool that not only finds sources but evaluates, organises, and presents them logically.

To address this need, Henk van Ess, a globally known investigative researcher, created Research Pilot under DigitalDigging.org. It was introduced as a specialised research assistant capable of performing 'AI-guided investigations' using professional investigative frameworks.

Its design reflects:

- The need for rapid evidence-based research.
- Academic-style synthesis.
- Authentic, link-verified investigation.
- Multi-angle research (policy, media, scientific, timeline, etc.)

The tool has since become popular among educators, B.Ed./M.Ed. students, journalists, and researchers.

1.3. Target Audience and Scope

Research Pilot serves:

- Students conducting projects, assignments, research papers, and literature reviews.
- Teachers preparing academic material, notes, and research support.
- Investigative journalists researching events, timelines, and evidence.
- Researchers who require structured source extraction and analysis.
- Policy analysts and educators studying themes, public opinion, or government reports.

Its scope includes academic research, journalistic investigation, media analysis, policy research, historical timelines, comparative analysis, and more.

2. Characteristics and Features

2.1. Core AI Capabilities

1. AI-assisted search with multiple research angles.
2. Automatic source collection, extraction, and summarisation.
3. Fact-verification workflows.
4. Timeline generation and event sequencing.
5. Stakeholder analysis.
6. Media coverage and narrative analysis.
7. Comparative and contrastive studies.
8. Policy and legal framework extraction.

2.2. Key Features and User Interface

- Simple, web-based interface that requires no software installation.
- Dashboard with project folders for organising research.
- Input field for detailed prompts and queries.
- Options to select research angle and filtering tools.
- Output panels that show summaries, citations, timelines, and source links.
- Export options (PDF, DOCX, text) depending on availability.

2.3. Differentiating Characteristics

- Provides structured analysis rather than random web results.
- Offers specialised research lenses like:
 - Scientific Evidence Review
 - Policy Impact Assessment
 - Timeline Investigation
 - Media Coverage Analysis
 - Stakeholder Mapping
- Combines both qualitative and quantitative insights.

- Saves hours of manual searching and filtering.
- Provides academic-style summaries and citations.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Device Requirement:** Laptop, desktop, or phone with internet.
- **Browser Requirement:** Updated Chrome, Firefox, Safari, or Edge.
- **Website Access:** <https://digitaldigging.org/research/>
- **Account Creation:** Simple sign-up using email.
- **No Installation Needed:** Completely web-based.
- **Research Preparation:** Clear topic, keywords, timeframe, and research goal.
- **Ethical Awareness:** Verify accuracy and cite sources properly.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Step 1: Open the Tool. Visit: <https://digitaldigging.org/research/> and log in.

Step 2: Create a New Project

Enter project title and research description.

Step 3: Choose Research Angle

Select options like Scientific Evidence Review, Timeline Investigation, or Media Analysis.

Step 4: Enter Main Query

Type a clear prompt describing the topic, source types, and timeframe.

Step 5: Apply Filters

Set year range, preferred sources, keywords, and exclusions.

Step 6: Run the Research

Click "Generate" to allow AI to collect sources and analyze the topic.

Step 7: View Results

The tool displays summaries, links, extracted



Fig.1 Steps to follow

findings, timelines, or stakeholder lists.

Step 8: Validate Sources

Open links, review original papers/articles, and confirm credibility.

Step 9: Export Findings

Export in available formats such as text, copy-ready notes, or citations.

Step 10: Refine Search

Re-run the tool with improved prompts, narrower angles, or modified filters.

Step 11: Collaborate or Share

Share findings with team members if needed.

Step 12: Document Methodology

Record your steps for academic transparency and referencing.

3.3. Tips and Best Practices

- Use precise keywords and instructions for better results.
- Combine multiple research angles for deeper insight.
- Cross-check summaries with original sources.
- Narrow timeframes to reduce irrelevant data.
- Avoid relying on only one workflow.
- Save your iterations for future use.
- Always cite original sources in academic writing.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Research Pilot aligns with modern pedagogy by strengthening inquiry-based learning, fostering evidence-based thinking, and supporting Bloom's higher-order abilities such as analysis, evaluation, and synthesis. It encourages students to become independent investigators rather than passive consumers of information.

4.2. Impact on Teaching and Learning

1. Improves digital literacy.
2. It enhances research quality.
3. Also reduces time spent searching online.
4. Supports teachers in preparing data-supported lessons.
5. Helps students build credible assignments.
6. It promotes fact-checking and critical reasoning.

4.3. Specific Classroom Applications

It is used for:

- Literature reviews.
- Research projects.
- Educational case studies.

- Seminar preparation.
- Historical/policy timelines.
- Analytical assignments in B Ed/MEd programmes.
- Action research support.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

1. Strong internet requirement.
2. Some advanced features may require paid subscription.
3. AI may sometimes misinterpret vague prompts.
4. Results need human verification.
5. Not suitable for confidential data.

5.2. Ethical and Equity Considerations

1. Must verify all sources.
2. Users must avoid copy-paste misuse.
3. Provide citations ethically.
4. Equal digital access may not be available to all students.

5.3. Future Outlook and Roadmap

Future versions may include:

1. Expanded academic databases.
2. Improved citation automation.
3. Better visualisation (graphs, evidence maps).
4. LMS integration (Google Classroom, Moodle).
5. Multilingual support.
6. Collaboration dashboard.
7. Mobile-friendly research assistant.

6. Supplementary Information and References

6.1. Tool Access Details

- Official Website:

<https://www.digitaldigging.org/research/>

- Product Launch Page:

<https://www.digitaldigging.org/p/introducing-ai-research-pilot>

- Developer:

Henk van Ess – investigative researcher, OSINT specialist.

- Pricing Model: Free limited access + paid tiers for heavy research workflows.

6.2. Further Reading and Documentation

- DigitalDigging Research Pilot Documentation.
- Articles on AI in investigative research.
- OSINT (Open-Source Intelligence) methodology guides.
- Academic writing and digital research resources.
- AI tools in education – EdTech Research Journals.

6.3. References

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Research Rabbit

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Tool Name: Research Rabbit

Research Rabbit makes academic research easier and more engaging by turning literature mapping into a visual experience. Instead of the normal time-consuming search process, it works like the



Figure:1. Logo of Research Rabbit

"Spotify for research," recommending papers based on your starting selections, called the seed papers. Its AI-driven system not only suggests relevant studies but also shows how papers, authors and citations are linked, helping you dive deeper into related work without feeling pressured.

1.2. Brief History and Development

The idea for Research Rabbit emerged between 2019 and 2021, led by Axton Pitt and others who wanted to simplify the demanding process of literature reviews. Existing tools like Scopus and Google Scholar were great for finding papers but they lacked the ability to make discovery easy and engaging. Research Rabbit was built to change that, offering a smooth and interactive way to follow citation trails in both directions (before and after). Its attractive interface and free access to core features quickly made it popular. In May 2025, Litmaps acquired the platform, but Research Rabbit continues to maintain its unique style and "forever free" offerings in limited forms.

1.3. Target Audience and Scope

Research Rabbit is tailored for several key user groups:

- Graduate and doctoral students aiming to cover essential studies in their literature reviews.
- Faculty members are looking for fresh research ideas to strengthen grant applications.

- Researchers in science and medicine who track citations and evolving methodologies.
While useful across fields, it is most deeply connected to science, social science and medical research through resources like Semantic Scholar and PubMed.

2. Characteristics and Features

2.1. Core AI Capabilities

Unlike generative AI tools, Research Rabbit doesn't produce text. Its strength lies in mapping relationships and making recommendations based on user-selected collections.

- Predictive Suggestions: It reviews data like citation history, author names and keywords to suggest studies that match your research interests.
- Adaptive Recommendations: As you refine your collections by adding or removing papers, the AI instantly adjusts its recommendations to stay relevant.

2.2. Key Features and User Interface (UI)

The interface stands out with its horizontally scrolling layout and easy navigation.

- Project Collections: Papers can be organized into thematic folders, which are labelled as Collections.
- Network Visualization: The platform's signature view illustrates the web of papers and connections in an interactive graph—sampling for papers you have chosen and an arrow for the reference papers of the sampling.
- Discovery Tools: Features like "Similar Work," "Earlier Work," and "Later Work" let users trace intellectual lineages and uncover new, contextually relevant literature.
- Zotero Sync: It quickly imports and exports references with Zotero for smooth citation handling.

2.3. Differentiating Characteristics

Rather than showing a never-ending list of search results, Research Rabbit invites users to interact visually with research networks.

- Deep Citation Chains: Clicking into linked papers in a graph leads the researchers down a continuous path of discovery, without tab overload.
- Weekly Paper Digests: Custom email updates ensure the users receive the latest research tailored to their current projects.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- Modern web browser (desktop recommended for best graphics).
- Research Rabbit account (any email accepted; institutional emails common).
- Optional: Zotero for managing references.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario: Master's Thesis—
'AI in Education'

1. **Log in and create a project:** After logging into Research Rabbit, you'll see a page for "Project Name." Give your collection a meaningful name, such as your thesis topic ("AI in Education").

2. **Add Seed Papers:** Use the search bar to enter a paper's title, DOI, or URL. Select papers and add them into your new collection. Start with 2–3 key papers to improve the relevance of later suggestions.

3. Explore the Citation

Map: Click your collection's name in the sidebar; the main view now reveals a network map (interactive visualization). Hover over nodes for paper details, zoom in/out and drag nodes to reorganize.



Figure: 2. Main Page



Figure:3. Log In Page



Figure:4 Adding Seed Papers



Figure: 5. Exploring the network

4. Refine Your Collection with Recommendation: Try tools like “Similar Work,” “Earlier Work,” or “Later Work” to discover more related articles. “Similar Work” tab with the expanded map showing newly recommended papers and highlights of the central node.

5. Track Authors and Collaboration: Click on an author’s name in paper details to visualize their full research network or collaborations.

6. Export Collection to Zotero: In Collection settings, link your Zotero account and click “Sync to Zotero” to export all bibliographic data.



Figure: 6. Similar work papers

3.3. Tips and Best Practices

- **Curate, Don't Hoard:** Keep collections specific. If a project splits into two distinct directions, create two separate collections to keep the AI recommendations focused and precise.
- **Use the Timeline:** In the graph view, use the timeline feature to see how a research topic has evolved over time. This is excellent for writing the “History” section of a literature review.
- **Check Author Networks:** Click on an author’s name to view their collaboration network. This insight can help you spot leading research groups and influential scholars in your specific field.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

- **Connectivism:** Research Rabbit supports connectivist learning that is to see research as a living conversation among scholars by mapping connections between papers. This visualization teaches students that research is an active, evolving ideas among scholars, rather than just a static pile of independent documents.
- **Accessibility:** For beginners, the sheer volume of academic literature can feel intimidating. Research Rabbit acts as a guide, turning complex reviews into a clear, visual process that reduces stress and builds confidence.

4.2. Impact on Teaching and Learning

- **Visual tools help students spot gaps in research, developing ideas for original contributions.**

- The playful interface reduces research anxiety that comes with literature reviews.
- Citation networks regularly bridge disciplines, promoting interdisciplinary learning by making the students exposed to relevant work in fields they might not have thought to search (e.g., a psychology student finding relevant neuroscience papers)

4.3. Specific Classroom Applications

- **Annotated Bibliography:** Students can create and share collections, for deeper engagement with a subject and not just for surface-level searching.
- **Tracing Citation Genealogy:** Can assign classic papers and have the students use “Later Work” to follow how those ideas evolved or were challenged in recent research.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Relies on third-party databases; it may miss very recent, non-English, or non-indexed works.
- Customized recommendations can form intellectual “echo chambers” if not actively diversified.
- The visual-first approach might cause users to prioritize visually “central” works, skipping thorough content review.

5.2. Ethical and Equity Considerations

- Research Rabbit collects user data but generally prioritizes privacy and ethical use.
- Major citation databases may favour western and English-language publications, indirectly limiting diversity in recommendations.
- The visual-heavy interface can be challenging for visually impaired researchers.

5.3. Future Outlook and Roadmap

Post-acquisition, expect greater collaboration with other workflow tools. With the introduction of RR+ and parity pricing, Research Rabbit demonstrates an ongoing push for global accessibility, and upcoming releases may add “semantic” links showing how and why papers cite each other.

6. Supplementary Information and References

6.1. Tool Access Detail

- Official website: <https://www.ResearchRabbit.ai>

- Pricing/License:
 - Core discovery tools, collections, and Zotero sync remain free for all users.
 - RR+ premium tier adds advanced features, with pricing tied to global economic parity.

6.2. Further Reading and Documentation

- In-app help centres offer official guidance.
- Community tutorials (YouTube, academic blogs) provide practical demonstrations and tips.

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SciSpace

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1. Introduction and Tool Overview:

1.1 Tool Name and Core Functionality

SciSpace (Explain Paper) is an AI-powered research assistant that simplifies academic publications by giving simple, students-friendly explanations. It applies advanced natural language processing (NLP) to uploaded PDF research articles, converting complicated academic terms into intelligible summaries, definitions, important insights, and subsection-by-subsection explanations. Its objective is to assist learners, particularly those in teacher education, in decoding complex research material that might otherwise be difficult to understand.



Fig 1. Logo of Scispace

1.2 Brief History and Development

SciSpace, formerly known as Typeset, started as a formatting and academic writing tool.

Around 2022-23, in response to the global rise of artificial intelligence (AI) technologies for education and research, it matured into a full-blown AI-powered research assistant.

The challenges faced by students grasping intricate study structures, statistical models, calculations, and academic jargon led to the development of the 'Explain Paper' feature.

Today, SciSpace helps millions of students around the world better comprehend research techniques, prepare academic projects, and conduct literature reviews.

1.3 Target Audience and Scope

The main groups that SciSpace assists:

- Undergraduate and graduate students.
- Teacher educators.
- Early researchers and scholars.
- Non-native English speakers.

- Students getting ready for assignments or literature reviews.
It is adaptable for application in multidisciplinary academic settings because its reach encompasses education, psychology, engineering, social sciences, medical, and data science.

2. Characteristics and Features

2.1 Core AI Capabilities

SciSpace employs multimodal AI for the following tasks:

- Extracting and interpreting scholarly content from PDF research papers
- Simplifying explanations.
- Creating structured summaries.
- Decoding mathematical expressions.
- Extracting references and important terms.

These characteristics transform it from a summary tool into an interactive research assistant by enabling interactive queries pertaining to the information.

2.2 Key Features and User Interface (UI)

The interface is clean and student-friendly.

The key UI elements include:

- Upload Panel: for uploading PDF papers.
- Explain Dashboard: subsection-by-subsection break-up (Abstract, Methods, Results, Discussion).
- Ask AI Panel: users can type queries like 'Explain this paragraph.'
- Highlight & Explain: provides instant analysis of selected text.
- Reference Extraction: identifies cited studies.

2.3 Differentiating Characteristics

- SciSpace distinctive characteristics include:
- Context-aware explanations.
- Mathematical formula breakdown.
- Real-time questioning.
- Cross-disciplinary compatibility.
- Chrome extension support.
- High precision and academic consistency.

These characteristics establish SciSpace as an effective tool for education and research.

3. Practical Implementation and Usage:

3.1 Prerequisites and Setup.

To utilise SciSpace it requires:

- Decent internet connection.
- PDF study paper.
- Free or premium account.
- Basic knowledge of academic Structure.

Setup includes logging in, uploading the documents, and viewing explanations.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Student Understanding a Research Paper

Step 1: Upload PDF

Step 2: Overview Appears

Step 3: Section-wise explanation

Step 4: Ask a question such as "What does ANOVA mean?"



Fig 2. Steps of SciSpace

Scenario 2: Teacher Using SciSpace for Lesson Planning

Step 1: Upload research paper

Step 2: Identify key pedagogical points

Step 3: Use insights to design teaching notes

3.3 Tips and Best Practices

- Use clear, text-based PDFs.
- Highlight essential lines for better understanding.
- Check interpretations.
- Use of SciSpace as a support tool instead of a replacement.
- Save summaries for modifications.

4. Theoretical and Pedagogical Integration

4.1 Pedagogical Rationale

- SciSpace supports modern pedagogy by promoting

- Active learning
- Scaffolding for complex ideas

It enables students to bridge the gap between academic study and practical comprehension.

4.2 Impact on Teaching and Learning

For Students:

- Enhances comprehension
- Enhances academic vocabulary
- Supports assignments and reviews
- Assists non-native English speakers
- Boosts confidence

For Instructors:

- Enhances academic dialogue
- Supports classroom teaching
- Facilitates the rapid retrieval of important findings.
- Simplifies research-based lesson planning.

For Institutions:

- Facilitates blended learning
- Encourages a culture of inquiry.
- Supports digital literacy

4.3 Classroom Applications

Applications 1. Assignments Based on Research

Students use SciSpace to offer condensed summaries.

Application 2. Comprehending Research Techniques

SciSpace makes concepts like t-tests, regression, and ANOVA easier to understand.

Application 3. Practice of Literature Reviews

To find trends, students compare several summaries.

5. Challenges, Ethics, Future Directions

5.1 Limitations and Challenges

- Accuracy depends on PDF quality.
- AI cannot replace reading.
- Some sophisticated models could be difficult to simplify.
- It requires a reliable internet connection
- Potential over-reliance on users.

5.2 Ethical and Enquiry Considerations

- Students should not rely too much on.
- Academic citations must be made correctly.
- Not every student has access to premium resources.
- Institutions must promote responsible and balanced use.
- There is a risk of decreased capacity for independent research.

5.3 Future Outlook and Roadmap

Future enhancements could consist of:

- Tools for real-time collaboration.
- Connectivity to LMS systems AI- powered note-taking.
- Voice-based explanations.
- Support for regional languages.
- Automated identification of research gaps.

6. Supplementary Information and References:

6.1 Tool Access Details:

Official URL: Sci-Space AI Official: <https://scispace.com/>

Pricing/License Model:

- Limited daily queries and document previews are available for free.
- Advanced AI features (research assistant, PDF reading, literature mapping) are available through a premium membership model.
- Institutional rates for research labs, libraries and universities.

6.2 Further Reading and Documentation

- The official website offers feature documentation, product updates, and user manuals for SciSpace AI.
- Real-world applications in academic research, data analysis, and scientific writing are highlighted in blog entries and researcher testimonials.

6.3 References:

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All data comes from independent assessments, scholarly articles on AI research tools, and the official Sci-Space AI website.

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Semantic Scholar

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Semantic Scholar is an AI-powered academic search engine that helps users find high quality scientific material across multiple fields. It uses machine learning to sift through millions of scientific articles and identify the most relevant papers for each given topic. The program not only returns search results, but it also emphasises influential citations, generates AI powered article summaries and suggests research trends. Its primary aim is to let consumers quickly locate credible and impactful academic sources hence, saving time on research.



Fig. 1 Logo of Semantic Scholar

1.2 Brief History and Development

Semantic Scholar was developed in 2015 by the Allen institute for AI, a research organisation founded by Paul Allen. It was founded to help Computer science researchers, but it swiftly grew to encompass biomedical, social sciences, and transdisciplinary disciplines. Over time, the platform added more AI features like semantic search, topic clusters, author analytics and TL (Too Long), DR (Didn't read) short summaries. Its development is continuous, with regular upgrades aimed at boosting literature navigation and research discovery.

1.3 Target Audience and Scope

Semantic Scholar is intended for students, researchers, educators, scientists, and others who want accurate academic literature. The tool facilitates literature reviews, thesis preparation, assignment writing, experimental research, and interdisciplinary inquiry. Its vast reach makes it suitable for both beginning students looking for basic papers and senior researchers looking into specific academic discussions.

2. Characteristics and Features

2.1 Core AI Capabilities

The platform employs powerful natural language processing to comprehend the content, context, and structure of research publications. AI models provide powerful features such as TL, DR summaries, citation influence score, and article relevance ranking based on semantic meaning rather than keyword matching. It also finds connections between authors, study topics, claims, and methodology, allowing users to detect patterns and interconnections in scientific literature.

2.2 Key Features and User Interface (UI)

Semantic scholars user interface is straight forward, clear and research oriented, allowing for easy searching and browsing. Advanced filters, highly cited articles, topic tags, author dashboards, PDF previews, and stored reading lists are among the most useful tools. The interface highlights key themes in papers, making it ideal for quick reading and effective literature mapping.

2.3 Differentiating Characteristics

Unlike traditional search engines such as Google Scholar, Semantic Scholar prioritises AI driven insights over raw search results. Its important citation mapping allows users to see which papers shaped a topic, making it easier to locate foundational work. Furthermore, the AI generated TL, DR summary feature is unique and incredibly handy for assimilating difficult academic text in seconds.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

The platform requires no installation and runs entirely online. Users can create a free account to save papers, set alerts, follow authors, and organise their research libraries. The tool requires a stable internet connection because it processes queries using cloud based AI algorithms.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Searching for Research Papers

A student enters keywords such as 'machine learning in education.'

Semantic Scholar returns relevant papers sorted by recency, citations, and semantic relevance, saving hours of manual searching.

AI-highlighted keywords on the left help the user refine the topic further.

Scenario 2: Using TL;DR AI Summaries

Clicking a paper reveals an AI-generated 1-3 sentence summary explaining the main contribution.

This helps students quickly decide whether the paper is worth reading.

It is especially beneficial when scanning multiple papers for literature review.

Scenario 3: Exploring Citation Networks

The platform shows influential citations, references, and follow-up papers, creating a clear picture of how the research evolved.

This allows users to trace the origins of an idea and identify key scholars in the field.

Researchers can also explore newer papers that extend the original study.

Scenario 4: Organising Research Libraries

Users can save important papers into structured folders based on topics or projects.

This feature is helpful during thesis writing, where literature needs to be sorted across chapters.

Personalised recommendations appear based on saved items.

3.3 Tips and Best Practices

To get the most relevant results, use filters like year, author, journal, or methodology. Always go beyond AI summaries to gain a thorough understanding of a studies findings and limitations. When conducting literature reviews, look along the citation chain to find important influences in the field.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Semantic Scholar promotes inquiry based and research-oriented learning by providing students with easy access to peer-reviewed materials. It promotes critical thinking and evidence-based learning by allowing users to examine academic literature rather than random Internet information. The tool encourages individual learning, allowing pupils to comfortably handle complex topics.

4.2 Impact on Teaching and Learning

Teachers can utilise Semantic Scholar to enhance lectures with current Journals and Case studies. AI summaries and tailored study suggestions help students better understand challenging academic subjects. The

platform improves research efficiency by minimising time spent seeking and boosting focus on analysis.

4.3 Specific Classroom Applications

Teachers can create reading lists, assignments, and research discussion sessions based on reputable literature from the platform. Students can utilise it for seminars, literature reviews, project reports, and academic presentations. It is also beneficial for dedicating research gaps while developing dissertation ideas.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Not all articles have full-text PDFs, which may limit access to complete content. AI summaries may occasionally oversimplify or overlook important elements in difficult scientific arguments. Some fields have higher coverage than others, hence the availability of literature varies by discipline.

5.2 Ethical and Equity Considerations

- Students should not rely just on summaries, thorough reading is required to maintain academic integrity.
- All sources must be properly cited to avoid plagiarism and maintain ethical research standards.
- Access to the tools required computer skills and a stable Internet connection, which some students may lack.

5.3 Future Outlook and Roadmap

Semantic scholar intends to improve PDF parsing accuracy, dataset extraction, and method identification to gain deeper study insights. Future improvements may include improved author collaboration options as well as subject mapping tools. AI drive in personalised research recommendations are anticipated to become more powerful and precise.

6. Supplementary Information and References

6.1 Tool Access Details

Semantic Scholar can be accessed through its official website and used on any modern browser.

Users may create an account to save papers, receive recommendations, and follow authors for updates.

The platform is optimised for both desktop and mobile use for convenient research access.

Website: <https://www.semanticscholar.org>



Fig. 2 Home Page

Pricing / Licensing Model

The tool is completely free for individual users.

It operates on a non-profit model supported by the Allen Institute for AI.

There are no premium tiers, ensuring universal accessibility.

6.2 Further Reading and Documentation

- Semantic Scholar offers documentation on how to use search features, filters, citation tools, and author profiles.
- The blog section provides insights into AI technologies, academic writing tips, and new research tools.
- Technical users can explore AI2's research articles to understand the algorithms behind the platform.

6.3 References:

Semantic Scholar – Official Website

<https://www.semanticscholar.org>

About Semantic Scholar

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Slidesgo

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

This is a modern AI tool that helps users create presentations quickly and efficiently as the tag line says 'A Smarter Way to Create Presentations' and that is exactly what it does. Users just need to type their topic in the prompt, choose the tone, style, number of slides, and the AI automatically creates a neat presentation with ready-made text and design. It uses AI to generate professional looking slides in just a few minutes.



Fig 1 . Logo of SlidesGo

The tool is web based and does not require installations, and integrates with Freepik and Flaticon for visuals. Its main function is to generate presentations from texts typed in the prompt, and users can edit layouts, colours, fonts, images and icons in the preview as well.

Slidesgo AI is useful for students, teachers, professionals who need visually appealing presentations without investing much time. It includes other AI features like AI writer, AI Translator, Lesson Plan Generator, Quiz Maker, Icebreaker Generator and Exit Ticket Generator.

1.2. Brief History and Development

Slidesgo was launched in 2019 by Freepik Company with the motive of offering free, excellent and eye-catching Google Slides and Powerpoint Presentations. In the beginning its goal was to provide teachers, students and professionals in a variety of businesses, education and marketing with customisable templates. Slidesgo expanded its services by launching the Slidesgo AI Presentation Maker as AI based content creation tools gained popularity across the world.

1.3. Target Audience and Scope

Slidesgo AI is made for a wide range of users who require quick, efficient, professional looking presentations including educators, students and business professionals. Slidesgo AI's features include translation and multi-lingual content creation, access to top notch templates, education specific AI tools and easy browser based access that doesn't require installation.

2. Characteristics and Features

2.1. Core AI Capabilities

Strong content generation models that automate the writing and design processes are the foundation of Slidesgo AI. Its core AI capabilities include:

- Text-to-Presentation Generator.
- Structuring and Writing Content
- AI Translation
- PDF to PPT Generator
- AI Image Generation
- Specialised AI Tools for Education
 - AI Lesson Plan Generator
 - AI Quiz Maker
 - AI Icebreaker Generator
 - AI Exit Ticket Generator

2.2. Key Features and User Interface (UI)

Slidesgo AI has an easy, simple, user friendly User Interface that is similar to Canva. The User Interface supports for:

Easy to use Online Editor

- Drag-and-drop functionality
- Preview (editing options available)
- Simple text editing
- Layouts customisation

Personalisation choices

Every element/component is customisable by users, including:

- Fonts
- Colours
- Layout
- Spacing
- Background pictures
- Icons
- Illustrations

Vast Template Library

The foundation of Slidesgo is its vast template collection, which includes themes like:

- Minimalist
- Corporate (business and marketing templates)
- Creative
- Artistic
- Abstract
- Geometric
- Pastel
- Academic

Options for Export and Download

Users can export their presentations in the following formats:

- PDF, PPTX (PowerPoint compatible)
- Shareable link

No Installation of Software

Since it is browser based, it is compatible with the following:

- Laptops
- Tablets
- Smartphones

It is perfect for both educators and teachers, due to its global accessibility.

2.3. Differentiating Characteristics

Slidesgo AI is unique due to its certain features:

Template-First Approach: Slidesgo offers its ready-to-use, high-end templates to deliver visually appealing designs. Unlike many presentation tools that only generate plain slides and limited templates.

Strong Educational Focus: Slidesgo offers free, ready to use educational templates which are created in collaboration with experienced teachers. Features like these make it a student and educator's favourite.

Freemium Model: The free version offers a limited monthly AI presentation whereas the Premium version offers unlimited access.

Integration with Freepik Ecosystem: Use of Freepik images and Flaticons icons make the presentation visually appealing.

Simplicity and Accessibility: Since Slidesgo AI is easy, simple and accessible even users with no design (technical) background can create visually appealing, professional looking slides in just a few minutes saving a lot of time.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Slidesgo being easy to use does not require any complex setup or technical prowess. With just a web enabled device and a basic sign-in users can begin using Slidesgo.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Step 1: Access the Tool

Visit the Slidesgo website and in to the AI Presentation Maker.



Fig 2 . Dashboard of Slidesgo

Step 2: Enter Topic

Type the theme for example: 'Childhood and growing up with sub-topics as growth and development and its difference, stages of growth, process of development.'



Fig 3 . Enter the topic

Step 3: Select Tone & Style

Choose:

- Tone: Formal/ Professional/Creative
- Slide Count (No. of slides for short presentations:7-14,longer presentation: 14-28)



Fig 4 . Option of Image style

- Image Style (Photography, Illustration, 3D)
- Template

Step 4: Generate Draft Presentation



Fig 5 . Generated Image

Step 5: Customise Slides

The entire presentation is visible in preview mode; it offers editing options like replace visuals, add icons, and AI content generation.



Fig 7 . Presentation Generator

Step 6: Download or Share

Export in PPTX or PDF or share via a link.



Fig 8 . Presentation Download

3.3. Tips and Best Practices

- Write prompts clearly with topic, short content, select number of slides as required, select language, image styles for eye catching slides.
- Cross check AI-generated text for accuracy.
- Replace repeated AI text with personalised insights.
- Insert diagrams or graphs to enhance clarity.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

● Slidesgo and other AI tools help contemporary teaching methods like:

- Increasing teacher productivity
- Facilitating faster material creation
- Supporting differentiated instruction
- Facilitating multimedia learning
- Reduce workload and burnout.

It aligns with **TPACK**, **SAMR**, and **21st-century skills frameworks**.

4.2. Effects on Teaching and Learning

For Teachers:

Reduces the amount of time needed in making lesson plans.

Facilitates interactive teaching

Eases the process of assessment creation.

Helps educators with lack of technical skills to create visually striking presentations.

For Students:

- Promotes digital literacy
- Increases understanding through visuals
- Facilitates project work
- Supports multi-language learning through translation

4.3. Classroom Applications

Teachers can use Slidesgo AI to create:

- Lesson plans



Fig 9 - Lesson Plan Generator

AI Ice breaking activities



Fig 10 . Icebreaker Generator

- AI Exit Ticket Generators



Fig 11 . Ticket Generator

- Quizzes



Fig 12 . Quiz Maker

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Limited free AI usage each month.
- Over reliance on AI can decrease creativity.
- Generic and repeated content may lack subject depth.
- Stable internet connection is necessary.
- Some templates are only accessible after premium subscription.

5.2. Ethical and Equity Considerations

- AI must be used responsibly and blindly copying should be refrained.
- Subscription models lead to unequal access.
- Biases in AI must be identified and rectified.

5.3. Future Outlook and Roadmap

Slidesgo's future improvements may include:

- More dynamic, animated AI templates
- Connectivity with platforms for real time collaboration
- Improved custom image generation

- Fully voice controlled AI slide creation
 - Customisable teacher dashboards
- The tool is expected to have a big impact on the advancement of EdTech.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://slidesgo.com/ai/presentation-maker>

Pricing / License Model:

Premium: Slidesgo Premium is typically offered in two options:

- Monthly Plan – around €9.99/month
- Annual Plan – around €4.99/month (billed annually, much cheaper than monthly)

6.2. Further Reading and Documentation

- Freepik Company AI Resources
- Slidesgo Blogs and Tutorials
- EdTech Integration Research Articles

6.3. References

Slidesgo – About Us (Freepik Company)

<https://slidesgo.com/about-us>

Slidesgo AI Presentation Maker – Official Page

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SmartEducator

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1. Introduction and tool overview

1.1. Tool name and core functionality:

The Sendient-powered AI tool is called 'SmartEducator.' Rowland Johnson is the CEO and founder of SmartEducator. 'www.smarteducator.ai' is the website. This software provides real-time tracking of students' performance in one location together with



Fig 1. Logo of SmartEducator

AI-driven marking and feedback. SmartEducator is designed for both in-person and online instruction and was developed by educators with support from AI specialists. With user-friendly features that are precisely calibrated, it streamlines the teaching and learning process, saving teachers time and boosting student engagement.

Three main domains can be used to group its essential functions:

- **Automated Marking:** Uses configurable marking systems to evaluate assignments, homework and past papers instantly.
- **Student Feedback:** After an assignment, students receive nearly immediate, useful feedback.
- **Progress tracking:** Uses visual dashboards and in-depth statistics to track student and class performance.

1.2. Brief history and development:

SmartEducator was designed to allow educators to overcome outdated processes, administrative work and paperwork. The AI Evaluation platform streamlines assessments and improves efficiency and is being adopted by more schools and universities, especially in the UK. Its evolution derives from PLATO in the 1960s, the first CAI intelligent tutoring systems in the 70s-80s and adaptive learner modelling and feedback. Digital Learning was stagnant while the internet grew in the 90s and 2000s. In the 2010s, prediction and machine learning allowed personalised learning paths. In 2020, the evolution of SmartEducator was driven by NLP and Generative AI producing the first real interactive, user-responsive and content-creating learning tool that

provides personalised instant feedback. In the end, SmartEducator AI is designed to advance educational quality, help teachers by decreasing their workload and assist the learning process to be more individualised.

1.3. Target audience and scope:

The intended users of SmartEducator include instructors who can automate assignment grading and monitor student progress, educational institutions that can automate grading processes and generate detailed reports, professors and tutors who wish to offer time-saving feedback and homeschooling parents who want to customise assessments and foster independence in learners. Teaching assistants also benefit from automated AI grading and feedback. As the SmartEducator staple digital education technology, this study analyses the primary functionalities, use cases and educational effects of SmartEducator with particular emphasis on the means by which this technology facilitates personalised education, improves quality and efficiency of teaching, streamlines assessment processes and equips learners' educators with actionable insights. It also examines students' possible advantages, including performance, accessibility and engagement enhancement. The study does not examine confidential algorithms, business plans or economic indicators; instead, it concentrates on the educational and teaching functionalities of SmartEducator AI within the in-person and remote learning ecosystems.

2. Characteristics and Features

2.1. Core AI capabilities:

The SmartEducator technology includes tailored automated AI marking. This technology increases accuracy with automated grading aligned to specific curriculums. This saves educators feedback time and increases grading efficiency. Smart recognition and differentiation is utilised through the Handwriting-To-Text feature. This is particularly useful for assessing student growth and inclusion as students can handwrite their responses and the system evaluates them. The system evaluates an entire class work submission in minutes, detecting keywords from the grading rubric and creating feedback summaries. The system also has student progress indicators and visual analytics dashboards to assist with monitoring and performance tracking. They also help to identify educational gaps and are useful for teachers to monitor students who are at educational risk.

2.2. Key features and User Interface(UI):

Advanced features of SmartEducator build upon the fundamental functionality offered by SmartEducator and enhance and protect academic integrity, improve efficiencies and cater to various teaching and workflow needs. Maintaining strong academic integrity and authenticity are achieved through the use of AI content and if applicable, plagiarism detection on content submissions via comparison (detector) against massive internal and external databases. SmartEducator provides fair and consistent (automatic) assessment of students by applying the same rule set across all work. SmartEducator offers seamless, robust and safe connectors to existing systems to ensure efficient operation of the institution through the integration of Google Classroom, Microsoft Teams, Moodle, Canvas, ClassLink, Clever, SIMS, Arbor and other MAPS and SSO. SmartEducator promotes a green environment by being fully digital and hence, environmentally sustainable marking and supports interdisciplinary teaching across science, math, geography, biology, art and history. SmartEducator offers strong, ethically aligned and responsible AI policies and provides flexible and affordable pricing, making SmartEducator adaptive and fully functional and a contemporary solution.

2.3. Differentiating characteristics:

The differentiating characteristics are as follows:-

- **Objective & Consistent Feedback:** Its grading system is intended to be impartial and consistent. AI reduces subjectivity by applying marking criteria consistently. This aids in standardising assessments for all pupils and classes.
- **Teacher-Centric:** The platform frees up instructors' time to concentrate more on instruction, mentoring and planning by automating monotonous chores like marking and feedback.
- **Academic Integrity:** In an era where AI tools are widely used, plagiarism and AI-generated content detection help maintain academic standards.
- **Data-Driven Decision Making:** Analytics assist teachers in identifying patterns, gaps and areas that require attention.

3. Practical Implementation and usage

3.1. Prerequisites and setup:

SmartEducator needs consistent, reliable broadband and facilitates navigation and the use of documents, PDFs, images, and handwritten scans across PCs, laptops, tablets and smartphones, and it is best accessed through Chrome, Edge or Safari. Depending on the

integrations, LMS may require administrator permission on Google Classroom, Microsoft Teams or Moodle. Teachers and system admins must create authenticated users on the system for purposes of grading and analytics, while students likely will need accounts to upload their assignments.

3.2. Step by step usage guide(based on scenario):

Scenario:- A teacher, Ms. Arora wants to grade a Class 8 Science assignment on 'Explain the process of photosynthesis.'

- Ms. Arora logs into SmartEducator AI.

- She assigns the assignment on 'Explain the process of photosynthesis in 80-100 words.'



Fig 2 . Assigning of assignment

- Add Rubric/Marking Scheme
She selects 'Add Rubric'
-Content Accuracy {5 marks}
-Scientific Terms Used {3 marks}
-Clarity & Structure {2 marks}
(She uploads a short model answer for better AI accuracy)



Fig 3 . Rubrics option

- Students Submit Work
Students upload:



- Typed answers as PDFs
- Some upload handwritten pages as images (SmartEducator AI auto-recognises handwriting)

- AI Grades Automatically

The SmartEducator AI:

- Reads every submission
- Scores each criterion
- Highlights correct points
- Flags missing scientific terms
- Suggests personalised feedback

Example feedback: *'Good explanation. Add*

'chlorophyll' and 'sunlight absorption' for full clarity.'



Fig 5 . AI Grader

- Teacher Quickly Reviews

Ms. Arora checks:

- Any answers with low confidence score
- Adjusts marks if needed
- Adds her own note to one student (Takes 5–10 minutes instead of 1 hour)



Fig 6 . Work review for teachers

- Release Results to Students

She clicks 'Publish Feedback' students receive:

- Marks
- Detailed comments
- Suggestions for improvement



Fig 7 . Feedback option

and

- **Check Analytics**

The dashboard shows:

- Class average: 7.8/10
 - 12 students missed keyword 'chlorophyll'
 - 4 students wrote incomplete steps
- (She decides to revise the topic next class)



Fig 8 . Analytics options

3.3. Tips and best practices:

In order for SmartEducator to grade properly, teachers ought to create detailed rubric outlines, mention simple guidelines, include example answers or provide other pivotal information for the AI to assess appropriately. Therefore, it's best to advise students to submit clear and appropriately illuminated images or PDFs of handwritten work. Teachers ought to comment on the drafts of AI adaptation before finalisation and they can utilise batch upload features to improve efficiency when they grade numerous assignments simultaneously. SmartEducator can be integrated with Google Classroom, Microsoft Teams or Moodle for an improved experience.

4. Educational Implications and applications

4.1. Pedagogical rationale:

SmartEducator lessens educator's burden by doing mundane grading, which makes room for teaching, student help and other more complex activities. It promotes equity in grading by applying the rubric consistently. Students are able to get feedback that is more immediate and formative and are able to get correct and continuous corrections of their work. It helps educators to see useful data and to understand the class patterns, widespread misconceptions and individual learning gaps. Most importantly, this allows the educators to move from grading to facilitating learning, thereby promoting personalised learning to the students.

4.2. Impact on teaching and learning:

Impact on Teaching:-

- Enhanced well-being and productivity of teachers. More time for individualised intervention and innovative teaching.
- Capacity to conduct low-stakes tests more frequently.
- Using in-depth analytics to make better teaching decisions.
- Increased uniformity throughout departments, classes and subjects

Impact on the Learning of Students:-

- Quick feedback and quicker progress.
- More individualised assistance based on data, increased motivation as a result of responding to tasks more quickly, more fair grading and more explicit expectations.

4.3. Specific Classroom applications:

- **Assignment Creation & Auto-Marking**

Teachers create assignments → students submit typed

or handwritten work → AI grades using a rubric and suggest feedback.



Fig 9 . Assignment Creation & Auto-Marking

- **Whole-Class Batch Marking**

Teachers upload all student submissions at once → AI marks the entire class consistently within minutes →

Teachers review and publish marks.



Fig 10 . Batch Marking

- **Academic Integrity Checking**



Fig 11 . Academic integrity checking

AI checks for plagiarism, AI-generated text, and unusual patterns → flags suspicious submissions for teacher review.

- **Student Progress Tracking**

Dashboards show class trends, common mistakes, and

individual student progress → teachers use it for targeted reteaching.



Fig 12. Student progress tracking

- **Fast Feedback Delivery**

AI provides detailed, criterion-based comments →

teachers edit/approve → students get instant, actionable feedback.



Fig 13. Fast feedback delivery

- **Handwriting Recognition & Inclusive Assessment**

Students can submit handwritten answers → AI

converts handwriting to text and marks it → helpful

for mixed-ability or SEN students.

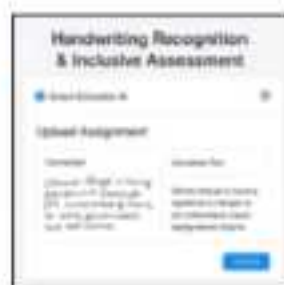


Fig 14. Handwriting Recognition & Inclusive Assessment

5. Challenges, ethics and future directions

5.1. Limitations and challenges:

Some limitations of SmartEducator include risks of inaccurate and/or generic feedback, when AI misunderstands more complex and/or creative student responses. Teacher overdependence is also a risk and may stifle one's professional judgement and creativity. AI-generated output raises concerns over students' works and even data privacy, consent and security. The absence of a human context also means that AI cannot fully comprehend motivational, emotional or situational aspects of the classroom. Moreover, subpar rubrics will produce subpar AI output, which may lead to poorly scaffolded AI-generated responses.

5.2. Ethical and equity considerations:

SmartEducator AI raises important ethical and equity concerns, including algorithmic bias and discrimination against already marginalised learners, further risks to data privacy and opacity in the provision of AI-generated feedback. Technology inequality may cause and exacerbate learning gaps. Academic integrity concerns and lessened teacher oversight require finely-calibrated control. All of these concerns suggest the need for distinct unencumbered and equitable inclusion of technology.

5.3. Future outlook and roadmap:

Smart Educator AI is expected to continue trading in closed equity for more transparent systems with less bias, more comprehensive data protection and stronger incorporation of popular administrative applications. The development plan includes more flexible and responsive systems to support diverse learners and more functional alignment to standard policy and curriculum prescriptions in combination with training and policy commitments to safe and equitable use.

6. Supplementary information and references

6.1. Tool access details:

- **Official url :** <https://www.smarteducator.ai>

- **Pricing/License Model:**

SmartEducator AI follows the subscription-based, tiered model of licensing. They offer four tiers: Free,

Lite, Pro and a 'Schools/Institution' plan.

–Free: £0/month (allows 3 assignments and 20 student submissions)

–Lite: £24.99/month (supports up to 8 assignments and 240 submissions)

–Pro: £39.99/month (up to 25 assignments and 700 submissions)

–School / Enterprise: Custom pricing (you need to contact them for a quote based on your institution's scale)

6.2. Further readings and documentation:

The SmartEducator AI documentation discusses features, use by educational institutions and privacy/security policies and is available to read. It includes research on educational assessments using AI and studies on bias, fairness and learning analytics. It's also literature on AI in smart classrooms and AI-assisted teaching.

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Soundraw AI

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1. Introduction and Tool Overview

1.1 Tool name and core functionality

Soundraw AI (SOUNDRAW) is an AI-powered music generator that creates original, royalty-free instrumentals and background music tailored to a user's chosen genre, mood, length and structure. It enables creators to generate and customise studio-ready tracks in seconds, with options to edit bars, instrument intensity, and download stems for further production.



Fig. 1 Logo of Soundraw

1.2 Brief history and development

Soundraw emerged as part of the wave of AI music tools that combine generative models with human-produced sample libraries. Unlike models trained on scraped public music, Soundraw states its system is trained on in-house produced music samples, which supports a royalty-free licensing promise for generated tracks. The product has been actively developed with blog posts, integrations (e.g., Canva), and feature expansions since its launch.

1.3 Target audience and scope

Soundraw is aimed at:

- Content creators (YouTube, podcasts, short videos) who need quick, licence-safe music.
- Musicians and producers seeking inspiration or backing tracks.
- Game and app developers needing adaptive BGM.
- Educators and media teams needing background scores for lessons, presentations, or school productions.
- Small businesses (stores, cafes) that want ambient tracks matched to atmosphere.

2. Characteristics and Features



Fig. 2 Landing Page

2.1 Core AI capabilities

- **Generative music engine:** Produces unique instrumentals on demand based on parameters (genre, mood, tempo, length).
- **Customisable structure:** Fine-tune bars, change energy/intensity, and adjust song length without needing a DAW.
- **Stem export & mixer:** Download separate stems (drums, bass, synths) for remixing (available on certain plans).



Fig. 3 Editing page

2.2 Key features and user interface (UI)

- Generate → Edit → Export workflow: Select genre/mood → generate many options → use the editor/mixer to personalise → download WAV or stems.
- Genre blending: Combine genres (e.g., Hip-Hop + Orchestra) for hybrid tracks.
- Royalty-free claims and licensing UI: Clear license pages explain commercial use, with artist plans having specific distribution rules (e.g., requirement to modify tracks for certain DSP distribution).

2.3 Differentiating characteristics

- Royalty clarity: Soundraw emphasises in-house training data and a licence that aims to avoid copyright ambiguity for creators.
- No DAW required: Rapid iteration and instant rebuilding of tracks when parameters change designed for non-producers.

3. Practical Implementation and Usage

3.1 Prerequisites and setup

- Device with internet access and a modern browser (Chrome/Firefox/Safari).
- A Soundraw account (free trial/freemium or paid tiers available).

3.2 Step-by-step usage guide (scenario-based)

Scenario A - Create background music for a classroom video

1. Open Soundraw and sign in.



Fig. 4 Sign In Page

2. Choose project type: select genre (e.g., Ambient), mood (calm, focused), and length.



Fig. 5 Genre Options

3. Generate multiple tracks and previews.



Fig. 6
Preview



Fig. 7 Adjust Section

4. Use the timeline/mixer to adjust sections (verse/chorus length) and instrument intensity.
5. Export as WAV (or stems if editing in a DAW) and add to the video timeline

Scenario B - Produce a podcast intro

1. Generate short (5-15s) energetic tracks.
2. Tweak the energy slider and shorten bars to match voiceover.
3. Download and loop as needed; confirm license for commercial use.

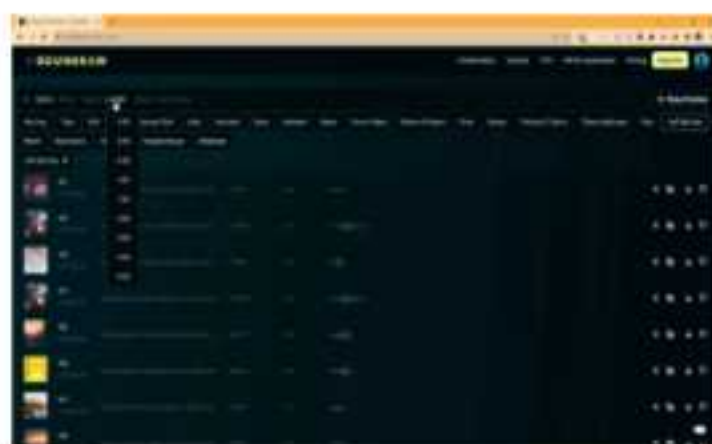


Fig. 9 Generate Short Track

3.3 Tips & best practices

- Use stems – a DAW when you want to add live instruments or vocals for distribution on DSPs (Soundraw’s license sometimes requires modification for platforms).
- Try multiple genre blends and energy settings to find a unique backing track.
- Verify current pricing and plan limits (downloads, stems, commercial usage) before heavy use. Pricing has varied across sources and plans.

4. Educational and Pedagogical Applications

4.1 Pedagogical rationale

Soundraw helps integrate multimedia into lessons by lowering the barrier to produce tailored audio promoting multi-sensory learning, engagement, and project-based activities (e.g., students create short films, podcasts, or game soundscapes).

4.2 Impact on teaching & learning

Soundraw has a significant impact on teaching and learning by enabling teachers to easily create customised background music, which greatly speeds up lesson production and enhances the quality of multimedia teaching materials. Instead of spending long hours searching for suitable audio, educators can instantly generate background scores that match the mood or theme of their lessons, making classroom presentations and videos more engaging. The tool also supports student creativity by allowing learners to produce their own music for stories, dramatisations,

or digital projects, helping them express emotions and narrative ideas through sound. Additionally, using Soundraw introduces students to basic digital audio literacy such as understanding musical structure, stems, and mixing, which equips them with foundational skills relevant to modern media and technology use.

4.3 Classroom activities

Classroom activities using Soundraw allow students to explore how music influences mood, storytelling, and creative expression. For example, students can generate mood-based music for a poem and explain how their choice of genre, tempo, and emotion supports the poem's theme. Group projects, such as composing a 60-second theme for a class video and adding narration, encourage collaboration, communication, and decision-making as learners work together to refine their audio creations. These activities also help students develop critical thinking as they compare AI-generated tracks with human-composed music, leading to meaningful discussions about creativity, originality, copyright, and ethics in the digital age. By engaging in such tasks, students gain hands-on experience with digital tools while enhancing both artistic and technological skills.

5. Challenges, Ethics, and Future Directions

5.1 Limitations & challenges

- **Creative limits:** AI patterns can be repetitive; fine editing is often needed for polished commercial releases.
- **Subscription/license constraints:** Some export/ distribution rights depend on the chosen plan; users must read the licence carefully.
- **User reports:** As with many online services, occasional negative billing/support experiences have been reported in reviews and also checks current user feedback and terms before subscribing.

5.2 Ethical & equity considerations

- **Attribution & transparency:** Be transparent when AI-generated music is used in student assessments or public works.
Access: Paid plans may limit equitable access for under-funded schools; consider institution licensing or free trial strategies.

5.3 Future outlook & roadmap (likely directions)

- Better DAW integrations, improved vocal/instrument AI, API access for game engines, and enhanced licensing options for educational & commercial distribution. Soundraw's public

roadmap and blog indicate ongoing feature development.

6. Supplementary Information and References

6.1 Tool access details (current as of lookup)

- Official URL: Soundraw - <https://soundraw.io>
- Account & trial: Free trial/freemium options and paid Creator/Artist plans (details vary over time). Confirm current pricing on the site.



Fig. 10 Subscription

6.2 Further reading and documentation

- Soundraw Blog - tutorials and use cases.
- Soundraw License page - commercial/distribution terms.

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STUDENT AI

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

The application is called Student AI. Student AI acts as an intelligent academic assistant, helping students learn effectively and studying more intelligently. It breaks down intricate subjects, produces concise notes, and delivers precise answers immediately. By offering tailored support and instantaneous help, it increases productivity and improves overall effectiveness in learning.



Fig 1 / Logo of Student AI

1.2. Brief History and Development.

Student ai was founded on 27 September 2023. Suraj Nalk is the founder of this app. The firm behind it is ELBO Pte Ltd, they have built a platform for Students, Graduates, and Teachers alike.

On 25th November, 2024 when the founder of Student AI joined NVIDIA Inception, a program for AI startups, which was powered by natural language processing combined with educational psychology. The goal was to create an AI resource that could help explain complex concepts, create study material, and even provide instant academic help. By 2025, Student AI had evolved into an integrated learning platform that provided services like instant doubt clarification, note creation, solving assignments, and personalized help. The idea behind the development of this AI tool is to assist students and educators in studying more efficiently by providing AI-powered resources in accomplishing their academic tasks.

1.3. Target audience and scope

The high school students are one of the largest groups of users for StudentAI. They mostly need assistance with everyday tasks and comprehension of difficult themes. Projects and activities involved graphs, files, and slideshows.

Undergraduate and postgraduate students from different disciplines, and from abroad as well. Students from the US, UK, Singapore, or UAE, also use StudentAI. They use StudentAI for the following reasons: Assistance in choosing research essay topics, summarises research articles, Scholarship writing involving case study, reports, case analysis, citations, and editing. It is also used for Competitive Exam Aspirants. This includes students preparing to take: Entrance exams (JEE), Government exams (UPSC), Aptitude-based tests (GMAT)

Educators & Tutors: Teachers, tutors, and education professionals use StudentAI to: Prepare lesson outlines, design worksheets, multiple-choice questions, and tasks. Streamline subjects for diverse-ability classrooms. Generate new strategies and activities for teaching. Also, generates animated images that are helpful for primary and secondary class students.

2. Characteristics and features

2.1. Core Ai capabilities

Student ai is built as an all in one academic and skill development platform. Core AI capabilities revolve around learning, writing, and research work. Support for career development also extends to educators and teachers. Some of the strong sets of AI capabilities of StudentAI include the following:

- **AI Content Creation:** Produces essays, articles, narratives, reports, research documents, and imaginative content.
- **AI Academic Instructor:** It helps clear the concepts pertaining to mathematics, science, arts, business, and languages. Seeks to answer questions presented in a step-by-step manner.
- **AI Research Assistant:** Generates research topics and abstracts, literature reviews, references.
- **AI Coding Assistant:** The role involves developing and debugging in multiple programming languages, including Python, Java, C++, and JavaScript.
- **AI Career Helper:** It generates resumes, cover letters, job postings and offers sample interview questions.
- **AI Efficiency Tools:** Summarisers, note-takers, organisers, and time-management apps.
- **Image to Text, Document Reading, and voice to text converter.** Also, Animated picture generator and AI video maker.

2.2 Key features and User Interface (UI)

StudentAI is designed on the core principles of easy accessibility, simplicity, and speed. Its features are structured in a way that even a

beginner, whether it be a student, instructor, or working professional, will find it easy to work with and successfully complete their tasks.

1. Assignment assistance for organising responses, references, and academic writing styles.
2. Study aids such as flashcards, explanations, steps for solving problems, and review materials.
3. Integrated plagiarism-resistant writing feature and grammar enhancement for polished, scholarly results.
4. The dashboard ensures that all essential functions are there, such as finding templates with ease and your credit points section.
5. StudentAI comes with a huge library of AI tools, categorised like Writing and Content, Academic and Education, Research Work, Career Tools, Creativity, Productivity, and Language Tools.

2.3 Differentiating Characteristics.

1. **Learner-Focused Academic Assistance:** In contrast to general AI tools, Student AI is tailored for students, emphasising tasks, clarifications, study help, and educational understanding.
2. **Curriculum-Responsive Output:** It produces material that conforms to typical academic formats found in schools and universities such as notes, summaries, essays, and organised responses ensuring relevance to conventional educational standards.
3. **Secure & Integrity-Oriented:** The platform offers plagiarism-free writing modes, citation tools, and structured explanations to promote ethical education instead of outputs based on shortcuts.
4. **Multi-Format Learning Output:** Student AI accommodates various academic formats, including flashcards, detailed answers, brief notes, research outlines, concept analysis, and revision guides in addition to basic text responses.
5. **Explanation Levels:** It can adjust the complexity of explanations according to the learner's age, skill level, or subject difficulty, providing tailored academic support unavailable in standard AI applications.

3. Practical Implementation and Usage

3.1 Prerequisites and setup

To use StudentAI an internet-connected device (laptop, table, or smartphone) For StudentAI to work, a registered account is required.



The platform is web-based and does not require local installation for daily usage.

Steps to setup:

1. Register or sign in on the StudentAI platform using a google account/Gmail verification.
2. Choose a subscription tier (monthly, yearly, pre paid, or free trial).
3. Access the main dashboard and begin generating teaching materials instantly.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario: Scenario 1 – Student Using StudentAI for Exam Preparation

2. A Class 11 student is struggling to understand ‘Elasticity of Demand’ for their economics test.

3. They go on StudentAI and type: ‘Explain Elasticity of Demand’ with an easy example and based upon his own learning style.

Student AI provides a simplified explanation with a real-life example.

2. Scenario 2 Student/Educators using StudentAI app to generate research proposals.

1. A college student or a PhD student working on their research proposal and using StudentAI to simplify their task.

2. Go to StudentAI and Research Proposal: Impact of Social Media on Academic Motivation Among College Students.



Fig 3 . How to use .

3.3 Tips and best practices

1. **Utilise Structured Prompts:** Precisely outline your subject, depth, and objective to enable Student AI to produce precise, academically relevant results.
2. **Validate and Improve Material:** Consistently examine the notes, proposals, or assignments created by AI to verify their precision, uniqueness, and alignment with your course content.
3. **Tailor for Learning Objectives:** Modify the tone, complexity, and format according to grade level or assessment requirements.
4. **Make Effective Use of Learning Tools:** Transform AI-generated material into flashcards, summaries, or quizzes to boost retention and encourage active learning for learners.
5. **Ensure Academic Honesty:** Promote ethical utilisation and employ Student AI as an aid, not as a substitute for comprehension.

4. Education Implications and application

4.1 Pedagogical and rational

StudentAI enhances education by allowing immediate clarification, personalised support, and structured explanations to meet the needs of all learners. It encourages independent learning, where students can explore topics at their own pace while retaining an understanding of the subject matter. It lessens the burden for lecturers through assisting with content creation and providing constant materials that are curriculum aligned.

4.2 Impact on teaching and learning

- StudentAI helps to improve learning outcomes by giving learners instant access to clear explanations, personalised support, and structured academic help.
- It helps learners feel more confident, reduces confusion, and supports deeper understanding through step-by-step explanations.
- It saves teachers' preparation time by helping them with lesson plans, worksheets, and easier teaching resources.
- It helps in providing tailored teaching with materials suited to different stages of learning.

4.3 Specific classroom application.

1. StudentAI is applicable in classrooms to create rapid summaries, visual clarifications, and easier notes for difficult chapters.
2. Teachers can develop worksheets and concept-check questions quickly to help with daily lessons. It helps in group projects by generating project ideas, outlines, and presentation drafts.
3. Teachers use this for different learning levels in the same classroom by creating materials of varying difficulty for students with different

abilities. During revision sessions, StudentAI can generate mind maps, flashcards, and summary notes.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

1. Sometimes, StudentAI produces wrong or too general academic information. So, information should be checked by both students and educators.
2. Too much reliance on AI may lower critical thinking and creativity in writing if not used wisely by students. The tool may struggle with very technical, specialised, or context-specific questions.
3. Poor connectivity affects access by learners from rural or under-resourced areas. Students may need to learn to formulate a good prompt to prevent poorly generated responses.
4. The app sometimes lacks real-time contextual awareness, thus relying on human judgment. It has 10,000 credits only per account. Once used up, it will be replaced after a week.

5.2 Ethical and Equity Considerations

1. Ethically, it falls upon StudentAI to ensure the security of users' information, chat records, and uploaded documents to maintain data privacy. Students may misuse the app by generating full assignments, which leads to serious concerns regarding plagiarism and academic integrity.
2. Equity issues arise for those students from poor backgrounds, who do not have access to smartphones or adequate internet, thus creating a digital divide. It is the educator's role to help students use AI responsibly to prevent academic cheating.
3. The application should be fair in avoiding biased material or unbalanced recommendations. Clarity over the information generated by AI is paramount for users to realise, when the content should be authenticated. Ensuring secure, unbiased, accessible use is a core ethical issue.

6. Supplementary Information and References

6.1. Tool Access Details

Official : <https://studentai.app/>

Pricing/License Model:

1. Free trial for new users based on regular credits (1000 free credit points, with 5 image generators available).

2. Individual subscriptions based on monthly (Scholar plan and Innovator plan) yearly plan (Innovator plan) and pre-paid (One time token pack) .
3. Pricing scales based on the number of users and feature needs, and different uses of templates .

6.2. Further Reading and Documentation.

1. Student AI Help Center & User Guides:
The official site offers FAQs, instructional tools, troubleshooting assistance, and guides tailored for students and educators.
2. Blog Posts & Community Narratives:
Student AI's blog and user community offer useful advice, study techniques, and actual instances of how students utilise the app for tasks, research, and exam readiness.
3. Instructional Videos & Demonstration Sessions:
Brief video guides and walkthrough assist users in grasping important features like research support, writing resources, and specialised subject assistance.
4. Policy and Safety Guidelines:
Student AI provides transparency reports, privacy details, and guidelines for academic integrity to encourage ethical and responsible usage.

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Sudowrite

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1. Introduction and Tool Overview:

1.1 . Tool Name and Core Functionality

Sudowrite is an AI powered tool designed for authors, students, teachers and content creators who want to support creative writing. It helps generate fresh ideas, continue scenes which are already started, and produce narrative-based texts such as stories and poetry. It helps the users to come up with ideas to continue what they have already started, suggest better vocabulary, or rewrite passages to make them more vivid, emotional, or descriptive. Instead of replacing the style of writing, Sudowrite aims to spark the imagination and it also makes the writing process smoother. It offers tools for developing characters, plot, brainstorming the twist and refining the overall tone and flow of your story. Its main goal is to support creative writing, particularly fictional storytelling by providing tools for characters, boost creativity, and help bring stories to life in an easier and more enjoyable manner.



Fig. 1 Logo of Sudowrite

1.2 Brief History and Development

Sudowrite was launched in around 2020 by writers Amit Gupta and James Yu as a response to the challenges faced by authors' experience writers' block. In the start it focused on generating story continuations based on the users writing samples. Gradually, artificial intelligence tools for writing and education started to gain popularity. Sudowrite evolved from a simple text generator into a complete writing ecosystem. It added features like Story Bible, Description Enhancer, and Rewrite Suggestions, which helped the writers to refine their thoughts and produce high quality of creative work. Today Sudowrite is widely used by student writers, professional authors, creative writers, content writers, hobbyists, working on poems, stories, and novels.

1.3 Target Audience and Scope

The groups that Sudowrite primarily serves include:

- Creative writing students
- English language and literature teachers
- Aspiring novelists and poets
- Scriptwriters and storytellers
- Non-native English learners working on creative writing
- Individuals experiencing writer's block

Since Sudowrite supports narrative structure, descriptive writing and vocabulary enhancement, it can be applied in school classrooms, colleges, writing workshops, and professional literature spaces.

2. Characteristics and Feature:

2.1 Core AI Capabilities

Sudowrite uses advanced natural language generation to:

- Generate story ideas and character descriptions
- Continue paragraphs based on user-provided text
- Transform basic writing into imaginative descriptions
- Rewrite sentences in different tones and styles
- Detect weak narrative flow and provide alternative suggestions

These capabilities elevate it from a basic generator to a co-creative tool, helping users refine both content and creativity.

2.2 Key Features and User Interface (UI)

The interface is simple, visually clean and student-friendly.

Its major panels include:

- Story Generator/Write Button: continues a scene or chapter
- Brainstorm Panel: suggests ideas for plot twists, characters, dialogue
- Describe Tool: enhances sensory details such as visual imagery, smell, emotions, and tone
- Rewrite Tool: rewrites text into multiple versions (simpler, more emotional, more dramatic, etc.)
- Story Bible: stores world-building ideas, character profiles, and plot settings
- Feedback and Editing Suggestions: provides clarity, flow, and grammar improvements

These features make Sudowrite a helpful partner for writing.

2.3 Differentiating Characteristics

Sudowrite stands out due to:

- Focus on creative and fictional writing
- Varied rewrite modes (dramatic, emotional, poetic, concise)
- Unique sensory 'Describe' tool for enhancing imagery
- Story Bible feature used for long-term projects like novels

- Suitable for students struggling with imagination or writing skills.
 - Helps overcome writer's block through continuous prompting.
- These characteristics make Sudowrite an effective assistant for building creativity, not just for correcting language.

3. Practical Implementation and Usage:

3.1 Prerequisites and Setup.

To use Sudowrite, students or teachers need:

- Stable internet connection
- Web browser on laptop or mobile
- Free trial account or subscription
- Basic knowledge of story elements (characters, setting, plot)

Setup involves logging into Sudowrite and creating a project or pasting existing writing for enhancement.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Student Writing a Short Story

Step 1: Create a new project or paste a draft

Step 2: Use Brainstorm to generate character or plot ideas

Step 3: Write a paragraph introduction

Step 4: Select Write to continue the scene

Step 5: Use Describe to enhance sensory detail

Step 6: Apply Rewrite for improvement



Fig. 2 Story Engine

Scenario 2: Teacher Using Sudowrite for Classroom Activity

Step 1: Provide students with a theme (e.g., Friendship, Adventure)

Step 2: Students brainstorm ideas using Sudowrite's suggestion tool

Step 3: Teacher demonstrates rewriting a sample paragraph

Step 4: Students compose their own story and then revise using Sudowrite

Step 5: Students present their versions and compare enhancements



Fig. 3 Story Input

3.3 Tips and Best Practices

- Use AI as a guide, not a replacement for original thinking
- Always personalise generated ideas before final submission
- Highlight weak areas before rewriting to improve learning
- Encourage creativity by modifying AI suggestions
- Save all drafts for reflection and improvement

4. Theoretical and Pedagogical Integration

4.1 Pedagogical Rationale

Sudowrite supports modern creative teaching practices by:

- Encouraging active imagination and originality.
- Providing scaffolding for students with weak vocabulary.
- Supporting learner autonomy in storytelling.
- Promoting reflective editing through multiple rewrite versions. It helps students move from idea generation to narrative expression.

4.2. Impact on Teaching and Learning

For Students

- Sudowrite helps students enhance imagination by giving new ideas and story directions.
- It improves their vocabulary by offering richer words and better expressions.
- The tool builds their confidence because it supports them when they get stuck and helps them continue writing.
- It also helps non-native English learners write more smoothly by giving clearer sentences and grammar support.

For Instructors

- Sudowrite supports teachers by giving ready story starters and plot ideas for lessons.
- It makes evaluating creative writing easier because students produce clearer and more organised drafts.
- The tool also offers multiple versions of a student's work, helping teachers compare progress and give better feedback.

For Institutions

- Sudowrite encourages creativity in schools by motivating students to explore new writing styles.
- It supports digital literacy as students learn to use AI responsibly.
- The tool also helps build blended learning environments by mixing traditional writing with modern AI tools.

4.3 Classroom Applications

- **Application 1: Creative Story Assignments**
Students create story scenes and improve them using Sudowrite's describe and rewrite tools. The tool helps them add detail, clarity, and emotion to their writing.
- **Application 2: Poetry Writing Practice**
Sudowrite supports poetry lessons by turning simple sentences into expressive and creative poetic lines. Students learn how to use imagery, rhythm, and stronger word choices.
- **Application 3: Character and Plot Workshops**
Students use the Brainstorm and Story Bible features to develop unique characters and build strong plots. These tools help them organise ideas and create more structured stories.

5. Challenges, Ethics, Future Directions

5.1 Limitations and Challenges

- Quality depends on user creativity and prompts.
- Cannot fully replace personal imagination.
- Possible over-use leads to overdependence.
- Requires internet connectivity.
- Limited free usage, premium plans needed for heavy use.

5.2 Ethical and Enquiry Considerations

- Students must avoid copying AI-generated work directly.
- Creative ownership must remain with the student.
- Teachers should encourage balanced use.
- Premium versions may cause inequity in access.

5.3 Future Outlook and Roadmap

Future improvements may include:

- Voice-to-story writing features.
- Educational subscription plans for schools.
- More regional language creative support.
- Real-time collaborative writing tools.
- AI feedback based on literary genre.

6. Supplementary Information and References:

6.1 Tool Access Details:

Official URL: <https://www.sudowrite.com/>

Pricing/License Model:

- Free trial with limited credits.
- Premium plans for extended writing and advanced features.
- Possible institutional discounts for education programs.

6.2 Further Reading and Documentation

- Sudowrite official tutorials and help guides.
- Writer blogs featuring success stories and examples.
- Articles discussing AI in creative writing classrooms.

6.3 References:

Sudowrite Official

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TALKPAL.AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality :

TalkPal AI is an innovative language-learning platform that uses the power of artificial intelligence to support learners in improving their speaking, listening, reading, and writing skills in a new language. Unlike traditional language-learning tools that rely mainly on memorisation and repeated drills, TalkPal AI focuses on creating natural, conversational



Fig 1 . Logo of Talkpal.ai

experiences. Its underlying

system uses natural language processing (NLP), large language models and automated analysis tools to simulate realistic interactions between the user and the AI tutor. Through contextual dialogues, the tool provides personalised feedback, helping users gradually build confidence and fluency.

1.2. Brief History and Development

The development of TalkPal AI reflects the rapid growth of AI-enabled educational technology. Initially, the project began as a simple chat-based tool designed to provide basic language practice. Over time, with the advancement of machine learning and voice recognition technologies, TalkPal AI expanded into a comprehensive learning environment. Developers integrated speech analysis, adaptive learning algorithms, and multilingual capabilities, transforming the platform into an effective companion for both novice and advanced learners. As generative AI models improved, TalkPal AI incorporated more humanlike conversational responses, making the learning experience more immersive and interactive.

1.3. Target Audience and Scope

TalkPal AI is designed for a wide variety of users. Students from primary school to university level can use it to strengthen their academic language skills. It is equally beneficial for working professionals, preparing for international communication, interviews, or workplace interactions. Travellers, language hobbyists, and individuals preparing for competitive exams-such as TOEFL, IELTS, or other proficiency tests-also find the tool helpful. The tool functions effectively in both structured classroom settings and flexible self-learning environments, making it widely applicable across learning contexts.

2. Characteristics and Features

2.1. Core AI Capabilities

TalkPal AI integrates several advanced AI functions-

Natural Language Understanding (NLU):

This feature enables the system to interpret user input with contextual accuracy. It recognizes user intent and responds meaningfully, similar to a real conversation partner.

Speech Recognition and Pronunciation Evaluation-The platform analyses the user's spoken responses, highlights pronunciation errors, and suggests corrections. This is especially beneficial for learners who do not have access to native speakers.

Adaptive Learning Mechanisms-The tool tracks learner performance and adjusts lessons accordingly. If a learner struggles with verb tenses, vocabulary, or particular sounds, TalkPal generates additional exercises for improvement.

Multi-lingual Support-The platform supports several global languages, making it accessible for learners from diverse backgrounds.

Example- A user attempting to learn English may incorrectly pronounce the word "comfortable." TalkPal AI identifies the mispronunciation, provides a phonetic breakdown, and offers practice sentences using the same word.

2.2. Key Features and User Interface(UI):

TalkPal AI offers an intuitive and user-friendly interface designed to support seamless learning. Major features include:

Interactive Chat Dialogues- Real-life scenarios such as ordering food, introducing oneself, booking tickets, or discussing hobbies.

Grammar Exercises- AI-generated questions that reinforce sentence structure and rule application.

Vocabulary Builders-The tool provides synonyms, usage examples, and small quizzes to strengthen word recall.

Voice Interaction Mode- Learners can switch to speaking mode to practice real-time communication.

Learning Dashboard- Displays analytics, progress percentages, accuracy levels, and areas requiring improvement.(ALL STEPS ARE EXPLAINED BELOW)

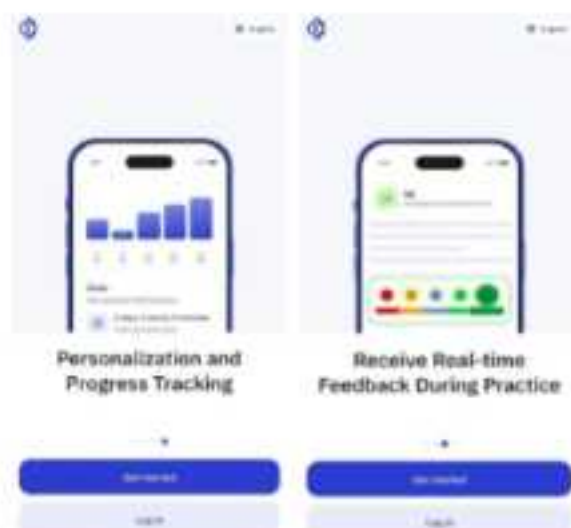


Fig 2 . Login page

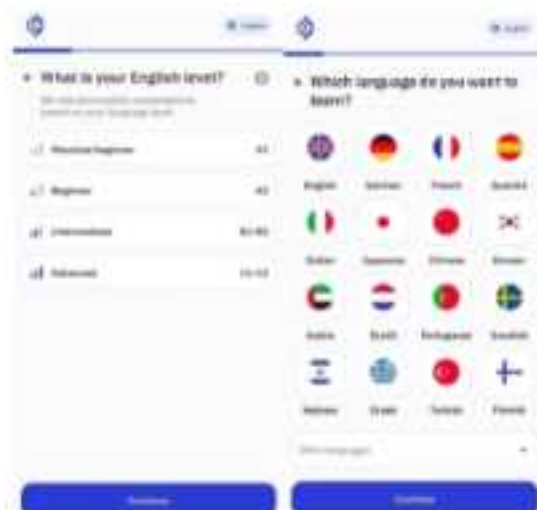


Fig 3 . Select language and level of english

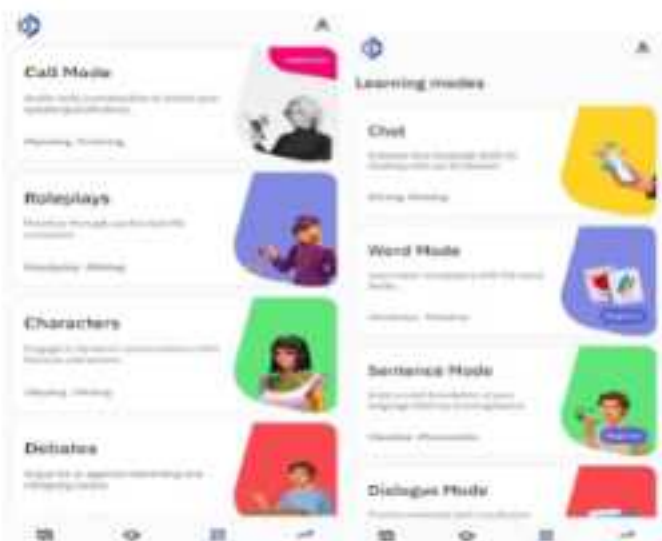


Fig 4 . Select mode

2.3. Differentiating Characteristics

TalkPal AI distinguishes itself from many other language-learning apps through several unique elements such as :

1. **Realistic Conversational Flow**- The responses generated by the AI resemble natural human conversation rather than pre-designed scripts.
2. **Context-Based Learning Approach**-Users learn vocabulary and grammar within meaningful situations instead of memorizing isolated words.
3. **Personalization**-The platform analyses performance patterns and customizes lesson difficulty,pacing, and feedback.
4. **Instant Feedback**-Grammar, pronunciation, and fluency are assessed immediately, allowing learners to correct errors as they progress.
Example- If AI asks, "What did you do over the weekend?" and the user responds with poor grammar, TalkPal AI immediately corrects the sentence and offers improved alternatives.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use TalkPal AI, learners need:

- A smartphone, tablet, or computer.
- Stable internet access
- A microphone for voice interactions.
- Basic competence with device navigation.
- No prior language knowledge is required because the tool provides beginner-friendly modules.

3.2. Step-by-Step Usage Guide

- **Create an Account** -Register using email, Google, or a mobile number.
- **Select Language and Learning Goals**- Choose the target language and set goals such as daily practice time, fluency level, and preferred learning style.
- **Initial Assessment**- The tool conducts a diagnostic assessment to determine the learner's current abilities.
- **Start Lessons**- Lessons include vocabulary, grammar, reading, and listening activities tailored to proficiency level. Enter AI Conversation Mode-Engage in back-and-forth dialogues with the AI, practicing real-life communication scenarios.
- **Receive Feedback**- The system highlights errors and provides immediate corrections.
- **Monitor Progress**- Weekly and monthly charts track improvement in fluency, pronunciation, and grammar accuracy.

3.3. Tips and Best Practices

1. Practice daily for shorter intervals rather than long sessions.
2. Use the voice mode regularly to build speaking confidence.
3. Repeat tasks flagged as "needs improvement" by the dashboard.
4. Combine TalkPal learning with movies, podcasts, and books in the target language.

Example Practice Plan:

Monday-Wednesday: Speaking and listening

Thursday-Friday: Grammar and vocabulary

Saturday - Sunday: Free conversation and revision

4. Educational Implications and Applications

4.1. Pedagogical Rationale

TalkPal AI aligns closely with several established learning theories:

Communicative Language Teaching (CLT)- Emphasises using language in real contexts, which TalkPal achieves through dialogue-based activities.

Constructivism-Learners build knowledge through interaction and experience, making AI conversations an ideal learning process.

Personalised Learning-The tool adapts content based on performance, enabling individualized instruction.

4.2. Impact on Teaching and Learning

The presence of AI-based tools like TalkPal significantly transforms the learning landscape:

Enhances Autonomy-Learners can practice anytime, without depending on a teacher or conversation partner.

Boosts Engagement-Conversational simulations are more interesting than traditional worksheets.

Supports Continuous Feedback-Real-time corrections help students avoid building incorrect habits.

Promotes Skill Integration-Reading, writing, speaking, and listening are developed simultaneously.

Example: A teacher may assign a TalkPal conversation on the topic of "shopping," and later discuss vocabulary and grammar in class based on student responses.

4.3. Specific Classroom Applications

- **Language Lab Sessions**-Students interact with the AI for pronunciation practice.
- **Flipped Classroom Model**-Students practice dialogues at home and discuss them in class.
- **Differentiated Instruction**-Advanced learners receive more complex tasks, while beginners receive foundational exercises.
- **Assessment Support**-Teachers can refer to progress data for evaluating student development.

Sample Classroom Table:

Student	AI Sessions	Accuracy	Score
Aisha	12	83%	B
Rahul	9	76%	C
Meera	15	92%	A

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Cultural Nuances**-AI may not always capture subtle cultural or emotional expressions.
- **Dependence on Internet**-Poor connectivity can interrupt learning.
- **Pronunciation Accuracy**-Speech recognition may occasionally misjudge accents or tones.
- **Lack of Human Emotion**-AI cannot fully replace authentic human conversation.

5.2. Ethical and Equity Considerations

Data Privacy-All voice and text inputs must be securely managed to protect user identity.

Digital Divide-Students without consistent access to devices or internet may be disadvantaged.

Bias Concerns-AI models require ongoing monitoring to prevent cultural or linguistic bias.

5.3. Future Outlook and Roadmap

- In future updates, TalkPal AI may integrate:
- More regional languages and accents
- Emotionally intelligent conversation features
- Offline learning modes
- Teacher dashboards with detailed analytics
- Video-based situational practice activities

6. Supplementary Information and References

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Taskade AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Taskade AI is an AI-powered productivity, planning, and collaboration platform designed to help users create structured workflows, project plans, study notes, mind-maps, and task lists. It combines AI-assisted writing, real-time collaboration, workflow automation, and multi-modal project views (mind-map, list, board, calendar, and more).



Fig 1 . Logo of Taskade

Unlike traditional AI writing tools that focus mainly on text generation, Taskade AI integrates AI directly into project management. It can:

- Generate task lists, SOPs, meeting notes, lesson plans
- Organize work into timelines, mind-maps, and boards
- Provide templates, summaries, and outlines
- Automate content creation using AI agents and workflows.

Its core purpose is to help users think, plan, and organize better using AI-driven structures.

1.2. Brief History and Development

Taskade was founded in 2017 by John Xie, Dionis Loire, and Frank Chen with the mission of simplifying productivity through a unified workspace. Initially a simple task list app, it evolved into a full collaborative workspace.

With the rise of generative AI, Taskade introduced:

- AI-powered workflows (2023)
- AI agents and automation (2024)

- Advanced multimodal generation including mind-maps, outlines, and flowcharts (2024–2025)

Taskade AI was developed to address the fragmentation problem—users needing multiple apps for planning, execution, note-taking, and brainstorming. The integrated AI system merges all these functions.

Today, Taskade AI is used globally by:

- Educators
- Students
- Researchers
- Startups and businesses
- Instructional designers
- Writers and creators

1.3. Target Audience and Scope

Taskade AI is useful for:

- **Students:** For study notes, project planning, summaries, assignment organization, and daily schedules.
- **Teachers/Educators:** For mind-maps, lesson plans, teaching notes, activity planning, workflows, and reflection journals.
- **Researchers:** For literature review structures, project outlines, and multi-view note organization.
- **Professionals:** For team planning, goal tracking, meeting notes, and automation.
- **Writers & Content Creators:** For outlining, brainstorming, and idea mapping.

Its scope includes productivity, education, research support, collaboration, planning, project management, AI writing, and visual knowledge design.

2. Characteristics and Features

2.1. Core AI Capabilities

Taskade AI includes advanced capabilities that structure and organise knowledge intelligently:

- **AI Workflow Generator:** Generates multi-step workflows for projects, lessons, research, or assignments.
- **AI Task Generator:** Converts prompts into actionable steps.
- **AI Outline & Summary:** Turns long text into concise outlines, bullet points, or summaries.
- **AI Mind-Map & Flowchart Generation:** Creates visual maps and branching ideas instantly.
- **AI Writing Tools:** For brainstorming, rewriting, expanding, simplifying, or translating.
- **AI Autonomous Agents:** Runs multi-step tasks such as planning an event, researching a topic, or creating a full project roadmap.
- **Multi-Format Output:** Produces content in:
 - Paragraph
 - Bullet List
 - Outline
 - Mind-Map
 - Flowchart
 - Kanban Board

These features make Taskade AI a hybrid between a **project manager**, **planner**, and **knowledge generator**.

2.2. Key Features and User Interface (UI)

Taskade AI provides a clean, powerful, and intuitive interface that unifies all planning and writing tools in one AI Workspace. From a single prompt, users can instantly generate tasks, notes, checklists, outlines, workflows, explanations, and mind-maps. The platform includes multiple switchable project views—List, Board, Mind-Map, Action, Calendar, and Organisation Chart—making it adaptable to different learning and teaching styles. A library of 1000+ AI templates supports lesson planning, study schedules, research outlines, and classroom activities. Real-time collaboration allows multiple users to edit together with comments, tagging, and shared workspaces, ideal for group learning and faculty teams. Taskade also offers AI Agents that automate multi-step tasks such as creating study plans or preparing lesson plans. With its minimal design, side navigation, drag-and-drop

structure, and quick AI mode switching. Taskade ensures fast, organized, and efficient work.

2.3. Differentiating Characteristics

Compared to other productivity tools, Taskade stands out because:

- **Integrated AI for every step:** Unlike typical planners, Taskade uses AI to structure, rewrite, expand, and organise ideas.
- **Multi-View Visualization:** The same content can be viewed as:
 - List
 - Mind-map
 - Board
 - Calendar
 - Flowchart
- **Collaboration + AI combined:** Involves Real-time teamwork with AI assistance.
- **AI Agents:** Automate workflows like a personal assistant.
- **Lightweight & cross-platform:** Works on web, Android, Windows, Mac, and iOS.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Taskade AI is designed for quick onboarding with minimal setup. It runs entirely online and requires no installation unless users prefer the desktop or mobile app versions.

Technical Requirements

- **Device:** Laptop, desktop, tablet, or smartphone
- **Browser:** Chrome, Edge, Firefox, or Safari (latest version recommended)
- **Internet:** Stable broadband connection
- **Account:** Taskade Free or Pro plan

Setup Steps

1. Create a Taskade Account: Users can sign up using:

- Email
- Google account
- Apple account

Free accounts provide access to:

- Unlimited projects
- Basic AI generation
- All project views
- Collaboration features

Pro accounts unlock:

- More AI credits
- Advanced AI automation
- Larger file imports
- Workspace-level controls

2. Explore the Dashboard: After signing in, users arrive on the **Dashboard**, which includes:

- Recent projects
- Workspaces
- Templates tab
- Calendar view
- Shared items

The left navigation panel offers quick access to both personal and shared workspaces.

3. Create a Workspace: Workspaces act as folders that organize projects. Users can create separate workspaces for:

- Lessons
- Research
- Classroom activities
- Personal planning
- School team collaboration

Each workspace can be themed with colours and icons for visual distinction.

4. Create a Project: Inside a workspace, the user clicks “**New Project**”, chooses:

- Blank document
- Imported file
- AI template
- Pre-designed template from the library

This becomes the working document where all steps will be carried out.

5. Start Using AI Features: AI prompts can generate:

- Lesson plans
- Mind-maps
- Structured outlines
- Reflection questions
- Assignments
- Research summaries

The setup process takes less than 5 minutes, making Taskade accessible for all levels of digital proficiency.

3.2. Step-by-Step Usage Guide (Case-Based)

Case 1: Creating a Literature Review Structure

Step 1 — Enter topic “Effects of Social Media on Adolescents”: The AI will start generating structured content.



Fig 2. Dashboard of Taskade AI

Step 2 — Taskade AI Generates the Initial Summary: The AI retrieves information and presents a consolidated summary, including:

- Introduction
- Psychological effects
- Behavioural impacts
- Social implications

This creates a base for your literature review.

Step 3 — Switching to Mind-Map View: Click Mind-Map View in the top toolbar.

Taskade converts the outline into a visual map showing connections like:

- Emotional Well-Being
- Cyberbullying
- Screen-time habits
- Peer comparison



Fig 3 . Generated mindmap

Step 4 — Expanding Themes Using AI: Click on any branch → press AI Expand.

Taskade automatically adds:

- Key sub-themes
- Definitions



Fig 4 . Expanding content

- Examples- Supporting arguments
-

Step 5 — Switching to Board View: Switch to Board View (Kanban) to visually categorize the findings:

- Causes

- Effects
- Risks
- Recommendations

This helps structure your literature review sections.

Step 6 — Exporting the Outline: Click Export → choose:

- PDF
- Markdown
- Text
- Share link

You can now use this exported structure for academic writing.

Case 2: Preparing a Lesson Plan

Step 1 — Enter Topic “Sustainable Development Goals (SDGs) – Grade 5 Lesson Plan:

Open a new project in Taskade → type:

“Create a detailed lesson plan on Sustainable Development Goals for Grade 5.”

Click Generate.



Fig 6 . Creating lesson plan

Step 2 — Reviewing the AI-Generated Lesson Structure: Taskade creates a complete plan including:

- Learning Objectives
- Warm-Up Activity

- Main Teaching Points
- Group Activity
- Worksheet Ideas
- Assessment Questions

Step 3 — Using Mind-Map Mode: Switch to Mind-Map View to visualize SDG connections:

- SDG 1: No Poverty
- SDG 3: Good Health
- SDG 4: Quality Education
- SDG 6: Clean Water

This helps prepare teaching flow.

Step 4 — Adding Activities & Examples: Click on a point and choose AI Expand.

AI generates:

- Classroom activities, Real-life examples
- Discussion questions

Step 5 — Scheduling the Lesson: Switch to Calendar View.

Drag and place the lesson on your desired class date.

This makes planning clear and time-bound.

Step 6 — Export or Share Lesson Plan: Click Export → select:

- PDF for printing
- Slide format for teaching
- Share link for colleagues

3.3. Tips and Best Practices

- Use precise prompts like "Create a 5-point summary with examples."
- Use multi-view to understand big-picture understanding.
- Validate content for academic purposes.
- Combine AI mind-maps + outlines for strong classroom visuals.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Taskade AI supports constructivist and inquiry-based learning by helping students:

- Build knowledge structures
- Visualize concepts
- Break tasks into steps
- Self-regulate learning

For teachers, it reduces planning load and increases efficiency.

4.2. Impact on Teaching and Learning

- **Enhances clarity and organization:** Helps teachers structure lessons clearly and allows students to follow concepts in a logical sequence.
- **Supports differentiated instruction:** Enables tailoring of content and activities to meet the diverse learning needs of students.
- **Provides multimodal representations:** Offers visual, auditory, and interactive formats to cater to different learning styles, making concepts easier to understand.
- **Improves note-taking and study habits:** Encourages students to organize information systematically, which enhances retention and comprehension.
- **Encourages autonomy and ownership:** Students take charge of their learning through self-paced study, personal reflections, and interactive activities.

4.3. Classroom Applications

- **Mind-maps for chapters:** Visual representation of concepts and their connections, aiding memory and comprehension.
- **Lesson plan generator:** Assists teachers in creating structured, engaging, and effective lesson plans quickly.
- **Study guides:** Condensed notes or summaries that help students revise and focus on key concepts.
- **Project-based learning boards:** Organises projects step by step, enabling collaboration and tracking of progress.
- **Daily task lists:** Helps students manage their time and stay on track with assignments and learning goals.
- **Classroom activity workflow:** Streamlines classroom routines and activities for smooth execution.
- **Reflection journals:** Encourages students to reflect on their learning, track progress, and identify areas for improvement.
- **Assignment breakdown:** Breaks larger tasks into manageable steps, helping students plan and complete work effectively.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Requires digital literacy:** Both teachers and students need basic computer and technology skills to use AI tools effectively. Without these skills, adoption can be difficult.
- **Complex workflows may confuse beginners:** Some AI platforms have multiple features and steps, which can be overwhelming for first-time users.
- **AI output must be reviewed for accuracy:** While AI can generate content quickly, it may contain errors or inaccuracies, so careful verification by the teacher is necessary.
- **Heavy internet dependence:** Most AI tools require stable internet connectivity, which can be a limitation in areas with poor network access.
- **Advanced features require a paid version:** While basic features may be free, accessing more sophisticated functions often requires a subscription or paid version, which may not be affordable for all users.

5.2. Ethical & Equity Considerations

- Data privacy concerns
- Over-dependence on AI for organization
- Equity gap for students without devices
- Teachers must ensure authenticity of student work

5.3. Future Roadmap: Likely developments are as follows:

- More autonomous AI agent workspaces
- Dynamic real-time learning dashboards
- Integration with LMS platforms
- Improved visual diagram generation
- Smart scheduling with predictive insights

6. Supplementary Information and References

6.1. Tool Access

Website: <https://taskade.com/>

Pricing: Freemium with premium plans

6.2. Further Reading

- Taskade Help Centre
- AI productivity research
- Multimodal learning tools

6.3. References

- Taskade Inc. (2024). Taskade AI Documentation.
- Xie, J., Loire, D., & Chen, F. (2017). Productivity workflow models.
- Microsoft Research. (2024). Multimodal AI systems.
- Brown, T., et al. (2020). Language Models are Few-Shot Learners.

TEACHBETTER.AI

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1. Introduction and Overview

1.1 Tool Name and core functionality

TeachBetter.AI is an education-focused platform created to transform teaching and learning through advanced AI tools. It supports teachers, schools, parents, and students by simplifying classroom tasks, improving learning outcomes, and promoting meaningful engagement. The platform aligns with educational boards such as CBSE, ICSE, and IB, offering time-saving, efficient, and innovative solutions designed for modern education.



Fig.1 Teachbetter AI Logo

1.2 Brief History and Development

Launched in April 2025 by **Vipin Kumar** and **TBAI SOLUTIONS PRIVATE LIMITED**, TeachBetter.ai was built to serve as a comprehensive AI assistant for education. The platform provides tools like lesson planners, quiz creators, and personal tutors to support teachers and students. It has grown rapidly and introduced Version 2 with enhanced features, including web search and document chattools.

1.3 Target Audience and Scope

TeachBetter.ai caters mainly to teachers, parents, and schools, offering an all-in-one AI workspace dedicated to learning and teaching. Unlike general AI bots such as ChatGPT, TeachBetter is built specifically for classroom needs, integrating multiple tools into one safe, focused platform.

2. Characteristics and Features

2.1 Core AI Capabilities

TeachBetter.ai includes over 18 AI-driven tools that assist in creating educational content, automating administrative tasks, and offering personalized learning support—all within a single platform.

Key tools include:

- Lesson Planner
- Quiz & Worksheet Generator
- Presentation Maker
- Activity/Project Creator
- Document Chat
- Web Search Assistant
- YouTube Video Analyzer
- Concept Mastery Coach
- Doubt Solver
- Writing and Report Generator
- Translator and Text Enhancer

2.2 Key Features and User Interface (UI)

TeachBetter.ai is built for ease of use and productivity. Its major features include:

1. Quick, customized lesson planning
2. Instant quizzes and worksheets with answer keys
3. Interactive student quizzes
4. Uploading files for analysis
5. Generating transcripts and insights from YouTube videos
6. Multilingual translation in 80+ languages

The interface is intuitive, distraction-free, and designed for smooth workflow with personalized dashboards.

2.3 Differentiating Characteristics

TeachBetter.ai stands out due to:

- Education-only design aligned with Bloom's Taxonomy
- A single platform combining more than 15 teaching tools
- Strong privacy and data security
- Built-in differentiation for varying abilities and learning styles
- Safe learning environment for students
- Affordable pricing, especially suitable for Indian schools
- Teacher empowerment by reducing workload

- Collaborative educator community

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

TeachBetter.ai requires very little setup.

Prerequisites:

- Age 18+ (or parental consent)
- Internet access
- Any basic device
- User account
- Optional subscription after free trial

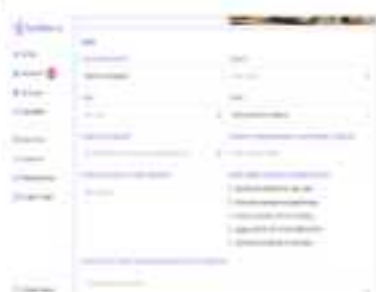


Fig.2 Steps to follow

Setup:

- Visit the official website
- Register with name, email, phone, role, and password
- Log in and start using the tools

3.2 Step-by-Step Usage Guide

Scenario A Creating a Lesson Plan

1. Log in → choose Lesson Planner.
2. Enter topic, duration, subject,
3. grade, number of classes.
4. Generate and export.



Fig.2.1

Scenario B Creating a Quiz

1. Log in → open Quiz & Worksheet Generator
2. Enter topic, question types, grade, number
3. of questions, difficulty
4. Generate and export as PDF, Word, or PPT



3.3 Tips and Best Practices

Use TeachBetter.ai as a supportive assistant—give clear prompts, check accuracy, customize responses, and protect student data. It helps differentiate content and analyse student needs but should be combined with teacher judgment.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

TeachBetter.ai aims to help teachers become more efficient and creative while enabling personalized and engaging learning for students. It reduces workload, supports diverse learning needs, and enriches classroom experiences.

4.2 Impact on Teaching and Learning

Benefits for Teachers:

- Time-saving
- Better-quality content
- Personalized teaching support
- Increased creativity and confidence
- Benefits for Students
- Individualized learning paths
- Engaging and interactive content
- Better understanding of concepts
- Greater accessibility

4.3 Specific Classroom Applications

Teachers can use TeachBetter.ai to:

- Generate tailored lesson plans
- Create quizzes and activities
- Simplify concepts using the explainer tool
- Assist multilingual classrooms with translation
- Provide homework help using doubt-solving tools

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Challenges include limited internet access in some areas, need for teacher training, AI biases, concerns about data privacy, overdependence on technology, and token restrictions.

5.2 Ethical and Equity Considerations

TeachBetter.ai promotes equity by:

- Offering all tools free

- Ensuring compatibility with low-cost devices
- Supporting slow internet environments
- Providing culturally relevant and level-appropriate content
- Ensuring user-friendly design for beginners

6. Supplementary Information and References

6.1 Tool Access Details

Official Website: <https://teachbetter.ai/>

Pricing/License Model:

₹149/month per user, with institutional bulk licenses and a 30-day free trial. Version 2.0 merges all tools into one unified platform.

6.2 Further Reading and Documentation

User guides, webinars, FAQs, and educator blogs are available on the official site.

6.3 References

All content is taken from the TEACHBETTER.AI official website, educator feedback, and independent reviews.

TeacherMatic

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Bombay Teachers' Training College, Mumbai

1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality :

TeacherMatic is an AI platform that facilitates the rapid creation of instructional and administrative resources by educators. It primarily creates lesson plans, tests, worksheets, rubrics, learning objectives, glossaries, and questions for the classroom. It supports pedagogy including inclusive learning, SEND/EAL modifications, and Bloom's Taxonomy-aligned resources (Bloom's Taxonomy : A hierarchical model that categorises cognitive skills such as remembering, understanding, applying, analysing, evaluating, and creating). Teachers can evaluate and amend AI-generated content while saving time.



Fig.1 Logo

1.2. Brief History of TeacherMatic

Although the development process probably started earlier, TeacherMatic was introduced in April 2023. More than 300 educators actively participated in providing comments and improving the platform, which was created by educators themselves.

A crisis in the teaching profession prompted the founders to establish TeacherMatic. Moreover half (52%) of English instructors said their workload was "unmanageable" — up from 35% in 2021 — and 44% of them intended to leave within five years. The platform was created to help teachers maintain a work-life balance while addressing the ever-growing workload, never-ending preparation, and grading.

1.3. Target Audience and Scope

TeacherMatic is an AI-powered platform created especially for teachers to help them focus on their kids and lessen their workload.

The app's goal is to assist educators in producing top-notch teaching resources, including lesson plans, exercises, worksheets, tests, rubrics,

and more. Additionally, it has features like a complexity slider that lets teachers customize lessons for students with varying skill levels. Over 300 schools, colleges, and institutions have embraced the platform, which is utilized by educators, leaders, and education teams to increase productivity in a variety of educational roles. When developing organized lesson plans based on certain inputs like CEFR level, target skills, and pedagogical style, the app is especially helpful.

2. Characteristics and Features

2.1. Core AI Capabilities

TeacherMatic uses cutting-edge AI to produce a variety of educational materials, drastically cutting down on the amount of time teachers must spend creating content. Instructors can enter a topic, and the site quickly generates lesson plans, tests, worksheets, exercises, rubrics, and more based on particular parameters like student learning level and curriculum standards. TeacherMatic's AI is a useful tool for educators who want to optimize their workflows and concentrate more on instruction and student engagement since it can accurately analyse user inputs and generate high-quality, customized outputs.

2.2. Key Features and User Interface (UI)

TeacherMatic's interface is designed to be user-friendly, making it easy for educators to navigate and use the various tools available. It has features like Bloom's taxonomy, instructional iconography, and movies to help with effectively producing educational content. To assist educators in successfully integrating the platform into their workflows, the platform also provides support resources like webinars, rollout guidelines, and training programs. More than 70 AI generators exist. There are choices for exporting to Word, PDF, Google Classroom, Moodle, Canvas, and Kahoot in addition to a straightforward dashboard with input areas and customizable settings.

2.3. Differentiating Characteristics

TeacherMatic is unique among AI applications because it was created by educators for educators and has a particular focus on the education industry. The complexity slider (a tool that lets teachers adjust the difficulty level of generated content for different learners), which enables teachers to modify the level of difficulty of content to accommodate varying student skills, is one of its distinctive characteristics. This degree of customisation successfully supports differentiated education and is uncommon in other AI platforms.

In order to improve student engagement and deeper learning, TeacherMatic also integrates Bloom's Taxonomy into its lesson planning tools. This ensures that activities and assessments are created to target various cognitive levels. It also offers more than 150 generators, giving it a complete option for a range of educational requirements.

3. Practical Implementation and Usage

3.1. Prerequisites and setup

To use TeacherMatic an internet-connected device (laptop, table, or smartphone) and a registered Teachy account is required. The platform is web-based and does not require local installation for daily usage. Follow the guideline below to set up and begin using TeacherMatic:

1. **Make an Account:** To use the platform and its AI features, register on the TeacherMatic website.
2. **Examine Guides and Tutorials**
3. **Learn How to Use the Interface:** Examine the dashboard and become familiar with its design.
4. **Make Use of AI Generators:** Enter a subject or particular educational requirement (such as a lesson plan, test, or worksheet), and the AI will produce content right away.
5. **Customize and Export Content usage** (the complexity slider) to change the level of difficulty, then export the created content straight to Word or PDF for convenient usage in the classroom.

3.2. Step-by-Step Usage Guide

- **Scenario A: Creating a Lesson Plan**

1. Log into teachermatic and click on "Generators"
2. Select "Lesson Plan Generator."
3. Enter topic, area of study, choose a layout, level and objectives.
4. Generate and export.



Fig.2 Generator

- **Scenario B : Making a Quiz**

1. Log into teachermatic and click on "Generators"
2. Choose "Quiz Generator."
3. Add topic and difficulty Export to PDF, Google Forms, Moodle, or Kahoot.



Fig.3 Quiz generator

- **Scenario C : Making a worksheet**

1. Log into teachermatic and click on "Generators"
2. Choose "Worksheet"
3. Add topic, area of study, preferred type of quiz, sector and complexity.
4. Click on "generate" and then export.
5. An example of the worksheet :



Fig.4 Worksheet

3.3. Tips and Best Practices

AI drafts should always be reviewed and edited, subject-specific prompts should be used to ensure accuracy, and many generators should be combined to create complete lesson packs.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

By empowering teachers to create organized, purposeful learning experiences based on pedagogical theory, TeacherMatic enhances the teaching-learning process. Clarity, scaffolding (Instructional support that helps learners progress from what they know to what they need to

learn), engagement, and higher-order thinking are all encouraged by well-designed materials. Constructivist teaching (a learning theory that emphasises learning through experience and reflection) in which students actively create knowledge rather than passively absorbing it, is supported by TeacherMatic.

Additionally, TeacherMatic improves differentiated education by enabling teachers to customize curriculum for mixed-ability groups, gifted students, and slow learners. Diverse demands are accommodated via the complexity slider and SEN-friendly layouts. By guaranteeing that students obtain materials at a suitable challenge level, this advances equity.

Through automatically created comprehension tests, reflection questions, and self-evaluation rubrics, the application also enables educators to include formative assessment (continuous assessment used to guide teaching and support student improvement rather than to assign grades) procedures.

4.2. Impact on Teaching and Learning

By providing ready-made resources and reducing preparation time, TeacherMatic enhances instruction. It facilitates learning by offering resources that are understandable, interesting, and flexible enough to accommodate various student demands.

Below are some of the **teachers testimonials** :

- “TeacherMatic has reduced my daily planning time by half. I now spend more time interacting with my students instead of creating worksheets.” — Ms. A. Fernandes, Primary Teacher
- “The differentiation tools have been a game-changer. My mixed-ability classroom finally feels manageable.” — Mr. R. Kumar, Secondary English Teacher
- “It supports new teachers who struggle with planning. My trainees feel more confident and prepared.” — Dr. S. Patel, Teacher Educator

4.3. Specific Classroom Applications

TeacherMatic can be used in classrooms to create lesson plans, worksheets, quizzes, and activity sheets quickly. It helps teachers generate differentiated tasks for varied learning levels, produce revision materials, and prepare instant feedback for students, making everyday teaching more efficient and organized.



Fig.5 Teachermatic

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

TeacherMatic, despite its considerable advantages for teachers, also has various limitations and obstacles. One of the primary concerns is that the complexity slider may have difficulty producing suitably advanced material for more specialized subjects, such as UK Law and Mechanical Engineering. Furthermore, some users have indicated that the content generated, especially from the PowerPoint tool, often contains lengthy text blocks that are inappropriate for higher education, along with irrelevant images. Another hurdle is the requirement for strong AI literacy (a person's understanding of how AI works, what it can and cannot do, and how to use it effectively) and prompting skills (the ability to give an AI tool clear, specific instructions i.e. prompts to get useful results) to create content at an acceptable level.

5.2. Ethical and Equity Considerations

When using AI tools like TeacherMatic in education, several ethical and equity considerations must be addressed to ensure fair and responsible use:

1. Bias (refers to unfair or unbalanced content, such as stereotyping or favouring certain viewpoints, groups, or interpretations) in

content produced by AI. AI might inadvertently showcase biases found in its training data.

2. Access and digital disparity: Not every educator or student has the same level of access to technology, potentially increasing the divide between well-funded and poorly funded schools.
3. Data privacy: Utilizing AI platforms entails the gathering and handling of user data, generating worries about the storage, usage, and safeguarding of this information.
4. Academic integrity: Excessive dependency on AI-produced material could obscure the distinction between student contributions and AI support.
5. Teacher autonomy and role: There is a danger that AI tools might change the role of educators from facilitators to content creators.
6. Inclusivity and accessibility: AI-created resources should be tailored to assist a variety of learners, encompassing individuals with disabilities or those from various cultural backgrounds.
7. Clarity and responsibility: Users must understand the process of AI-generated content creation and who is liable for its correctness and suitability.

5.3. Future Outlook and Roadmap

TeacherMatic's future development may feature more specialized generators geared to certain courses, allowing for deeper curricular alignment. Integration with learning management systems is likely to improve, resulting in a more efficient workflow.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: <https://teachermatic.com>

Once you click on the URL mentioned above , this page will appear.

Pricing/License Model :

Free £0/month

Ideal for individuals starting out or exploring basic features

What's Included

- ✓ 5 generations per day for the first week①
- ✓ Access to select AI generators

- ✓ Export in popular formats (PDF, DOCX, Google Docs and more)

Professional £6.99/month

Inclusive of 20% VAT. Best for education professionals in any role looking to get the most out of TeacherMatic.



Fig. 6 Website

What's Included

- ✓ 150 generations per day
- ✓ Access to all AI generators
- ✓ Export in popular formats (PDF, DOCX, Google Docs and more)
- ✓ Save your generations and configure them for your needs.

Organisational

Perfect for institutions, trusts or large teams .

What's Included :

- ✓ Professional licences for all users
- ✓ Easily manage and assign licences within your team
- ✓ Share recommendations, settings and generations across your organisation.

6.2. Further Reading and Documentation

TeacherMatic onboarding guides tutorials, and case studies on their website.

6.3. Personal Reflections

I became aware of AI's advantages as well as its limitations in education after using TeacherMatic. Although the program was useful for coming up with quick ideas, I frequently had to edit the information manually, especially for more complex or specialized subjects. This experience

made me realize how crucial my own AI literacy and prompting abilities are, and that the tool cannot take the place of expert judgment. Additionally, I became more conscious of ethical concerns like bias, data privacy, and academic integrity, which prompted me to carefully consider how AI could be applied in the classroom. In general, the method inspired me to approach AI cautiously yet with interest.

6.4. Conclusion

TeacherMatic proves to be a valuable tool that supports educators by reducing workload, enhancing instructional design, and promoting differentiated learning. While it offers numerous benefits, it must be used thoughtfully, with awareness of ethical concerns, data privacy, and the need for teacher expertise in reviewing and tailoring content. Ultimately, AI should complement — not replace — the professional judgment, creativity, and human connection that teachers bring to the classroom. Responsible implementation, ongoing teacher training, and equitable access will determine the long-term positive impact of TeacherMatic in education.

6.5. References :

All information is derived from TeacherMatic's official website, educator testimonials, Official TeacherMatic documentation, Teacher Wellbeing Index (2022), TeacherMatic Official Documentation (2023), UNESCO Digital Literacy Framework (2021)

Topic : Bias, fairness, and data ownership - Sources : International Journal of Artificial Intelligence in Education: ethical issues in AI/ED: data ownership, bias, privacy. Research on fairness, inclusivity and representational harm in AI-driven educational assessment. [SpringerOpen](#)

Topic: Privacy and data protection - Sources : Mishara, *The Ethical Implications of AI in Education: Privacy, Bias, and Accountability* [ResearchGate+1](#). Also, study on teachers' reluctance due to privacy / surveillance.

Topic : Academic integrity - Sources : Ethical challenges in university education: AI's risk to academic integrity (plagiarism, cheating).

Topic : Equity / digital divide - Sources : "Systematic Review of Artificial Intelligence in Education" – infrastructure, digital literacy barriers. [MDPI](#)

Topic : Teacher attitudes / literacy - Sources : Study on academic staff's awareness and ethical knowledge of AI in education (University of Jordan example). [BioMed Central](#)

Topic : Inclusivity / fairness in assessment - Sources : Research on fairness, inclusivity and representational harm in AI-driven educational assessment. [SpringerOpen](#)

Teachy

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1. Introduction and tool overview

1.1. Tool name and core functionality

Teachy AI is an educational platform designed to help teachers work faster and easier with the help of AI technology. Its main purpose is to reduce the heavy administrative workload on teachers on a daily basis. Teachy offers many core functions such as creating lesson plans, preparing teaching materials, generating quizzes, presentations and giving quick feedback on student's assessments.



Fig 1. Teachy AI logo

1.2. Brief History and Development

Teachy AI was launched in Brazil by two Brazilian founders, **Pedro Siciliano** and **Fábio Baldissera**, both have backgrounds in education and engineering. Officially no explanation about who exactly coined the name 'Teachy' exists yet. Its key developmental milestones include inculcating powerful AI models, expanding the content library to over a million resources, and supporting seamless adaptation to various national curricula.

1.3. Target Audience and Scope

Teachy AI targets educators at all levels from primary and secondary school teachers to college professors along with school administrators to digitalize and optimize school workflow. The platform serves pre-service teachers to seek guidance and benefit from AI-driven lessons, assessment automation, performance tracking, and pedagogical innovation. Teachy's ability to provide engaging and interactive learning materials for students is helpful for gaining self efficacy and motivation.

2. Characteristics and Features

2.1. Core AI Capabilities

Teachy AI's strength lies in its ability to generate, customize, and manage educational content on a very large-scale level. Its AI tools interpret teacher inputs or requirements, delivering smart content generation for a wide array of needs:

- Lesson plans tailored to learning outcomes and for required standards
- Slides and presentations generation for various subject topics
- Assignment and worksheet creation for knowledge output by children
- Automated quiz generation with varied question types on any topics provided
- Instant grading for open-ended responses or pre-framed questions
- Real-time performance analytics

Teachy AI ecosystem integrates and coordinates multiple large language models, such as GPT, Claude, and Gemini to achieve the best possible performance for each task.

2.2. Key Features and User Interface (UI)

Teachy's user interface is purpose-built for education professionals. Everything is accessible from a simple-unified portal, reducing the learning curve and supporting fast adoption for teachers regardless of their technical ability.

Key features include:

1. A dashboard summarizing lesson plans, assignments, and grading analytics.
2. Slide creation tools integrated with multimedia and template customization.
3. Resource library with over a million reviewed lesson plans, quizzes, and games.
4. Activity sheets, crosswords, flashcards, and educational games for students' diverse needs.
5. Instant grading automation to assess and provide personalized feedback.
6. Data dashboards visualizing class performance, curriculum coverage, and teaching engagement as per requirements.

2.3. Differentiating Characteristics

Several factors distinguish Teachy AI from other generic tools:

1. All materials are aligned with national or local curricular standards, ensuring content is always relevant.
2. Teacher-managed topic curation and oversight mechanisms prevent inappropriate or off-topic content; usage is monitored for safety.
3. Teachy supports over 60 material types, far beyond the chatbots or simple slide creators found elsewhere.
4. Materials can be adapted rapidly for different grades, subjects, and individual learner profiles.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Teachy AI an internet-connected device (laptop, table, or smartphone) and a registered Teachy account is required. The platform is web-based and does not require any specific local installation for daily usage.

Steps to setup :

Register or sign in on the Teachy platform using a google account / Gmail verification. Choose a subscription tier (individual, school, or free trial) Define curriculum preferences and class profiles. Access the main dashboard and begin generating teaching materials instantly.



Fig 2.3. Steps to register on Teachy via Login

3.2. Step-by-Step Usage Guide

Taking into consideration 'Scenario A' : Creating a Lesson Plan.

1. Log into Teachy and select "Create Lesson"
2. Input your subject, grade, and learning objective based on specific prompts.

3. The AI proposes a lesson outline, aligned with curriculum standards as per requirements.
4. Edit, reorder, or supplement sections as desired.
5. With one click, generate slides, worksheets, and quizzes from the outline.
6. Download or assign materials directly to students through integrated platforms.
7. Then save your work into your class directly based on pedagogy subjects.



Fig 4.5. Generation of subject class, lessons and materials according to study plans

3.3 Tips and Best Practices

1. Use analytics reports to identify student misconceptions and improve follow-up lessons.
2. Regularly update your curriculum mapping to ensure content remains aligned with evolving strategies.

3. Engage students through interactive games, activities and riddles generated by Teachy to boost classroom participation.
4. Collaborate with colleagues on shared lesson templates and best-practice strategies.
5. Chat with your personal chatbot 'LAURA'
6. Try and explore all 60+ tools and showcase your creativity with the help of Teachy.
7. Login daily to earn 100 credits each to access freely.
8. You can easily create subject-based classes and share the class link with your students through email or WhatsApp.

4. Educational Implications and Applications.

4.1 Pedagogical Rationale

Teachy AI is built on principles of active learning and evidence-based teaching. It supports a wide range of subject pedagogies by generating content based on user prompts and specific areas of interest (eg Fig 3.)

4.2. Impact on Teaching and Learning

Teachers using Teachy have reported:

- Saving up to 15 hours per week on planning and grading.
- Simplified, rapid access to a vast library of verified resources.
- Better student engagement through personalized and interactive lessons
- Higher retention and assessment scores are achieved through Teachy's data-driven feedback loops, which continuously optimize learning outcomes.
- AI also encourages educators to experiment with new pedagogical models, such as flipped classrooms, project-based learning, and mastery-based progression, by reducing the logistical barriers to lesson redesign.

4.3. Specific Classroom Applications

1. Interactive lessons with instant slide and worksheet creation.
2. Assessment of higher-order skills with open-ended question grading.
3. Analytics dashboards show student mastery and teaching effectiveness simply and clearly.
4. Usage in hybrid and remote classrooms for seamless resource distribution.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Learning Curve:** Teachers unfamiliar with AI may require initial training and ongoing support.
- **Internet Dependency:** Teachy is cloud-based; a reliable internet connection is necessary for access, which could limit use in areas with poor connectivity.
- **Content Adaptation:** While AI-generated, human oversight is recommended to ensure contextual appropriateness and cultural sensitivity.
- **Subscription Costs:** Full-feature access may be cost-prohibitive for smaller institutions or individual teachers, although pricing scales with size.

5.2. Ethical and Equity Considerations

1. **Data Privacy:** Teachy adheres to data protection standards, but institutions and teachers must remain vigilant in protecting student information.
2. **AI Bias Mitigation:** Continuous updates to AI models and educator oversight help prevent the propagation of biases or errors in generated material.
3. **Accessibility:** Ongoing efforts are needed to ensure equitable access, especially in low-income or low-connectivity contexts.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL: teachy.ai/en(<https://teachy.ai/en>)

Pricing/License Model:

1. Free trial for new users based on regular credits i.e.100 free points, 400 referral points on 1 reference
2. For teachers Rs 490/- (INR) and customizable package for schools.
3. Individual subscriptions or institutional (school/district) pricing tiers.

6.2. Further Reading and Documentation

1. Teachy AI FAQ, user guides, and training webinars are available on the official website as well as on youtube for easy guidance.

2. Blog posts and educator testimonials offer insights into best practices and real-world classroom scenarios.

6.3. References

All information is derived from Teachy's official website, educator testimonials, and independent reviews:

Teachy Official: <https://teachy.ai/en>

Journal Article References

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2. Zawacki-Richter, O., Marin, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(39), 1-27. <https://doi.org/10.1186/s41239-019-0171-0>

Thea Study AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Thea Study AI is an AI-powered study assistant designed to help learners — students or self-learners — convert their study materials (notes, PDFs, lecture content) into structured, interactive study kits. Its core functionalities include generating flashcards, summaries, quizzes / practice tests, and study guides, using advanced AI and adaptive-learning techniques.

Rather than passively reading or memorizing, Thea promotes active recall, spaced-repetition, and adaptive revision, helping learners internalize material more effectively.



Fig. 1. Logo of Thea Study AI

1.2. Brief History and Development

Thea Study was created in **2023** by young student-inventor **Baker Bruce**, who wanted a smarter and more effective study tool than traditional note-making apps. Inspired by **Athena**, the Greek goddess of wisdom, Thea was designed to promote deeper learning through **active recall, flashcards, and adaptive quizzes**.

It quickly evolved into a multi-feature platform with summaries, study kits, and spaced-repetition tools. By **2025**, Thea Study gained global recognition and won the **World Future Award** for excellence in AI-powered education. Today, it supports **80+ languages** and is widely used by students and educators worldwide for efficient, personalized studying.

1.3. Target Audience and Scope

Thea Study is useful for:

- School and college students preparing for exams or coursework.
- Educators and tutors who want to create structured study materials, assignments, or revision kits for their classes.
- Lifelong learners and professionals revising for certification or self-study on diverse topics (from humanities to sciences).

Its scope includes summarisation, flashcard generation, quiz/test creation, adaptive practice, multi-lingual support (over 80 languages), and cross-platform availability (web + mobile).

2. Characteristics and Features

2.1. Core AI Capabilities

- **Smart Study Engine** — converts uploaded notes, PDFs, images, or video transcripts into study kits with summaries, flashcards, and practice questions.
- **Adaptive Flashcards & Quizzes** — Thea adjusts questions/flashcards based on learner performance, focusing more on weak areas (active recall + spaced repetition).
- **Summarization & Study Guide Generation** — automatically creates concise summaries or structured guides from long passages or notes, aiding quick revision.
- **Test Simulation & Practice Mode** — Users can take timed practice tests based on their materials, simulating real exam conditions to build confidence.
- **Multi-format Input Support** — Accepts various input types: typed notes, PDFs, images (e.g. scanned notes), and even video links/transcripts.

2.2. User Interface & Accessibility

- Simple, user-friendly interface accessible via web or mobile
- Supports over **80 languages**, making it accessible for learners from diverse linguistic backgrounds.
- Offers **cross-platform compatibility** — usable on desktops, tablets, smartphones (iOS/Android/web) for anytime-anywhere studying

2.3. Study Kit & Content Management

- Automatically generated **study kits** combining flashcards, summaries, quizzes/tests, and study guides.
- Option to organize topics by subject, module, or custom categories — suitable for school semesters, exam boards, or professional courses.
- Easy export or download of summaries and guides for offline revision.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Device:** Any internet-enabled device — PC, laptop, tablet, or smartphone.
- **Internet connection:** Required for AI processing and cloud storage.

- **Account:** Create a free account on Thea's website (or via mobile app).
- **Materials:** Upload study materials — notes, PDFs, images, textbooks, or signify exam topics — to begin.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Preparing for a Biology Chapter Test

Step 1: Upload the Chapter Material

The student logs into Thea Study AI and clicks “**Upload Material**” to add the Biology chapter PDF or an image of their notes. The platform accepts PDFs, photos, screenshots, or typed text.

Step 2: Generate the Study Kit



Fig 2 : Upload study material

After uploading, the student clicks “**Generate Study Kit**.” Thea Study instantly processes the information and converts it into a structured set of resources containing:

- Summary
- Flashcards
- Quiz questions
- Key terms
- Revision notes



Fig 3 : Generation of lesson study kit

Step 3: Review the Summary

The AI-created summary helps the student quickly understand the main ideas of the chapter such as cell structure, photosynthesis, or reproduction.

This step ensures that the learner grasps the concept before memorising details.

Step 4: Practice with Flashcards

The flashcard mode guides the learner through essential definitions and scientific terms using active recall. Flashcards repeat in spaced intervals based on performance.



Fig 4 . Flashcard mode

Step 5: Attempt the Quiz/Test Mode

The student attempts AI-generated MCQs and short questions that simulate a classroom test. Correct and incorrect answers are highlighted to show learning gaps.



Fig 5 . Quiz/Test mode

Step 6: Revise Weak Areas

Based on quiz performance, Thea adjusts flashcards and questions for repeated practice, strengthening weak concepts before the real exam.

Scenario 2: Teacher Creating Study Material for Students

Step 1: Upload a Chapter or Class Notes

The teacher uploads a PDF, textbook chapter, or handwritten notes as an image.

Step 2: Thea Auto-Creates Teaching Resources

The tool generates:

- A clean summary
- Class-friendly flashcards
- Quiz questions
- Key terms
- Short notes

Step 7: Edit or Customize Output

Teachers can:

- Add/remove points
- Simplify language
- Highlight important details
- Rearrange quiz questions

Step 4: Share the Study Kit with Students

Teachers can share downloadable summaries, flashcards, or quiz sets for homework or revision.

Step 5: Track Student Progress (If Shared Digitally)

If students access Thea Study using shared links, teachers can monitor quiz scores and identify areas that need reteaching.

4. Educational Implications and Applications

4.1. Support for Personalized and Adaptive Learning

Thea's adaptability allows students to learn at their own pace. Weak areas receive greater focus via repeated practice, ensuring mastery before advancing. This aligns with modern pedagogical principles favouring personalized learning trajectories over one-size-fits-all approaches.

4.2. Impact on Study Habits and Memory Retention

By combining active recall, spaced repetition, and varied question formats, Thea Study encourages **deep learning** rather than rote memorization. Students can revise more efficiently, remember concepts longer, and approach exams with confidence.

4.3. Versatility across Education Levels and Subjects

From high-school to university, from humanities to science, Thea Study's multi-subject support makes it a versatile tool — equally useful for language learning, maths, biology, social sciences, or professional certification preparation.

4.4. Teacher & Educator Utility

Educators can use Thea to build **class-wide study kits**, share them with students, and assign **quizzes/personalized assessments**. This reduces their preparatory workload while ensuring uniformity and accessibility of study resources across the class.

5. Challenges, Limitations, and Considerations

5.1. Dependence on Input Quality and Internet

The effectiveness of Thea depends heavily on the clarity and quality of uploaded materials. Poorly scanned notes or images may lead to inaccurate summarization or flawed flashcards. Also, being cloud-based, a stable internet connection is essential for smooth operation.

5.2. Potential Over-Reliance on AI for Learning

While Thea assists significantly, excessive reliance may hamper development of independent analytical, summarization, and note-taking skills. Users should ideally use Thea as a supplement, not a replacement, to critical thinking and manual study habits.

5.3. Need for Verification and Human Oversight

AI-generated content (summaries, quizzes) might occasionally misinterpret complex material or context — especially in advanced or nuanced subjects. It's prudent for learners and educators to cross-check and verify the AI's output.

5.4. Privacy and Data Security

Since users upload personal study materials, PDFs, notes, or scanned documents, data privacy must be considered. Institutions and individual users should review Thea's privacy policies when using sensitive material (e.g. copyrighted content, exam papers).

6. Supplementary Information and References

6.1. Tool Access

Website: Thea Study — accessible via browser, Android, and iOS.

6.2. Recommended Use Cases

- Exam preparation (school, college, certification)
- Semester-end revision cycles
- Self-paced learning and professional up skilling
- Supplement to classroom teaching (flashcards, quizzes, revision guides)

6.3. References

- Thea Study official website and "Smart Study" description. theastudy.com+2aival.se+2
- Reviews and tool-analysis articles summarizing Thea's features. [Techpilot AI+2trendingaitools.com+2](https://techpilot.ai+2trendingaitools.com+2)
- AI learning theory context: adaptive learning, active recall, spaced repetition. Wikipedia+1
- Official Website- source: theastudy.com
- Source: theastudy.com/post/thea-wins-2025-world-future-award
- Source: techpilot.ai/tools/thea-study
- AI With Arun - Source: aiwitharun.blogspot.com
- Trending AI Tools Directory- Source: trendingaitools.com

Suggested Scenarios for Use in a Classroom / Self-study Context

- Converting entire textbook chapters into revision kits (summary + flashcards + quizzes)
- Preparing for board exams with regular flashcard-based revision, spaced over weeks
- Creating language-learning flashcards (vocabulary) with spaced repetition and quizzes
- Collaborative study: students sharing flashcard sets and practice tests
- Mock-exam simulation before final exams using Thea's test mode

ThinkAny AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core

Functionality: ThinkAny is a next-generation modern Retrieval-Augmented Generation (RAG)-based intelligent search engine designed to provide real-time, accurate, and concise information synthesized from



Fig 1. Logo of ThinkAny AI

multiple online sources. Unlike traditional AI text generators that rely solely on training data, ThinkAny AI actively retrieves live web content, processes it using advanced natural language understanding, and presents consolidated knowledge in the form of search summaries, structured outlines, mind-maps and detailed answers. Its core purpose is to enable users to access verified, up-to-date, easily digestible information quickly.

1.2. Brief History and Development:

ThinkAny AI emerged as part of a new wave of intelligent search tools aiming to bridge the gap between conventional search engines and generative AI systems. Traditional search engines provide lists of hyperlinks, leaving users to manually evaluate and synthesize content. Early AI chatbots, while capable of generating fluent responses, suffered from the limitation of outdated or static training data.

ThinkAny AI was developed to solve these issues by integrating real-time web scraping, ranking algorithms, and LLM-based reasoning. Its evolution reflects the increased demand for reliable and updated information retrieval in fields like education, research, policy-making, journalism, and data-driven decision making.

1.3. Target Audience and Scope:

ThinkAny AI caters to a broad audience including:

- Students seeking simplified explanations, summaries, literature review, project research, assignment support, summary, and mind-map creation.
- Researchers for current data extraction, topic exploration, structured review support, or initial synthesis for literature reviews.
- Teachers and educators preparing lesson plans, teaching content generation, simplified explanations for difficult concepts, or for in-class resources (mind maps, outlines). Professionals who require up-to-date insights for decision-making.
- Writers, journalists, and content creators looking for structured syntheses.

Its scope ranges across academic research, education, content creation, self-learning, policy analysis and general knowledge acquisition.

2. Characteristics and Features

2.1. Core AI Capabilities:

ThinkAny AI incorporates multiple cutting-edge AI capabilities:

- **Live Data Retrieval:** Fetches latest online information rather than relying solely on pretrained knowledge.
- **Retrieval-Augmented Generation (RAG):** Combines sourced information with AI reasoning to produce coherent responses.
- **Semantic Search:** Uses meaning-based search rather than relying on keywords alone.
- **Knowledge Synthesis:** Integrates multiple sources into one holistic explanation.
- **Multi-format Output:** Provides answers as paragraphs, outlines, summaries, tables, or mind-maps.

2.2. Key Features and User Interface (UI):

ThinkAny AI's interface is designed to be minimalistic yet powerful:

1. **Search Mode (Synthesized Answers with In-Text Citations or Reference Links)**
 - Search Mode is the core function of ThinkAny AI.

- Unlike traditional search engines that list URLs, ThinkAny AI:
 - Retrieves multiple live web sources related to your question.
 - Uses semantic matching to understand the meaning of your query.
 - Synthesizes the information into a single, coherent answer.
 - Provides inline citations or a reference list at the bottom.
 - Ensures answers are fact-grounded rather than fabricated.

Benefits:

- Saves time by removing the need to read 10–20 open tabs.
- Ensures academic transparency by showing where information comes from.
- Provides evidence-based answers suited for teaching, research, assignments, reports.

Example: “Impact of plastic pollution on slum communities”

Search Mode output includes:

- Key impacts
- Causes
- Health and social consequences
- Citations from NGOs, government portals, news, academic sources

2. Chat Mode (Conversational Clarification and Follow-Up Interaction)

- Chat Mode converts ThinkAny AI into an interactive assistant, similar to ChatGPT but grounded in real-time data.
- Allows continuous, natural conversation
- Helps refine or narrow down your question
- Answer follow-up clarifications such as: “Explain this in simpler words.”; “Give me examples.” “How is this connected to SDG 13?”

- Provides updated responses by re-running background searches when needed

Benefits:

- Supports learning and reflection, especially for students
- Teachers can use it to create differentiated explanations for diverse learners
- Researchers can probe deeper into concepts

3. Summarize Mode (Condensing Long Text into Key Insights)

- Summarize Mode is extremely useful for teachers, students, and researchers.
- Takes long web pages, articles, or bulky subject matter
- Breaks them down into:
 - Key points
 - Bullet summaries
 - Short explanations
 - Essential facts
 - Identifies the central idea without losing accuracy

Benefits:

- Reduces reading load for students.
- Helps teachers quickly build lecture notes.
- Supports literature reviews.
- Ideal for revision and exam preparation.

4. Mind-Map & Outline Mode (Visual and Structural Organization of Knowledge)

- This is one of ThinkAny AI's most powerful features for teaching and learning.
- There are several modes in this AI application

Mind-Map Mode

- Creates a visual map showing how ideas connect to each other.
- It shows a central idea in the middle, branches for sub-themes, further for concepts and a clear picture of relationships.

- It is excellent for visual learners, useful for brainstorming, revision, and class discussions.
- It helps students grasp “the big picture” quickly.

Outline

- It creates a hierarchical, textbook-style structure of the topic.
- It shows- Main headings, Sub-headings, Sub-points, Supporting explanations.
- It helps teachers immediately convert the outline into:- Lesson plans, Lecture notes or Assignment questions.
- Students can create notes for long chapters.
- It is also used in Academic Writing, Literature Review structure or a presentation flow.

5. Snippet View (Highlighted Key Source Extracts)

- Snippet View shows the most relevant parts of the web pages used.
- It shows short quoted sections from online sources
- It highlights important sentences and shows where each idea in the answer came from.
- It acts like a “mini evidence box”.

Benefits:

- It supports evidence-based learning
- It helps prevent misinformation
- It encourages students to verify content
- It also supports academic referencing

Example: If the topic is “Early signs of depression in adolescents,” Snippet View highlights lines from WHO, UNICEF, medical articles, etc.

6. Export Options (Copying, Sharing, and Using Outputs Professionally)

- ThinkAny AI provides easy export options for teachers, students, and researchers.
- One can export- Summary, Outline, Mind Map structure or Detailed search results

Benefits:

- Teachers can directly paste into lesson plans.

- o Students can compile their notes.
- o Researchers can move outline into their thesis
- o It is useful for presentations, brochures, workshop materials

2.3. Differentiating Characteristics:

What sets ThinkAny AI apart is its hybrid model that merges the accuracy of search engines with the fluency of generative AI. Instead of giving unverified or outdated answers, the system grounds its responses in retrieved data. Its structured output modes—especially outlines and mind maps—are unique strengths that make it highly suitable for academic and pedagogical use.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup:

To use ThinkAny AI, users need:

- A device with internet connectivity.
- A ThinkAny AI account (Free tier available).
- A browser such as Chrome, Firefox, or Safari.

No installation is required since ThinkAny AI operates completely online.

3.2. Step-by-Step Usage Guide (Scenario-Based): (with screenshots)

- Scenario 1: Conducting a Literature Review
 1. Entering the Topic Impact of AI on Education
 2. ThinkAny AI Retrieves Web Sources



Fig 2. Entering the research topic "Impact of AI on Education" in the ThinkAny Search Bar

3. The AI generates a consolidated summary.



Fig 3. Consolidated summary generated from retrieved sources, presenting the key findings.

4. Switching to Outline Mode



Fig 4. Outline mode displaying the structured themes for the



Fig 5. Export option allowing users to download or copy the structured outline for academic writing.

5. Exporting the Outline

- Scenario 2: Preparing a Lesson Plan.
 1. Enter your lesson topic (e.g., Sustainable Development Goals).
 2. Select 'Mind-map' mode to identify interconnected themes.
 3. Use the structured hierarchy to design activities.
 4. Save or copy the output to integrate into your lesson notes.

3.3. Tips and Best Practices:

- It is important to use precise prompts to achieve deeper accuracy.

- It is helpful to compare multiple outputs (Summary, Outline, Mind-map) for a comprehensive understanding of the topic.
- It is necessary to validate the content before using it in scholarly or academic work.
- It is advisable to use ThinkAny AI alongside traditional academic sources to ensure balanced and reliable research.

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

ThinkAny AI supports 21st-century learning by creating space for inquiry, critical thinking, digital literacy, and autonomy. It helps students move beyond rote learning by promoting exploration, synthesis, and research skills.

4.2. Impact on Teaching and Learning:

- Enhances the efficiency of lesson planning.
- Encourages constructivist learning by enabling students to build knowledge through exploration.
- Supports differentiated learning by generating varied forms of content.
- Makes information accessible in multiple modes (verbal, visual, hierarchical).



4.3.

Fig 6. Specific classroom applications

Specific Classroom Applications:

- Generating simplified summaries of complex topics.
- Creating visual mind-maps for classroom discussions.
- Assisting in project-based learning.
- Supporting research skill development.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

- It depends on the reliability of retrieved sources for maintaining accuracy.
- It requires paid access for some advanced features.
- It can create potential information overload for novice users.
- It requires digital literacy to interpret the output critically.

5.2. Ethical and Equity Considerations:

Ethical concerns include misinformation, over-reliance, academic integrity issues, and data privacy. Equity concerns revolve around access for learners from economically disadvantaged contexts.

5.3. Future Outlook and Roadmap:

Future developments may include:

- Enhanced multimodal search (videos, academic PDFs).
- Greater integration with educational platforms.
- Improved transparency in source citation.
- Accessibility tools for inclusive learning.

6. Supplementary Information and References

6.1. Tool Access Details:

- Official URL: <https://thinkany.ai>
- Pricing Model: Freemium tier with monthly subscription for premium features.

6.2. Further Reading and Documentation:

ThinkAny AI official help page

- Articles on Retrieval-Augmented Generation
- AI in Education whitepapers

6.3. References:

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TopMediaAI

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

The tool is TopMedia AI, an integrated platform designed to simplify media creation. It provides users the ability to produce high-quality audio, music, and video content through a user-friendly interface. TopMediaAI allows content creators, educators, marketers, and hobbyists to generate professional media without requiring prior technical expertise. Its main purpose is to make media production accessible and efficient, helping individuals focus on creative ideas rather than technical details.



Fig 1 . Logo of topmedia.ai



Fig 2 . Dashboard of Topmedia.Ai

1.2 Brief History and Development

TopMediaAI was introduced around 2022 with the vision of democratising multi-media creation. The developers aimed to provide a platform that could combine various creative tools into one environment, making it possible for users to produce videos, music, and voiceovers in a seamless manner. Over the years, the platform has evolved to include features such as realistic voice generation, music composition, and video creation tools. The goal has been to empower creators, educators, and businesses to produce content that is engaging and professional without the need for extensive training or expensive equipment.

1.3 Target Audience and Scope

TopMediaAI is designed for a wide range of users. It is ideal for content creators who wish to make videos for social media, educators who want to create engaging learning materials, marketers developing promotional content, and hobbyists interested in experimenting with multi-media. The platform supports multiple media types including music, video, and audio narration. Its scope extends to producing content for classrooms, online courses, marketing campaigns, podcasts, and personal creative projects.

2. Characteristics and Features

2.1. Core AI Capabilities

TopMediaAI offers several key capabilities that enhance media creation.

1. **Music Generation:** Users can create original music tracks by providing textual descriptions or moods. The AI generates music automatically, helping individuals with little to no musical experience produce professional tracks.
2. **Song Cover Creation:** The platform allows users to produce covers of existing songs in different styles and genres.
3. **Text-to-Speech Conversion:** Written text can be converted into natural-sounding speech. Users can select voice types, languages, and accents to suit their content.
4. **Voice Cloning and Voice Modulation:** Users can clone voices or adjust pitch and tone to create unique voiceovers. This feature is particularly useful for personalized content and multi-lingual projects.
5. **Video Generation:** Users can create videos by providing text or images. The platform can generate video scenes, incorporate subtitles, and add voiceovers automatically.



Fig 3 . Video Generation

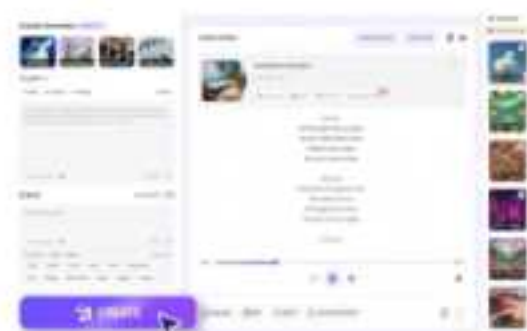


Fig 4 . Music Generation

2.2 Key Features and User Interface

The platform provides a clean and intuitive interface that allows users to access all features from one location.

For text-to-speech, users simply enter their text, select a voice, and adjust parameters such as speed, pitch, and tone. For music creation, users input descriptive prompts, select genre and mood, and receive a complete track ready for use. Video creation follows a similar simple process, with the ability to generate scenes, add narration, and include subtitles. This design makes it accessible for beginners while providing enough flexibility for advanced users.

2.3 Differentiating Characteristics

TopMediaAI stands out because it brings multiple media tools together in a single platform. Users do not need separate software for music, video, or voiceover tasks. It is also designed to be easy to use, reducing

the learning curve for new users. The platform offers a wide variety of outputs, including realistic voices and professional music tracks. All content generated is royalty-free for commercial use, making it practical for businesses and creators who intend to distribute their work.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

To use TopMediaAI, users need a stable internet connection as the platform is web-based. Creating an account is the first step, after which users can choose a free trial or select a paid subscription depending on their needs. Paid subscriptions offer additional features such as higher limits on music and video generation, more voices for text-to-speech, and extended output options.

3.2 Step-by-Step Usage Guide

Scenario: Creating a Voiceover for a Lesson

1. Log in to the TopMediaAI platform and select the text-to-speech feature.
2. Enter the script or lesson content into the text box.
3. Choose a suitable voice from the available library, considering the language, accent, and tone.
4. Adjust speed, pitch, and volume to ensure clarity and naturalness.
5. Preview the generated voiceover and make necessary adjustments.
6. Download the audio file in a preferred format such as MP3 or WAV.

Scenario: Generating Background Music for a Video or Podcast

1. Navigate to the AI music generator section.
2. Provide input describing the mood, style, or purpose of the track.
3. Select genre, tempo, and instruments to guide the AI.
4. Review the generated music and make refinements if necessary.
5. Download the completed track and integrate it into videos, presentations, or other projects.

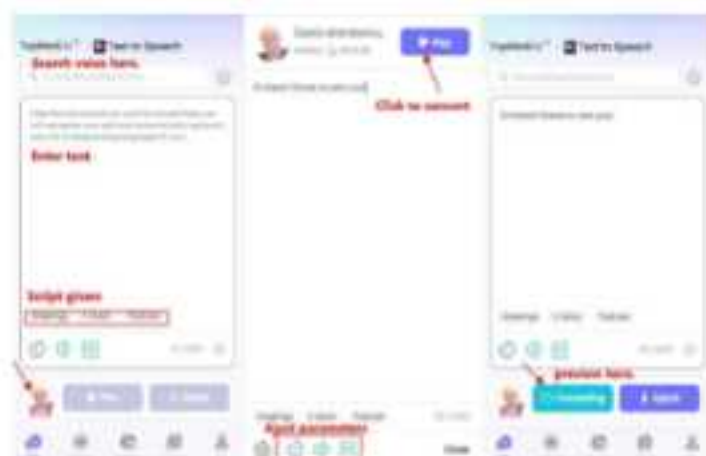


Fig 5 . Steps

3.3 Tips and Best Practices

To achieve the best results, it is recommended to provide clear and specific prompts for music and video generation. Adjust voice and music parameters carefully to maintain naturalness and coherence. Preview all outputs before final use, and ensure compliance with licensing terms for commercial applications. Planning scripts and storyboards before generating media can also improve the quality of videos.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

TopMediaAI offers tools that allow educators to produce rich multi-media content without specialised skills. It can help teachers convert lesson plans into videos, create audio learning materials, and generate interactive content. The platform supports inclusive education by offering audio-based resources for students with different learning preferences and accessibility needs.

4.2 Impact on Teaching and Learning

Using TopMediaAI, educators can create engaging learning experiences that include narration, visuals, and background music. It facilitates differentiated instruction, where students can access content in multiple formats according to their needs. The tool can also save time, allowing teachers to focus on pedagogy rather than technical production.

4.3 Specific Classroom Applications

Educators can use TopMediaAI to produce lecture videos, interactive story-based lessons, audiobooks, and language learning exercises. Students can also use the platform for multi-media assignments or creative projects. The ability to produce high-quality content quickly makes it suitable for online courses and classroom teaching alike.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Generated content may not always capture the subtlety and emotional nuances of human performance. The quality of music and voiceovers may vary, requiring multiple attempts. Users must also rely on internet connectivity, and advanced features may be restricted to paid plans.

5.2 Ethical and Equity Considerations

Voice cloning and AI-generated media require careful ethical considerations. Misuse of someone's voice without consent is a potential concern. Users should be mindful of copyright and licensing regulations when using AI-generated content for public or commercial purposes.

5.3 Future Outlook and Roadmap

As AI technologies improve, the quality and realism of media generated on TopMediaAI are expected to increase. Future developments may include more advanced video editing, animated characters, and AI-driven storytelling tools. The platform is likely to become increasingly valuable for education, marketing, content creation, and entertainment.

6. Supplementary Information and References

6.1 Tool Access Details

- Official URL: <https://www.topmediai.com>
- Pricing and License Model: TopMediaAI offers a free trial with limited usage. Paid plans provide additional features and increased access for professional and commercial use.



Fig 6 . Plans and Pricing of Topmedia

topmediai.com is
rated **Excellent**

Based on 479 reviews



★ Trustpilot

Fig 7 . Rating of Topmedia

6.2 Further Reading and Documentation

- Official tools page for detailed descriptions of AI music, video, and text-to-speech features
- Pricing page for subscription details
- Independent reviews highlighting practical uses, pros, and limitations

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TRINKA AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality



Fig.1 Trinka Logo

Trinka AI is an AI- powered writing assistance and grammar checker geared largely for academic, technical, and formal writing. It enables researchers, students, professionals, and writers to improve the grammar, style, tone, clarity, and organization of their documents. Its primary purpose is to improve writing quality, publication readiness, and alignment with academic norms.

1.2. Brief History and Development

Trinka evolved to address a vacuum created by general purpose grammar tools, many editors excel at casual English or blogging-style writing, but struggle with scientific, technical, or research oriented writing.

Trinka was designed to meet these needs by emphasising advanced grammar, technical vocabulary, academic tone, and publishing readiness. It has evolved over time to include capabilities beyond simple grammatical correction, such as paraphrasing, citation checking, plagiarism detection, style guide adherence, and "auto-edit" document processing.

1.3. Target Audience and Scope

Trinka's target audience includes students writing essays or assignments, researchers preparing manuscripts, thesis, or journal submissions, professionals drafting reports, proposals, or formal documents, writers creating technical or scientific content, and anyone who requires precise, formal, publication ready writing.

Its scope includes academic papers, research articles, essays, dissertations, technical reports, business documents, and other types of formal writing, particularly where grammar precision, formal tone, terminology uniformity, and publication style are critical.

2. Characteristics and Features

2.1. Core AI Capabilities

Trinka provides advanced grammar verification, including the correction of complicated grammar problems that many other programs overlook. It also improves sentence structure, examines contextual spelling and tailors word choice to the intended meaning and academic tone. Furthermore it allows for style and use modifications, such as translating writing to US or UK English norms based on audience or publishing.

2.2. Additional Writing Enhancements

Trinka, in addition to grammar, assists in aligning writing with formal academic standards by addressing style guide preferences, reducing redundancy and verbosity to meet word count or clarity requirements. This ensures unbiased and sensitive language, and suggests technical phrasing appropriate for scientific or scholarly texts. It also includes writers suit tools such as paraphraser, consistency checks to detect inconsistencies throughout a document, citation checking, and even a plagiarism check, making it a comprehensive tool for academic and technical writing.

2.3. Ease of Use & Accessibility

Trinka is a web based application that allows you to paste text, or upload documents without requiring any specific software installation. Trinka provides an "Auto-Edit File" option for heavy users or long manuscripts: Upload a Word document and Trinka will automatically apply fixes, then download the modified version with tracked modifications if necessary. It also includes browser plugins and word add-ins, making it compatible with web editors, email, and documents. It is great for students, authors, and professionals writing in a variety of settings.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

Trinka requires only an Internet connection and a web browser.

Sign up for a free account to start using the basic grammar and spell checking tools.

Users may need to pay for premium services such as plagiarism detection, auto file editing, and citation tools.

3.2. Step-by-Step Usage Guide

Scenario 1: Refining a Student Essay

Paste the draft essay into Trinka's editor → Run the grammar & style check → Accept suggested corrections for grammar, punctuation, tone → Optionally revise further → Copy or export the polished text.

Scenario 2: Preparing a Research Manuscript for Publication

Upload your manuscript file (Word/PDF) → Run "Auto-Edit File" for grammar, spelling, and style checks → Use citation checker / journal-style preferences → Ensure technical phrasing and formal tone → Export final version ready for journal submission.

Scenario 3: Preparing a Lesson Plan or Teaching Material (For B.Ed Students)

1. A B.Ed student drafts a lesson plan, teaching notes, or micro-teaching script.
2. They paste the content into Trinka to check grammar, instructional clarity, and teacher-appropriate tone.
3. Trinka refines the objectives, instructions, procedural steps, learner-friendly language, and removes ambiguity.
4. The student finalises the polished, professional-quality lesson plan for their teaching practice.

Scenario 4: Paraphrasing or Rewriting Content

If you need to rewrite content (e.g. summarizing someone else's idea or rephrasing for clarity), use the paraphraser. It restructures sentences while maintaining the meaning, helping avoid repetition, and improve readability.

3.3. Tips and Best Practices

Always personally examine AI ideas, especially in technical or domain specific writing. AI tools are useful but may overlook nuanced meaning or context.

Set discipline subject area preferences in it to improve context-aware corrections.

Use "Auto-Edit File" for large papers, but double check all changes.

Track changes assist in reviewing adjustment before submission.
Combine its corrections with your own editing.
Use it as a first pass to catch problems and polish structure, then enhance content, logical flow, and technical accuracy as needed.

4. Educational & Professional Implications and Applications

4.1. Rationale for Academic and Technical Writing

Academic and technical writing necessitate clarity, precision, good syntax, formal tone, appropriate terminology, and adherence to style guidelines. Trinka meets all of these requirements, enabling non native English speakers, early career researchers, and students to generate error free and high quality writing. It alleviates the initial load of language editing, allowing writers to concentrate on research substance, arguments, and critical thinking rather than grammatical accuracy.

4.2. Impact on Students, Researchers and Professionals

Trinka allows students to enhance essays, assignments, dissertations and thesis papers before submitting them, thereby enhancing readability and academic quality.

Researchers preparing journal manuscripts or conference papers benefit from language polishing, style-guide adherence, and technical wording assistance, which increases their chances of acceptance.

Trinka can help professionals write reports, proposals and formal papers with clarity, professionalism, and the right tone, making it beneficial in businesses, technical or scientific, and for administrative environments.

4.3. Specific Use Cases

- Writing academic essays, term papers, thesis chapters, literature reviews and research proposals. Prepare scientific or technical papers, project proposals, company documents and grant applications. Editing formal emails, business letters, and professional communications.
- Rewriting or paraphrasing text to improve clarity, summarising articles, and creating review drafts. Ensures publication-ready quality through consistent style, citation readiness, suitable terminology, and plagiarism checks.

5. Challenges, Limitations, and Ethical Considerations

5.1. Limitations & Challenges

No Artificial Intelligence tool is flawless. Trinka may provide suggestions that affect the intended meaning, therefore manual evaluation is required. AI may not always interpret context accurately in highly specialised or extremely technical writing, therefore domain expertise is still required. The free plan has limits, big or long papers may require premium versions for full advantage.

5.2. Ethical and Academic Integrity Considerations

While capabilities such as paraphrasing or rewriting can help enhance clarity, utilising them blindly may result in unintended plagiarism or over-reliance on AI. Users must guarantee originality and correct referencing for school assignments or research papers. The content and ideas must be unique. AI should be used to improve clarity and correctness, not as a replacement for critical thinking and original work.

5.3. Situations When Human Proofreading Still Matters

Human proof reading is useful for creative writing, highly technical information, sensitive subject matter or nuanced tone, since a human editor can detect subtle, logical, conceptual, or contextual flaws that AI may overlook.

Humans must do peer review of content quality, references, argument structure, methodology, and findings for publication-ready academic works. AI techniques such as Trinka simply assist with language polishing.

6. Supplementary Information and References

6.1. Tool Access & Pricing / Licensing Model

Website: <https://trinka.ai>

Basic plan (free) allows limited usage: good for essays, assignments, short documents.

Paid plans (or institutional / enterprise plans) offer full features: unlimited checks, plagiarism detection, citation tools, auto-file editing, consistency checks, journal-ready formatting tools, and academic-integrity suite (for institutions) for research and publication workflows.

6.2. Further Reading & Documentation

Trinka offers a detailed whitepaper, comparing its performance against other grammar checkers, showing improved accuracy and better subject-specific error detection for academic writing.

Their website includes blog articles, FAQs, guides on using grammar



checks, style settings, and discipline-specific writing tips helpful for users new to academic writing or non-native English speakers.

6.3. References

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- Trinka AI. (n.d.). *Trinka whitepaper: Comparative analysis of academic grammar tools* [PDF]. https://trinka.ai/assets/resources/Trinka_WhitePaper.pdf

Udio AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

- **Tool Name:** Udio AI Music Generator
- **Core Functionality:** Udio is a generative AI platform that creates **original, high-fidelity music tracks**—including vocals, lyrics, and instrumentation—from text prompts.



Fig.1 Udio Logo

1.2. Brief History and Development

Founded by former DeepMind researchers and launched in public beta in **April 2024**, Udio aims to **democratize music creation**. In education, it lowers the barrier for students and teachers to create custom audio without needing expensive instruments or production software.

1.3. Target Audience and Scope

The audience includes **music educators, media students, general classroom teachers, and student creators**. The scope covers creating study aids, backing tracks for performances, sound design for student films, and experimental composition.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Text-to-Music:** Converts descriptive prompts (e.g., "A Baroque harpsichord concerto in A minor") into audio.
- **Lyric Generation:** Can write and sing original lyrics based on a topic (e.g., a song about the Water Cycle).
- **Structure Awareness:** Generates tracks with intros, verses, and choruses.

2.2. Key Features and User Interface (UI)

- **Prompt Box:** The main interface for entering descriptive text.

- **Custom Mode:** Allows users to input their own lyrics (e.g., a poem or historical text) to be set to music.
- **Remix/Extend:** Tools to lengthen a track or change its style (e.g., changing a song from "Reggae" to "Punk Rock").

2.3. Differentiating Characteristics

- **Vocal Realism:** Known for producing highly realistic human-sounding vocals, which is excellent for language learning or drama projects.
- **Genre Versatility:** Can handle complex requests like "Gregorian Chant" or "1920s Swing," useful for historical context.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Requirements:** Browser and internet connection.
- **Account:** Registration via email or Google.

3.2. Step-by-Step Usage Guide

Scenario 1: Creating a Mnemonic Song for Science Class

1. **Objective:** A teacher wants to help students memorize the elements of the Periodic Table.
2. **Custom Mode:** The teacher selects "Custom Mode" and pastes the names of the first 20 elements into the lyrics box.
3. **Prompt:** They enter: "Upbeat catchy pop song, 120 BPM, clear female vocals, educational tone."
4. **Generate:** Udio creates a catchy tune using the element names as lyrics.
5. **Use:** The teacher plays this at the start of class to aid memory retention.

Scenario 2: Sound Design for a Student Film Project

1. **Objective:** A media studies student needs royalty-free music for a suspenseful scene in their short film.
2. **Prompt:** The student types: "Tense cinematic ambient soundscape, slow build, deep bass, ticking clock sound, no vocals."
3. **Refine:** The student generates a few versions, picks the best one, and uses the "Extend" feature to make it fit the length of the scene.
4. **Export:** They download the track and import it into their video editor.

3.3. Tips and Best Practices

- **Genre Tags:** Use specific musical terms (e.g., "Staccato," "Reverb," "Acoustic") for better control.
- **Iterate:** Generate multiple versions to find the one that best fits the lesson mood.
- **Legal Check:** Remind students to cite the tool if required by the assignment rubric.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Udio fosters **creativity and interdisciplinary learning**. It connects music to other subjects (History, Science, English) and allows students to express understanding through a medium other than writing.

4.2. Impact on Teaching and Learning

- **Engagement:** Custom songs make rote memorization fun and engaging.
- **Accessibility:** Allows students with no musical training to participate in composition activities.

4.3. Specific Classroom Applications

- **History:** "Create a song that represents the mood of the Roaring Twenties."
- **English Literature:** "Set this Shakespeare sonnet to a modern Hip-Hop beat to analyze the rhythm."
- **Foreign Language:** Generate songs in the target language to practice listening comprehension.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Copyright:** The legal status of AI music training data is debated; educators should be aware of this context.
- **Inconsistency:** Sometimes the AI ignores specific instructions in the prompt.

5.2. Ethical and Equity Considerations

- **Artist Rights:** Acknowledging the debate around AI replacing human musicians is a valuable discussion point for ethics classes.
- **Appropriateness:** Filters usually catch explicit content, but teachers should monitor generated lyrics.

5.3. Future Outlook and Roadmap

- **Licensing:** Udio is moving toward licensed partnerships, which may clarify usage rights for schools.
- **Stem Separation:** Future features may allow isolating vocals/instruments for remixing assignments.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://www.udio.com/>
- **Pricing:** Subscription/Credit model (Free daily credits available).

6.2. Further Reading

- Udio Blog
- Articles on "AI in Music Education."

6.3. References

- Udio Official Documentation.
- Tech news on Udio's launch and legal challenges.

UpEducators AI

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1. Introduction and Tool Overview



Fig 1. upEducators AI Logo

1.1. Tool name and core functionality

UpEducators AI is an AI-powered ed-tech platform designed for teachers, tutors, parents, and students. The platform offers tools for generating worksheets, lesson plans, quizzes and assessments, notes/summaries, interactive worksheets or story-based materials, and presentations - all aligned with Indian curricula (such as CBSE, ICSE, IGCSE).

1.2. Brief History and Development

- The parent organisation, UpEducators, was founded by Ankush Bhandari and his wife Malvika in 2020, with the goal of upskilling educators in digital pedagogy and modern teaching methods.
- As part of this mission, they developed upEducators AI - positioning it as 'India's first AI platform for educators'.
- The organisation claims to have trained thousands of educators (on digital pedagogy/AI-use for education) through various courses and workshops.
- More recently (2025), UpEducators has collaborated with **Google for Education** in a nationwide AI upskilling program for teachers, aiming to integrate AI meaningfully into classrooms across India.

1.3. Target Audience and Scope

Target Audience: Teachers (school, college, tuition, coaching), tutors, institution owners, parents, students seeking self-study support, educational institutions seeking digital transformation. Because of its alignment to Indian curricula, it is especially suitable for schools under CBSE / ICSE / IGCSE / Indian state boards.

Scope: Content generation (worksheets, quizzes, lesson plans, summaries), resource-rich teaching aids (storybooks, interactive worksheets), assignments/assessments, presentations, and even administrative / content marketing for educational institutes (for example, marketing material or digital-content creation - per feature-list on site). Also supports multilingual and inclusive output (as per its claims) to cater to diverse learners and contexts.

2. Characteristics and Features

2.1. Core AI Capabilities

- The platform uses AI to automatically generate academic content: questions (objective, short answer, long answer), worksheets, quizzes/assessments.
- It can produce teaching resources like story-books, interactive worksheets, and gamified activities to make learning engaging.
- It supports curriculum alignment - the AI is designed to generate output aligned with Indian boards including CBSE, ICSE, IGCSE.
- There is reportedly multilingual support, enabling generation of content in multiple languages to support diverse learners.

2.2. Key Features and User Interface (UI)

The UI of UpEducators is simple and intuitive, with minimal technical knowledge required; this reduces barriers for teachers who might not be tech-savvy.

Key features include:

1. **Worksheet Generator:** Generate worksheets with questions, MCQs, subjective questions, diagram-based questions.
2. **Lesson Plan Builder:** Helps craft structured lesson plans including teaching objectives, activities, assessments, and follow-up tasks.
3. **Notes / Summary Maker:** For students or teachers to generate concise notes or summaries for any topic.
4. **Presentation / PPT Creator:** To build basic slide decks for classroom teaching.
5. **Interactive Activities / Story-book / Gamified Materials:** For making learning more engaging, especially for younger students.

6. **Assessment & Assignment Generator:** For tests, quizzes, homework assignments, question banks.
7. **Templates & Customizability:** Pre-designed templates for lesson plans, worksheets, activities; options to customize by class, subject, topic, difficulty.

2.3. Differentiating Characteristics

What sets UpEducators AI apart from generic global AI tools:

1. **India-Curriculum Focus:** The platform emphasizes alignment with Indian education boards (CBSE, ICSE, IGCSE, state boards), making output directly usable in Indian classrooms.
2. **Teacher & Institution Oriented:** Rather than being just a general-purpose AI assistant, it's built specifically for educators and institutions - offering features beyond content generation, such as planning, class-wide assessments, institutional content needs, etc.
3. **Inclusive & Multilingual Output:** Claimed support for multiple languages and inclusive resources, which helps in diverse classrooms across India.
4. **Ease of Use:** The emphasis on user friendliness - no need for prompting expertise or coding - makes it accessible to a broad range of educators.
5. **Comprehensive Resource Types:** From worksheets to storybooks to gamified activities to lesson plans - the breadth of resource types is larger than many simple AI-text tools.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To start using upEducators AI:

- A device (computer or mobile) with internet access - the platform appears web-based.
- A registered account on upEducators (free trial or paid subscription). The platform offers a free trial (with limited credits) and paid credit-based plans.
- Basic inputs: Class/Grade, Subject, Topic - and optionally the type of content needed (worksheet, notes, lesson plan, etc.)
- Review capacity: Because AI-generated content may need supervision/editing to match local syllabus and verify accuracy.

3.2. Step-by-Step Usage Guide

Step 1: Open the website (upeducators.ai) in a browser.

Step 2: Log in / Sign up

Step 3: On the dashboard, select the tool needed - e.g. Worksheet Generator, Lesson Plan Builder, Notes Maker, PPT Creator, etc.

Step 4: Enter required details like class/grade, subject, topic, type of output. Optionally add instructions (number of questions, type of questions, difficulty level, etc.).

Step 5: Click Generate / Create. AI processes and returns the output.

Step 6: Review and edit as needed. Check for syllabus alignment, clarity, language, correctness.

Step 7: Download, save, or export - depending on your needs (worksheet, PDF, PPT, notes).

This process is the same for different resource types (worksheets, lesson plans, notes, presentations), making the tool flexible and easy to adopt quickly.

3.3. Tips and Best Practices

- Provide clear, detailed instructions when you generate - e.g. specify class, topic, type and number of questions, difficulty level - this improves AI output relevance.
- Always review AI-generated material before using - adapt wording, fix factual errors, ensure alignment with your board's syllabus.
- Customize for context: Indian classrooms often have regional variations - you may need to adapt content language or examples accordingly.
- Use as a starting point, not final product: Think of AI output as a draft you refine - this keeps teaching quality high.
- Combine resources: Use worksheets + lesson plan + PPT + activities together for a comprehensive teaching module.
- Use credits wisely: Since output generation consumes credits (in paid plan or trial), plan generation in batches (for a week/month), to maximise efficiency.

4. Educational Implications and Applications.

4.1. Pedagogical Rationale.

- Teachers often spend many hours creating assessments, worksheets, and lesson materials for different classes/grades. AI-powered resource generation can reduce preparation time, allowing teachers to focus more on teaching and student interaction.
- By quickly producing differentiated resources (worksheets, activities, summaries), the platform supports diverse learning needs - important for heterogeneous classrooms where students have varying levels of understanding.
- With interactive, gamified or story-based activities, learning becomes more engaging and student-friendly, moving away from rote learning to understanding and application.

- Such tools enable scalable teaching practices - useful for large classes, tutoring centers, or coaching institutes - while maintaining quality and consistency.

4.2. Impact on Teaching and Learning

- Teachers can deliver lesson-ready plans, worksheets, assignments and activities in significantly less time. This helps especially when handling multiple classes/subjects or tight academic schedules.
- Students get access to well-structured worksheets, practice questions, summaries for revision - useful for self-study, homework help, exam preparation.
- For institutions - smoother workload distribution, faster resource generation, consistent quality across batches, and quicker response to syllabus changes or new curriculum demands (since AI can rapidly regenerate updated materials).
- Potential to increase accessibility: with multilingual support and quick content generation, even small tuition centres or rural schools can leverage AI to provide better learning resources.

4.3. Specific Classroom Applications

- **Regular revision modules:** Weekly or monthly worksheets for homework / practice.
- **Unit assessments / quizzes:** Generating question banks for periodic tests.
- **Lesson planning:** Creating structured lesson plans for new chapters, especially for substitute teachers or guest lectures.
- **Remedial teaching:** Generating simplified notes or worksheets for students needing extra help.
- **Interactive learning:** Story-based worksheets or gamified activities for language classes, social science, or younger students.
- **Supplementary learning:** For self-study students or after-school tuition - practice sheets, summaries, revision notes for board exam preparation.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Need for human review:** AI-generated content may contain factual errors, mismatches with syllabus, or language issues - it cannot replace a teacher's judgment.
- **Internet dependency:** The platform appears to be web-based; continuous internet access may be required.

- **Quality variability:** Output quality may vary depending on prompt clarity, complexity of topic, and subject matter. For complex or advanced topics, AI may not always produce accurate or comprehensive material.
- **Credit / Cost constraints:** While there is a free trial, regular use requires purchase of credit plans. For some institutions or individual tutors, cost may be a factor.
- **Over-reliance risk:** There's a danger that educators might become over-dependent - neglecting individualisation, creativity or deeper pedagogical thinking when they rely only on AI output.
- **Digital divide / equity concerns:** Students or teachers without reliable internet or devices may not benefit; rural or low-resource schools might still find access challenging.

5.2. Ethical and Equity Considerations

- **Content accuracy & bias:** AI-generated content must be verified to prevent misinformation or bias. Especially in history, social sciences, moral education - sensitive topics need careful review by educators.
- **Privacy & data security:** If students' data or assignments are uploaded - the platform's privacy and data-handling policies should be scrutinised.
- **Equitable access:** Institutions and teachers in urban areas may benefit more than those in remote or under-resourced regions - which could widen inequality if AI becomes standard only in better-equipped schools.
- **Dependence over skill-building:** Excessive reliance on AI for content generation may reduce teacher engagement with content creation and lower their skill development over time.

6. Supplementary Information and References

6.1. Tool Access Details

- **Website:**
upeducators.ai / Ai.upEducators.com
- **Pricing / Plans** (as of 2025):
Free trial: 50 credits for 30 days.
Paid plans: Silver (1000 credits / 1 year), Platinum (2500 credits / 1 year + priority access)
- **Access requirement:**
Sign-up (email), internet-enabled device, basic subject/topic input for content generation.

6.2. Further Reading and Documentation

Official **About / About Us** page on upEducators website (history, mission, founder info) UpEducators' teacher-training and AI-courses pages (for institutional use, leadership training). Recent news coverage about UpEducators + Google for Education AI upskilling programme (2025).

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Visla

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

As educators, we always need tools that can simplify our responsibilities to make learning more engaging for our students. Visla is an AI-powered video creation platform that helps us generate professional-quality videos, without the technical complexities of traditional editing tools. Instead of manually adding visuals, transitions, or subtitles, we can simply type a prompt, upload our teaching material, or record our explanation. Visla then uses artificial intelligence to automatically generate a polished video with appropriate visuals, background music, subtitles, and scene transitions.

This makes Visla ideal for generating educational resources such as lesson plans, summaries, concept explanations, student presentations, revision content, and course introductions. It also supports multiple languages, collaborative workspaces, and learning management systems.



Fig 1. Logo of Visla AI

1.2 Brief History and Development

Visla was created by Huispin Zhang, an early Zoom engineer who wanted to make video production easier and accessible for everyone. He saw that teachers, students, and creators needed a simple way to make quality videos without technical skills.

Unlike many AI tools that rely on animated avatars, Visla focuses on real footage and professional editing. Over time, it has added features like AI scriptwriting, AI avatars, automatic B-roll, voice cloning, and multi-lingual video creation. With its new updates, Visla now strongly supports education, marketing, and training, making it especially useful for teachers who need quick and effective instructional videos.

1.3 Target Audience and Scope

Visla is designed for anyone who needs to create high-quality videos efficiently. Key user groups include:

- School and college teachers
- Students creating video-based assignments
- Instructional designers
- Educational administrators
- Research scholars preparing video abstracts

Visla is extremely effective in flipped classrooms, blended learning environments, and project-based learning approaches, where visual content supports deeper conceptual understanding.

2. Characteristics and Features

2.1 Core AI Capabilities

- Visla offers a wide range of AI-supported features that streamline the video creation process
- Text-to-video generation
- Automatic footage selection from 2M+ stock media
- AI-assisted scriptwriting for lesson content
- Realistic AI voiceovers and voice cloning
- Auto-generated subtitles in multiple languages
- Custom AI avatars
- Copyright-free background music
- Screen recording tools
- Team collaboration and shared editing
- Branding options for institutions

These capabilities enable us to convert lesson plans, lecture notes, or even one's ideas into clear, engaging educational videos.

2.2 Key Features and User Interface (UI)

- The Visla interface is intentionally designed to be clean and intuitive
- Dashboard for project management
- AI Generation Panel for prompt-based video creation
- Media Library with millions of visuals
- Timeline Editor for arranging scenes
- Script Editor with formatting support
- Voice Studio for narration
- Collaboration Workspace for group projects
- Export Panel for downloading or sharing videos

Even new users can begin producing videos within minutes since the interface reduces the need for technical editing knowledge.

2.3 Differentiating Characteristics

Visla stands out due to its strong AI capabilities and focus on real footage. Its unique strengths include:

- Speed: 3-5-minute videos created in 10-15 minutes
- Smart visual matching
- Automatic subtitles and translations
- Multi-format input support (text, audio, files, URLs)
- Real-time collaborative editing
- Access to Storyblocks' extensive stock library

This makes Visla especially suitable for busy educators looking for professional results with minimal effort.



Fig 3. Created a video on understanding parenting styles

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

Requirements

- ✓ Device with internet
- ✓ Updated web browser
- ✓ Visa account (free or paid)
- ✓ Optional: microphone/webcam

Steps:

- Visit www.vista.us
- Create an account
- Select a plan
- Explore templates or begin a new project

The free plan includes 1,000 credits per month and is ideal for beginners.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario A: Creating a Lesson Explanation Video

1. Click Generate with AI
2. Enter a prompt such as: "Create a 3-minute video explaining the types of parenting style."
3. Review the AI-generated script
4. Replace visuals if needed
5. Record or generate narration
6. Add subtitles
7. Export the video

Scenario B: Converting Existing Notes Into a Video

1. Upload PDF/Word/PPT
2. AI analyses and structures content
3. Review and refine visuals
4. Add questions or reflection points
5. Export for classroom use

Scenario C: Student Projects

Students can:

1. Research a topic
2. Draft a script
3. Generate a video with AI
4. Record their voice
5. Receive peer feedback
6. Submit final video

This enhances creativity and digital literacy.

3.3 Tips and Best Practices

Educational Quality:

- Keep videos 3–6 minutes
- Use clear learning objectives
- Add subtitles for accessibility
- Use simple language

Technical Quality:

- Write specific prompts
- Maintain consistent visuals
- Check audio quality

For engagement:

- Add reflection questions
- Use relevant visuals
- Allow students to create videos

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Visla supports:

- **Multimedia Learning Theory** (dual coding of visuals + narration)
- **Cognitive Load Theory** (AI reduces extraneous load)
- **Constructivism** (students create their own videos)
- **Universal Design for Learning** (subtitles and multi-lingual support)

4.2 Impact on Teaching and Learning

Teachers:

- Save time
- Build digital literacy
- Create reusable content
- Support flipped learning

Students:

- Increased motivation
- Improved comprehension
- Opportunities for creativity
- Self-paced revision

Research confirms that educational videos significantly enhance learner engagement and retention.

4.3 Classroom Applications

- **Science:** virtual experiments and processes
- **History:** timelines and biographies
- **Languages:** grammar and pronunciation
- **Math:** problem-solving visuals
- **Arts:** portfolios and analysis videos
- **Teaching methods:** flipped classroom, PBL, and assessments

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- Internet dependency
- Limited free plan credits
- AI limitations in cultural relevance
- Possible over-reliance on videos
- Device inequality

5.2 Ethical and Equity Considerations

Privacy: Obtain consent before including learners in videos.

Copyright: Use licensed visuals and educate students about fair use.

Accessibility: Always enable subtitles; provide offline alternatives.

AI Ethics: Verify AI-generated information and encourage critical thinking (Selwyn, 2019).

5.3 Future Outlook and Roadmap

Upcoming possibilities include:

- Personalized AI-generated learning videos
- Real-time translation
- Interactive branching videos
- Stronger LMS integrations
- Sign-language avatars

The future will empower teachers to create richer learning experiences using AI.

6. Supplementary Information and References

6.1 Tool Access Details

- Website: www.visla.us
- Plans: Free, Pro, Business, Enterprise
- Educational discounts available.
- Support: Tutorials, Help Center, forums, email support.

6.2 Further Reading

- Visla tutorials
- Digital storytelling resources
- ISTE digital learning standards

6.3 References

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VOCAB AI

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1. Introduction And Tool Overview

1.1. Tool name and core Functionality:

Vocab.AI is an online language-learning platform primarily aimed at helping users build and manage vocabulary lists, sentences, and flashcards. It's built around the principle of integrating vocabulary learning with flexible tools, including text-to-speech, translation/transliteration, collaboration and export/import. The underlying code is open source, under the GPL license.



Fig. 1 Logo of VocabAI

1.2. Brief History and development:

The repository vocab-ai-old, which functioned as a comprehensive language learning and vocabulary management application, initially contained the code for Vocab.AI, which is maintained by the GitHub organization Vocab-Apps. This version, which was archived on April 15, 2024, contained a complete codebase with about 1,500 commits that comprised deployment scripts, documentation, frontend, and backend. The project demonstrated its complexity beyond a simple prototype by managing word lists, translations, and possible TTS or export functions in order to facilitate vocabulary learning.

1.3. Target Audience and scope:

Vocab.AI is a versatile vocabulary-building application designed for sophisticated users, teachers, and language learners. Students looking for word translations and sample phrases, serious independent learners who prefer customisable techniques, teachers sharing vocabulary lists, and Anki flashcard users in need of high-quality text-to-speech are among its main target audiences. With features like word/sentence lists,

translations, and sophisticated audio production, the site mainly concentrates on vocabulary acquisition. It is a customisable toolbox for learning vocabulary because it does not offer structured lessons or grammatical instruction, but it does enable modular plugins for Anki, allowing users to make flashcards and automate chores.

2. Characteristics and features

2.1. Core AI Capabilities:

Vocab.AI's primary function is to automate vocabulary-learning processes, with a focus on sophisticated text-to-speech production through platforms such as Google and Amazon. It offers transliteration and automated translation, making word meanings and phonetic forms easily accessible. Additionally, by enabling users to generate vocabulary lists for export to flashcard programs like Anki, Vocab.AI improves productivity by reducing human labor. However, conversational modules and AI-driven grammar education are not given priority.

2.2. Key Features and User Interface (UI)

Vocab.AI is a flexible platform for creating audio, translating, and expanding vocabulary. Vocabulary list management, multilingual automated translation, and sophisticated text-to-speech capabilities using Google and Amazon are some of the main features. It provides multilingual support, batch processing, and Anki integration for effective flashcard production. The user interface is straightforward and adaptable, making it simple to organise and edit text while emphasising productivity and clarity for both students and teachers.

2.3. Differentiating characteristics:

Vocab.AI distinguishes itself by emphasising customisable, AI-assisted vocabulary acquisition above comprehensive language training. In contrast to standard language apps, it prioritises user-controlled workflows through powerful text-to-speech creation using several premium engines, automated translation and transliteration, and spreadsheet-style word management. It is particularly attractive to serious learners and flashcard users due to its strong interaction with Anki, which enables mass audio synthesis, preset automation, and smooth export.

3. Practical implementation and usage

3.1. Prerequisites and Setup:

Vocab.AI requires users to have an account and a stable internet connection to access features like text-to-speech and premium translations. Essential setups include installing add-ons such as HyperTTS or AwesomeTTS and configuring API keys from providers like Google, Azure, or Amazon for audio and automation functionality in Anki. Users also need to prepare their vocabulary lists using the interface provided. Overall, no advanced technical skills are necessary, as Vocab.AI functions well in both its web interface and Anki post-setup.

3.2. Step-by-Step Usage Guide

- 1. Register and log in:** Establish a Vocab.AI account, log in, and navigate to the primary dashboard where all vocabulary lists are organised.
- 2. Create a new vocabulary list:** Initiate a new project and assign it a name. Utilise the spreadsheet-style interface to incorporate words or sentences you wish to learn.
- 3. Add translations and transliterations:** Employ the integrated auto-translate or transliteration features to swiftly input meanings or phonetic scripts, then modify or enhance them as necessary.
- 4. Configure text-to-speech:** Input API keys (if necessary), select your desired TTS voice, and establish a preset to ensure consistent pronunciation generation.
- 5. Generate audio:** Click the TTS button for individual entries or opt for batch generation to produce audio for the entire list simultaneously.
- 6. Review and refine entries:** Listen to the generated audio, modify translations, include example sentences, and categorise entries using tags or notes.
- 7. Export to flashcards:** Transfer your completed list (with audio) into Anki or another flashcard application, or utilise an Anki add-on if available.
- 8. Begin learning and update as necessary:** Import cards into your flashcard system, review them consistently, and revisit Vocab.AI at any time to add new words or modify your lists.

3.3. Tips and best Practices

To use Vocab.AI effectively, organise words in batches and rely on presets for translation and text-to-speech to save time and maintain consistency. Always review machine translations and add example sentences for better context. Keep fields structured and clean, test audio quality before exporting, and use tags to categorise vocabulary. Regularly export backups of your lists, and start with simple entries before using automation features. When integrating with Anki, check field mapping and card layout to ensure smooth and accurate flashcard creation.

4. Educational implication and application

4.1. Pedagogical Rationale:

The pedagogical rationale lies in supporting efficient, personalised vocabulary acquisition through automation, multimodal input, and learner control. By combining translations, transliterations, audio, and example sentences, it strengthens memory through multiple cues. Its customisable lists and seamless Anki integration promote spaced repetition, while its flexible structure encourages active learning, deeper engagement, and teacher-guided or independent vocabulary development.

4.2. Impact on Teaching and Learning:

Vocab.AI positively impacts teaching and learning by streamlining vocabulary instruction and enhancing learner engagement. Teachers can quickly generate accurate translations, audio, and example sentences, allowing more time for meaningful classroom activities. Learners benefit from personalised lists, multimodal inputs, and seamless integration with spaced-repetition tools like Anki, which improves retention. Its automation reduces manual workload, supports differentiated learning, and enables consistent, high-quality vocabulary practice both inside and outside the classroom.

4.3. Specific Classroom Applications:

In the classroom, Vocab.AI can be used to create topic-based vocabulary lists, generate instant audio for listening practice, and provide accurate translations for multilingual learners. Teachers can share curated lists with students, who then use them for guided practice or independent study. The tool supports rapid creation of flashcards for revision, differentiated word sets for varied proficiency levels, and collaborative vocabulary-building activities that enhance engagement and reinforce learning across subjects.

5. Challenges,ethics and future directions

5.1. Limitation and challenges:

Vocab.AI has limitations, including reliance on machine translations and TTS, which may produce inaccurate meanings or unnatural pronunciations that require teacher verification. Its setup- especially API keys and Anki integration—can be challenging for beginners. Access to premium voices may involve costs, and internet dependency limits use in low-connectivity environments. Additionally, the platform focuses mainly on vocabulary, offering little support for grammar, speaking practice, or full-lesson pedagogy, which reduces its scope for comprehensive language instruction.

5.2. Ethical and Equity Considerations:

Ethical and equity considerations for Vocab.AI include ensuring fair access, as reliance on internet connectivity, devices, and paid TTS services may disadvantage low-income learners. Machine-generated translations and audio may contain inaccuracies or biases, requiring teacher oversight. Data privacy must be protected when using cloud-based tools. Additionally, unequal digital literacy among students can widen learning gaps, making guided support essential to ensure all learners benefit equitably from the platform.

5.3. Future Outlook and Roadmap

Vocab.AI's future likely includes improved automation, richer multilingual support, smoother integrations, and more user-friendly tools to enhance personalised vocabulary learning.

6. Supplementary information and references

6.1. Tools Access Details:

Accessing Vocab.AI is simple and begins with creating an account on the platform's website.

<https://www.vocab.ai/>

Once logged in, users can access tools for vocabulary lists, translation, transliteration, and text-to-speech generation. Advanced features, such as premium voices or high-quality TTS, may require a subscription or prepaid plan, activated through built-in payment options.

6.2. Further Reading and Documentation:

Vocab.ai is useful if you want to dig deeper into its tools, setup, or source code:

- **Official Tutorials Page** — includes guides and walkthroughs for features like HyperTTS, AwesomeTTS, translation tools, batch-generation, Anki integration and more.
- **Vocab.AI Homepage** (“Software Tools for Language Learning”) — overview of all components (Vocab Words, Language Tools, TTS add-ons, integrations) and links to docs.
- **HyperTTS Add-on Page on AnkiWeb** — installation instructions and version history for the add-on that automates TTS for flashcards.

6.3. References:

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Voiceitt

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality



Fig. 1 Voiceitt Logo



Welcome to Voiceitt

Write messages and communicate
using your own voice

Sign in:

Two input fields for email and password, followed by a "Sign in" button.

Voiceitt is an AI-powered speech recognition and communication support tool designed for individuals with speech disabilities or atypical speech patterns. The tool uses machine learning to learn the user's unique way of speaking and then translates it into clear, understandable speech or text.

Voiceitt functions as a bridge between the user and their communication environment by:

- Recognising **non-standard speech**
- Improving **speech clarity**
- Supporting **verbal communication** in classrooms and daily settings
- Enabling **independence and participation** for learners with communication challenges

Through continuous learning, the system adapts to the user's voice over time, improving accuracy and making communication more fluent.

1.2. Brief History and Development

Voiceitt was developed in response to the communication challenges faced by individuals with conditions such as **cerebral palsy, Down syndrome, stroke, speech apraxia, and other neurological issues**.

The development began in the early 2010s when researchers and developers recognised that **traditional speech recognition systems failed to recognise atypical speech**. To address this gap, Voiceitt used **custom AI models** that learn each user's unique speech patterns instead of relying on generic datasets.

Key development milestones include:

- **Initial development (2012–2015):** Early prototypes trained on non-standard speech patterns
- **Beta release (2016–2018):** Collaboration with rehabilitation centres and special educators
- **AI enhancement phase (2019–2022):** Integration of more advanced machine learning and mobile app accessibility
- **Current Version (2023 onwards):** Real-time translation, mobile app with adaptive learning, integration with smart devices

Voiceitt has been recognised internationally as a tool promoting **inclusive communication**, aligning with global movements for **equity, accessibility, and participation in education**.

1.3. Target Audience and Scope

Voiceitt is designed for a broad range of users within **inclusive and special education settings, healthcare, and home environments**.

Target Audience:

- Students with **speech impairments**
- Learners with **cerebral palsy, Down syndrome, autism spectrum conditions, stroke recovery speech issues**
- Teachers and special educators supporting inclusive classrooms
- Parents and caregivers needing communication support for daily interactions
- Speech therapists and rehabilitation professionals

Scope of Use:

Voiceitt is highly effective in environments where **clear communication is essential**, such as:

- Inclusive classrooms
- Special education resource rooms
- Therapy and rehabilitation centres
- Home-based learning
- Community and social interaction settings

The tool supports **participation, autonomy, and engagement**, helping learners express themselves clearly and confidently. It directly aligns with the goals of **inclusive education**, ensuring that communication differences do not become barriers to learning.

2. Characteristics and Features

2.1. Core AI Capabilities

Voiceitt is built on advanced **machine learning and speech recognition algorithms** that are specifically trained to understand **non-standard or impaired speech patterns**. Unlike conventional voice-recognition tools that rely on large sets of typical speech data, Voiceitt develops a **personalised speech model** for each user. Through repeated interaction, the AI learns the individual's pronunciation, rhythm, tone, and unique verbal patterns, gradually improving the accuracy of recognition.

The tool uses **adaptive learning**, meaning it continuously adjusts based on new speech samples and everyday usage. It converts these personalised patterns into **clear and standardised speech or text output**, enabling meaningful and effective communication. This makes Voiceitt particularly valuable in inclusive education where communication barriers often influence participation, social interaction, and learning engagement.

2.2 Key Features and User Interface (UI)

The features of Voiceitt are designed to be **intuitive, accessible, and supportive**, especially for learners with communication challenges. The user interface is **minimalistic and easy to navigate**, ensuring that students, teachers, and caregivers can operate the tool without technical difficulty.

Key Communication Support Features

1. **Real-Time Speech Translation:** The tool instantly converts non-standard speech into clear, understandable speech or text.
2. **Personalised Speech Models:** Voiceitt learns each user's unique speech patterns to improve accuracy over time.
3. **Assistive Interaction Tools:** Users can communicate through voice commands, text prompts, or preset communication options.

User Interface (UI) Design Features

1. **Simple Layout:** The app uses large icons, clean screens, and clear labels suitable for children and individuals with cognitive challenges.
2. **Easy Navigation:** The interface allows users to move between recording, communication, and settings with minimal steps.

3. **Visual and Audio Indicators:** The app provides immediate visual or auditory feedback to guide users during speech recording or communication.

Personalisation and Learning Support Tools

1. **Custom Vocabulary:** Users and educators can add words, names, or phrases that are part of the learner's everyday communication needs.
2. **Progress Tracking:** The AI monitors improvement in clarity and usage, which can be helpful for educators and therapists.
3. **Integration Options:** Voiceitt can connect with smart devices and accessibility tools, supporting classroom and home environments.

2.3. Differentiating Characteristics

Voiceitt stands out from traditional speech-recognition systems due to its **focus on atypical speech**. Most standard AI speech tools struggle to interpret the speech of individuals with disabilities because these tools rely on datasets of typical speakers. In contrast, Voiceitt builds a **customised speech profile** for each user, making it highly accurate and inclusive.

Another unique characteristic is the tool's **ability to learn and adapt over time**, strengthening its translation accuracy as the user interacts with it. This adaptability ensures that students who experience changes in speech due to growth, therapy, or medical conditions continue to benefit from accurate recognition.

Additionally, Voiceitt emphasises **social and educational inclusion**. It enables learners to participate independently in classroom discussions, peer interactions, and daily communication. This focus on autonomy, accessibility, and personalisation makes Voiceitt a distinctive and powerful tool within inclusive education settings.

3. Practical Implementation and Usage of Voiceitt

3.1. Prerequisites and Setup

Before using Voiceitt as an assistive AI tool, certain basic requirements must be fulfilled to ensure smooth functioning:

- **Device Requirements:**
Voiceitt works on smartphones, tablets, and desktops that support internet connectivity and microphone access. It functions on both iOS and Android platforms.
- **User Registration:**
The user needs to create a Voiceitt account using an email ID. This enables cloud-based saving of personalised speech models.

- **Microphone Access:**
Since Voiceitt is a speech-recognition tool for non-standard speech, enabling microphone permissions is essential.
- **Quiet Environment:**
For accurate speech training, the initial setup must be done in a calm, noise-free setting so the AI system can correctly capture pronunciation patterns.
- **Optional Support Materials:**
In inclusive classrooms, teachers may use headphones, visual instruction cards, or AAC boards to support learners while using Voiceitt.

3.2. Step-by-Step Usage Guide

Scenario: A Student with Atypical Speech Using Voiceitt to Communicate in Class



Step 1: Launching and Logging In

- Open the Voiceitt application.
- Sign in using your registered email.



Fig.2 Steps to follow

Step 2: Creating a Personalised Speech Profile

- The app asks the user to record phrases in their natural speech.
- Voiceitt learns unique pronunciation patterns through repeated samples.

Step 3: Using Voiceitt for Real-Time Communication

- After training, the user speaks into the app.
- The AI system interprets the speech and converts it into clear synthesised speech or text.
- The translated output can be played aloud during classroom interactions.

Scenario: Teacher Using Voiceitt During Inclusive Group Activities

- The teacher enables 'Live Mode' so that the students' responses appear instantly during discussion.



- Peers understand the students' contributions more easily, supporting inclusion and participation.



Scenario: Voiceitt for Home-School Communication

- Parents can use Voiceitt to help the child practice speech-based communication tasks at home.
- Teachers can send pre-loaded phrase lists relevant to subjects like English, EVS, or daily routines.

3.3. Tips and Best Practices

1. **Conduct Training Gradually:**
For students with speech difficulties, record 4–6 phrases per session rather than completing all samples at once. This reduces cognitive fatigue.
2. **Use Consistent Pronunciation:**
The accuracy improves when the user speaks naturally but consistently during training. Sudden variation may confuse the model.
3. **Integrate With Classroom Routines:**
Teachers can design voice-based activities, attendance

responses, question-answer sessions, or collaborative tasks where Voiceitt supports participation.

4. Combine With Visual Aids:

Use picture cards, gestures, and AAC boards along with Voiceitt to create a multimodal learning environment.

5. Monitor Progress:

Teachers and parents should periodically check the accuracy of the translated output and adjust or retrain phrases when needed.

6. Encourage Student Confidence:

Emphasise that Voiceitt is a support tool, not a replacement for natural communication. Celebrate small improvements to motivate learners.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Voiceitt directly supports the principles of **inclusive education**, **Universal Design for Learning (UDL)**, and **equitable participation**. Its core rationale lies in reducing communication barriers faced by learners with atypical or non-standard speech. When students can express themselves clearly through AI-supported translation, they participate more actively in learning processes. The tool aligns with constructivist pedagogy, where meaningful engagement and interaction are central.

By enabling personalised speech recognition, Voiceitt promotes autonomy, enhances learner confidence, and facilitates peer understanding. It also supports teachers by ensuring that communication challenges do not limit a student's ability to demonstrate knowledge or engage in classroom dialogue. Overall, Voiceitt becomes a pedagogical bridge that allows students with communication difficulties to fully access curriculum, collaborate with peers, and receive appropriate academic support.

4.2. Impact on Teaching and Learning

Voiceitt introduces several significant improvements in teaching-learning environments:

- **Enhanced Student Participation:**

Students with speech disorders are able to contribute responses, ask questions, and participate in discussions more freely. This strengthens their sense of belonging and improves classroom engagement.

- **Reduced Teacher Misinterpretation:**
Teachers often struggle to interpret unclear speech. Voiceitt translates speech into understandable output, reducing errors and improving teacher responsiveness.
- **Supporting Differentiated Instruction:**
Teachers can tailor instructions more effectively because the tool reveals each student's intended message accurately. This supports personalised learning strategies.
- **Improved Peer Interaction:**
Peers receive clearer communication from students with speech difficulties, promoting empathy, collaboration, and social inclusion during group tasks.
- **Emotional and Social Benefits:**
When communication barriers are lowered, students experience increased confidence, reduced anxiety, and greater motivation to interact.
- **Strengthening Home-School Link:**
Parents can use Voiceitt to practice communication routines at home, ensuring continuity in learning and supporting students' expressive abilities.

4.3. Specific Classroom Applications

1. Classroom Discussion Support

Teachers can use Voiceitt during question-answer sessions to allow students with atypical speech to participate meaningfully.

Example Application:

- The teacher asks a conceptual question,



Fig. 3 Applications

- Students respond using Voiceitt.
- Synthesised clear speech is played aloud for the class.

2. Group Work and Collaborative Learning

Voiceitt helps students engage in group assignments, peer interactions, and project work.

Example Application:

- In a science group activity, the student contributes ideas via Voiceitt.
- Peers understand the input easily, promoting true inclusion in collaborative tasks.



Fig. 4 Example

3. Classroom Routines (Attendance, Instructions, and Daily Responses)

Routine tasks become more inclusive when students can independently respond.

Example Application:

- During attendance, the student speaks their name through the app.
- The teacher verifies attendance without misunderstanding.

Speak to search by searching for keywords with others and search engines. To use Voiceitt, select 'Speak to search', and speak what you want to search. Your search is up to 100 characters long. The search results are displayed on the screen and you can click on the results to get more information. You can also change your voice in the app to make it sound like a different person. Speak to search is a free-to-use app that works on any device with a microphone and internet connection.

Listen to search by text. The app uses a speech-to-text engine to convert your voice into text. You can then search for keywords using the text. The app also offers a 'Listen to search' option, which allows you to search for keywords using a text-to-speech engine. The app also offers a 'Listen to search' option, which allows you to search for keywords using a text-to-speech engine. The app also offers a 'Listen to search' option, which allows you to search for keywords using a text-to-speech engine.

Write to search by text. The app uses a speech-to-text engine to convert your voice into text. You can then search for keywords using the text. The app also offers a 'Write to search' option, which allows you to search for keywords using a text-to-speech engine. The app also offers a 'Write to search' option, which allows you to search for keywords using a text-to-speech engine.

Voiceitt is now available in English around the world:

In the UK & Europe with [voiceitt.com](https://www.voiceitt.com)

In Australia with [voiceitt.com.au](https://www.voiceitt.com.au)

In the USA with [voiceitt.com/us](https://www.voiceitt.com/us)

4. Subject-Specific Learning Activities

Voiceitt can support learning in academic subjects:

- **English:** Practicing reading aloud or verbal responses.
- **EVS/Social Science:** Presenting short explanations using Voiceitt.
- **Mathematics:** Answering oral math problems or explaining steps verbally.

5. Assessment and Evaluation

Students who struggle with oral examinations can use Voiceitt to express reasoning and understanding.

Example Application:

- During a viva or oral test, the student speaks responses into Voiceitt.
- The teacher receives clear, structured answers.

6. Communication Boards Integration

Voiceitt can work alongside AAC boards or visual communication charts to support multimodal learning.



5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

Despite its strengths, Voiceitt faces certain limitations that must be acknowledged. One significant challenge is its dependency on reliable

speech samples. For users whose speech patterns change frequently due to medical or developmental conditions, the accuracy of recognition may fluctuate, requiring repeated retraining. Another challenge relates to diverse linguistic contexts. While Voiceitt supports many speech variations, the tool may not yet handle all regional accents, multilingual users, or mixed-language speech commonly found in Indian classrooms. Technical challenges also exist, including the requirement for a stable internet connection for some features and occasional latency in the speech-to-text conversion process. In resource-poor or rural schools, limited device availability may restrict consistent use. Additionally, teachers may need training to integrate the tool effectively into classroom routines.

Overall, while Voiceitt is highly beneficial, its use requires attention to technical readiness, user training, and contextual adaptability.

5.2. Ethical and Equity Considerations

Ethical considerations play an important role when integrating AI tools like Voiceitt into educational spaces. Privacy is a primary concern because Voiceitt collects voice samples—some of which may belong to vulnerable learners. Schools must ensure informed consent from parents or guardians, secure data storage, and strict adherence to privacy policies. Additionally, ethical implementation requires that the tool be used to support, not replace, human interaction.

Equity considerations emphasise that all learners deserve access to assistive technologies regardless of socioeconomic background. Inequities may arise if only urban or well-funded schools can afford the devices or internet connectivity needed for Voiceitt. To maintain fairness, institutions must consider device-sharing models, government support, or integration into inclusive education policies.

Furthermore, teachers must ensure that the tool enhances communication without creating stigma. Ethical practice requires sensitive introduction, supportive classroom culture, and regular monitoring of student comfort level.

5.3. Future Outlook and Roadmap

The future of Voiceitt appears promising, especially as AI models become increasingly adaptive to diverse speech patterns. In the coming years, Voiceitt is expected to incorporate more advanced machine learning techniques, reducing the need for long training sessions and offering faster real-time translation. Integration with mainstream educational platforms such as learning management systems or digital classrooms is also likely, enabling smoother participation in online and hybrid learning environments.

Future versions may support multi-language speech recognition, making the tool more accessible in multilingual classrooms. Additional developments may include gesture-based communication support, emotion detection to enhance social-emotional learning, and compatibility with wearable devices, allowing seamless communication beyond the classroom.

Voiceitt's roadmap aligns strongly with global trends in inclusive technology, and its evolution will continue to empower learners with diverse communication needs. Continued collaboration between educators, developers, and policymakers will be essential to maximise its educational impact.

6. Supplementary Information and References

6.1. Tool Access Details

Official URL

Voiceitt can be accessed through its official website:

<https://www.voiceitt.com>



Fig.6 Price.

Pricing / License Model

Voiceitt generally follows a **subscription-based model**. The available options include:

- **Free Trial:** A trial period is usually provided so that users can test the tool's accuracy and suitability.
- **Monthly Subscription:** Paid monthly access for individual users.
- **Annual Subscription:** Discounted yearly plan for long-term usage.

- **Institutional Licenses:** Schools, special education centres, and rehabilitation organisations may receive customised pricing based on the number of users.

(Note: Pricing varies by region and organisation. Educators or institutes may request a quotation for academic use.)

6.2. Further Reading and Documentation

To understand the tool more deeply, educators, researchers, and users may refer to the following documentation sources:

1. **Voiceitt Help Center** – Provides detailed guidance on setup, training speech models, supported devices, and troubleshooting.
2. **User Tutorials and Training Guides** – Covers step-by-step instructions for personalising speech recognition.
3. **Technical Documentation** – Explains AI speech recognition mechanisms, data handling, and integration with communication platforms.
4. **Case Studies and Success Stories** – Showcases how Voiceitt is used by individuals with speech disabilities across educational and therapeutic settings.
5. **Accessibility and Privacy Policy Documents** – Useful for understanding ethical considerations and data protection measures.

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- Voiceitt. (n.d.). *Official Website and Product Overview*. Retrieved from <https://www.voiceitt.com>
- Voiceitt Help Center. (n.d.). *User Guides and Documentation*.
- *Accessibility resources and articles describing Voiceitt's role in assistive communication technologies.*
- *Publications and reports discussing AI-based speech support tools for inclusive education.*
- *Research literature on inclusive technology, assistive communication, and AI in special education.*

Vyond

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Vyond is a cloud-based animation and video-creation platform designed for educators, trainers, and content developers to produce engaging animated videos without needing advanced technical skills. It allows users to create character-driven storytelling,



Fig.1 Vyond Logo

lesson videos, explainer animations, and infographics that simplify complex concepts for students. With a drag-and-drop interface, customisable characters, text-to-speech voiceovers, and ready-made templates, teachers can create interactive content that boosts classroom engagement and makes learning more visual and accessible (Vyond, 2023; Mayer, 2021).

1.2. Brief History and Development

Originally launched as GoAnimate in 2007 by Alvin Hung, Vyond aimed to simplify video creation and



make it accessible to a wider audience. In 2018, the platform rebranded as Vyond to highlight its expanded creative capabilities and appeal to professional and educational users. Since then, the platform has continuously evolved, adding features like diverse animation styles, improved character customisation, extensive media libraries, and AI-assisted functionalities such as text-to-video creation. These updates have made it suitable for both classroom teaching and professional training environments (Hung, 2017; Vyond, 2023).

1.3. Target Audience and Scope

Vyond is designed for anyone seeking to create dynamic and visually engaging content without prior video-editing experience. Its main users include school teachers, college educators, instructional designers, curriculum developers, corporate trainers, NGOs, and students. For

educators, it supports lesson planning, concept visualization, storytelling, assessments, and project-based learning. Schools and colleges can integrate Vyond into e-learning programs, digital pedagogy initiatives, and blended classroom models to enhance student engagement and facilitate interactive learning experiences (Robin, 2016; Niemi, Harju, & Vivitsou, 2020).

2. Characteristics and Features

2.1. Core Capabilities

Vyond offers several key capabilities that support teaching and learning:

- Creating animated videos using simple drag-and-drop tools
- Access to pre-built templates for quick content development
- Customisable characters with gestures, expressions, and dialogues
- Automated voiceovers through text-to-speech or external audio uploads
- Visual storytelling to simplify abstract or complex concepts
- Access to a large library of props, backgrounds, and music
- Export options including MP4, GIF, and slideshows (Vyond, 2023; Clark & Mayer, 2016)

These capabilities make it easier for teachers to convert theoretical content into interactive lessons that improve comprehension and retention (Guo, Kim, & Rubin, 2014; Mayer, 2021).



Fig. 2 Features

2.2. Key Features and User Interface (UI)

The Vyond user interface is designed to be beginner-friendly while offering professional video tools:

- Timeline-based editor to arrange scenes, characters, and audio
- Side-panel library with characters, props, sound effects, and templates
- Character creator with multiple animation styles (business, contemporary, whiteboard)
- Motion paths, camera effects, and scene transitions

- Cloud-based storage for team collaboration and remote editing
- Clean project dashboard for managing videos, templates, and media (Yildirim, 2022; Clark & Mayer, 2016)

2.3. Differentiating Characteristics

Vyond stands out due to its focus on character-driven storytelling, three distinct animation styles, and a wide asset library suitable for diverse educational contexts. Teachers can use the platform to create culturally relevant and context-specific animations that make learning relatable. Its ease of use allows educators to produce professional-quality videos without extensive technical training, which is a major differentiator compared to other animation tools (Robin, 2016; Niemi et al., 2020).

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

To use Vyond, educators need:

- A stable internet connection
- A computer or tablet
- A Vyond account

Steps to get started:

1. Visit www.vyond.com
2. Create an account and select a subscription plan (Essential, Premium, Professional, Enterprise)
3. Explore templates or start from a blank canvas
4. Begin building scenes using the timeline editor (Vyond, 2023)



Fig.3 Steps

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario A: Creating Lesson Videos

- Start a new project and select an animation style
- Add characters, props, and scenes aligned with the topic
- Insert narration using text-to-speech or voice recording
- Export the video as MP4 or GIF for classroom sharing (Mayer, 2021; Guo et al., 2014)

Scenario B: Developing Assessment or Revision Content

- Use pre-built templates for quizzes or revision summaries

- Incorporate visuals, diagrams, and interactive pauses
- Export or upload the video to LMS platforms or classroom portals (Robin, 2016; Niemi et al., 2020)

Scenario C: Enhancing Student Projects

- Ask students to storyboard and create animated stories
- Use Vyond to bring narratives to life with characters, sound, and transitions
- Share videos during class or submit them digitally (Clark & Mayer, 2016; Madathil & Greenstein, 2017)

3.3. Tips and Best Practices

- Keep videos concise (2–6 minutes) to maintain attention
- Use visuals paired with narration for multimodal learning
- Choose culturally relevant characters and settings
- Preview all content to ensure accuracy and clarity
- Encourage students to create their own videos to foster creativity (Niemi et al., 2020; Robin, 2016)

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Vyond aligns with multimedia learning principles and constructivist teaching methods. Animated videos help learners build knowledge through sequencing, storytelling, and visualization. The platform supports differentiated instruction, catering to students with diverse abilities and learning preferences (Mayer, 2021; Clark & Mayer, 2016).

4.2. Impact on Teaching and Learning

- Increases student engagement through visual storytelling
- Helps students understand abstract or complex topics
- Saves teachers' time on explanations, enabling more interaction
- Supports project-based learning, flipped classrooms, and blended environments (Guo et al., 2014; Yildirim, 2022)

4.3. Specific Classroom Applications

- Animated science or EVS demonstrations
- Language storytelling and moral education videos
- Short video-based quizzes and revision aids
- School announcements and digital presentations
- Student-created projects for collaborative learning (Robin, 2016; Niemi et al., 2020)

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- Subscription costs can be high for individual educators
- Requires stable internet for smooth operation
- Limited realism compared to live-action video
- Longer videos require more editing time
- Some cultural or local customisation needs manual input (Vyond, 2023; Clark & Mayer, 2016)

5.2. Ethical and Equity Considerations

- Avoid stereotyping characters or misrepresenting cultures
- Respect copyright and use approved media assets only
- Be careful while sharing student-created content
- Ensure equitable access to digital tools for all learners
- Promote responsible use without replacing active learning (UNESCO, 2021; OECD, 2021)

5.3. Future Outlook and Roadmap

Vyond is expected to expand AI-powered features, including automatic scene creation, voice mirroring, and enhanced character expressions. Integration with classroom systems and learning platforms is likely to deepen, supporting interactive, student-centered pedagogy. As digital storytelling grows in importance, Vyond will remain a vital tool for creative, visual, and engaging learning experiences (Hung, 2017; Niemi et al., 2020).

6. Supplementary Information and References

6.1. Tool Access Details

- **Official Website:** www.vyond.com
- **Subscription Plans:** Essential, Premium, Professional, Enterprise
- **Free Trial:** Available for new users

6.2. Further Reading and Documentation

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- UNESCO and OECD reports on digital learning
- Research on digital storytelling in education

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Wayground

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

Wayground, formerly known as Quizizz is an interactive, gamified learning platform and real-time evaluation tool. Its main feature is that it lets teachers make, locate and distribute tests, classes, surveys and polls that use game-like aspects to interest students. Its adaptability, which allows for both self-paced, asynchronous homework assignments and live, synchronous competition in the classroom, is a distinguishing feature. Students engage with the questions directly on their own device, unlike some other platforms, which permits different pacing even during a live session.



Fig 1. Logo of Wayground AI

1.2 Brief History and Development

In contrast to conventional paper-based or shared-screen quizzes, Quizizz was created to meet the demand for a more interesting and stress-free approach to classroom assessment. It achieved significant appeal among K-12 and higher education teachers due to its user-friendly interface and gamified aspects. In recent development, Quizizz has evolved into having added features that make it a comprehensive suite of primarily free-to-use instructional aids (premium features available through the paid plans). Power users can not only assess, but teach, evaluate, review and differentiate the tool's services for their students. According to co-founder Deepak Joy Cheenath, teachers 'wouldn't need to create anything', the application's generative AI tools and content library filled with resources like lesson plans, interactive videos, and flash cards made by teachers and students in over 150 countries, abundant data is at hand.

1.3 Target Audience and Scope

The primary audience for Wayground includes educators, students, schools, and districts:

1. **Students and Learners:** Wayground is designed for all learners and subjects, transcending grade levels. Specific student groups mentioned include:
 - **Middle and High School Students:** A sample lesson plan focuses on this grade range.
 - **Elementary Students:** The Hotspot question type is well-suited for elementary students.
 - **Special Education Students and English Language Learners:** The platform offers robust differentiation and accommodation features to support students in inclusion classes and can translate content.
 - **Visual Learners:** Question types like Hotspot and Labeling are designed for visual learners.
 - **Independent Learners:** The technology focuses on self-regulation, enabling students to work independently at home.
 - **Creators:** Students are empowered to take control of their learning by creating their own assessments and flash cards.
2. **Educators and Institutions:** The platform is designed to help educators implement the digital tool into their instruction. Availability of certain premium features is tiered by plan:
 - **All Plans:** Basic question types (Multiple-choice, Multi-select, True or False, Fill in the Blanks, Open-ended), Interactive video, Passage, Draw, Poll, and Word Cloud are available on all plans.
 - **Premium Plans (Individual Super, Schools, and Districts):** Higher-order and specialized features, such as Math Response, Graphing, Match, Reorder, Categorize, Drag & Drop, Drop-down, Labeling, Hotspot, Audio Response, and Video Response, are available on these plans.
 - **Professional Development:** Wayground provides Wayground University for teachers seeking online professional development to strengthen their familiarity and facility with the platform.

2. Characteristics and Features

2.1 Core AI Capabilities

Wayground AI acts as a digital collaborator, assisting across the entire instructional design and analysis spectrum:

- **Adaptive Quizzing:** The AI makes it possible to create adaptive quizzes that, based on a student's prior responses, dynamically

modify the difficulty of following questions, giving each student a customized learning path and the best possible challenge.

- **Generation and Transformation:** AI can generate standards-aligned questions, practice worksheets, reading passages with questions, and lesson plans from scratch. It can transform existing resources, such as PDFs, classroom handouts, YouTube links, or website URLs, into editable quizzes or interactive content.
- **Enhancement:** AI can enhance existing questions by fixing grammatical errors, replacing the question with a similar one, translating it into over 180 different languages and converting it into a real-world scenario.
- **Analysis:** The "Analyze w/ AI" feature recognizes trends in student performance, highlights areas needing additional support, and privately identifies struggling students to assign additional practice.

2.2 Key Features and User Interface (UI)

Wayground supports more than 15 types of questions. The availability of these features is tiered, with basic types accessible on all plans and higher-order types available on premium plans (Individual Super, Schools, and Districts).

1. **Basic Question Types (Available on All Plans).** These foundational question formats are available across all Wayground plans:
 - **Multiple-choice:** Supports two to five answer options, traditionally with only one correct answer, but can be configured for multiple correct answers.
 - **Multi-select:** Allows students to choose multiple correct answers from a list, encouraging critical thinking and demonstrating nuanced understanding.
 - **True or False:** A quick and effective method for assessing knowledge of factual information.
 - **Fill in the Blanks:** Students manually type answers into a single field or separate boxes per letter.
 - **Open-ended:** Used for long-answer responses, with a character limit of 1000. These can be graded manually using flexible grading or automatically using Wayground AI.
 - **Draw:** Allows students to draw, identify, or point out content using tools like a highlighter, pen, color wheel, and eraser, along with undo and redo options.
 - **Poll and Word Cloud:** Used for quick engagement and visualization. Polls have no correct answers and can allow single

or multiple student selections. Word Clouds organize student text responses, showing frequent answers in a larger font, and are ungraded (zero points).

2. **Interactive Content Features (Available on All Plans).** Wayground allows educators to integrate questions directly into multimedia content:
 - **Interactive Video:** Any video can be transformed into an interactive learning experience by adding questions that automatically pause the video at key moments. Teachers can choose from various question types to embed, including Multiple-Choice, Fill-in-the-Blank, Hotspot, Drop-Down, Drag-and-Drop, Categorize, and Open-ended. A vast library of pre-made interactive videos is also available.
 - **Passage (Reading Comprehension):** This feature displays multiple questions tied to a single passage or media. The Passage helps break down complex questions and improves critical thinking. A single Passage can contain more than 10 question types. Reference material can be manually created, generated by Wayground AI, chosen from the Wayground Library, or imported via document upload or website embedding.
3. **Math and Higher-Order Question Types (Premium Plans).** These specialized features are available on the Wayground Individual (Super), Schools, and Districts Plans:
 - **Math Response:** Students use an equation editor to input numerals, fractions, expressions, or equations. This feature includes Mathematical Equivalence, which is enabled by default, recognizing that the same mathematical value can be written in multiple correct ways.
 - **Graphing:** An auto-graded question type ideal for Math and Physics, where students answer by plotting solutions (points, linear, quadratic, and exponential) on a graph.
 - **Match, Reorder, and Categorize:** These engage students in critical and higher-order thinking.
 - **Drag & Drop and Drop-down:** Useful for grammar practice, knowledge recall, sequencing events, and completing sentences.
 - **Visual Learning (Labeling and Hotspot):** Auto-graded question types that appeal to visual learners.
 - **Audio Response and Video Response:** Allow students to answer assessments, quizzes, lessons, or passages using their voice or video recording, making learning more personalized and interactive.

4. **User Interface (UI) and Experience (UX) Features:** The UI is designed to simplify content creation, delivery, and differentiated instruction for teachers, while offering an engaging, gamified experience for students.
 - **AI as a Digital Collaborator**
 - **Content Generation and Transformation:** AI helps users generate standards-aligned questions, practice worksheets, and reading passages from scratch. It can also transform existing resources, such as PDFs, classroom handouts, YouTube links, or website URLs, into editable, interactive content or quizzes.
 - **Question Enhancement:** Educators can use "AI actions" on existing questions to fix grammatical errors, translate the question, replace it with a similar one, or convert it into a real-world scenario.
 - **Data Analysis:** The "Analyze w/ AI" feature processes immediate, color-coded reports to recognize performance trends. It highlights areas needing support, suggests standards to reteach, and privately identifies struggling students for targeted practice assignments.
 - **Instructional and Lesson Features**
 - **Lesson Integration:** Teachers can import existing presentations from Google Slides or Canva and embed interactive elements like check-in questions, polls, and word clouds throughout the lesson. The platform allows for embedding links or URLs directly within a slide, which automatically pops up for students, saving time and simplifying the workflow.
 - **Passage Display (Student Side):** During Passage questions, the UI allows the source material (text, audio, video, or image) to stay on the screen while the questions appear.
 - **Content Library and Resources:** Wayground maintains a comprehensive teacher resource hub that serves as a storage and sharing space for lessons, assessments, interactive videos, flashcard decks, anchor charts, and more. Teachers can filter searches for Assessments, Lessons, Interactive videos, and VoyageMath.
 - **Differentiation and Accessibility Features**
 - **Accommodations Profiles:** Teachers can create individual student profiles to toggle on various accommodations, which are then saved. These features include granting extra time, reducing the number of answer choices, turning off distracting sound

effects, hiding the leaderboard, Read Aloud, Translation and Dyslexia Font.

- **Leveled Assessments:** Wayground AI can generate different versions of an assessment (by adjusting question count and difficulty level). Students join using the same single link, meaning they are unaware they are receiving a personalized, leveled assessment.
- **Gamified Experience:** The platform maintains a gamified environment, including customizable student avatars and built-in redemption and retake questions to encourage persistence and self-regulation.

2.3 Differentiating Characteristics

Wayground is positioned to stand out against its competitors in the edtech market by transforming from a simple quizzing tool into a comprehensive, AI-driven and highly differentiated instructional platform. The key differentiators include its expansive range of advanced question types, deep AI integration across the entire workflow and its focus on accessible, personalized learning pathways.

1. **Broad and Advanced Question Type Variety**
Wayground offers more than 15 types of questions, surpassing the basic assessment formats. This wide variety ensures the platform can be used for deep critical thinking and specialized subjects, rather than just recall.
2. **Comprehensive AI Integration as a "Digital Collaborator"**
The integration of Wayground AI moves the platform beyond simple content creation and into the realm of intelligent instructional design and analysis, which is described as a useful "digital collaborator".
3. **Superior Differentiation and Accommodation Capabilities**
Wayground offers manageable differentiation tools that allow teachers to customize learning without increasing their workload, helping students feel motivated and included.

While many competitors may offer online quizzing, Wayground differentiates itself by providing advanced tools (like Mathematical Equivalence and Hotspot questions), integrating AI as a co-pilot for creation and analysis and providing specific, practical tools to implement complex differentiation like leveled assessments and accommodation profiles without administrative overwhelm.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

The basic prerequisite for utilising Quizizz is a device with internet connection (laptops, tablets, or smartphones). Teachers require an account, but students can quickly join an activity without needing an individual sign-up; they simply navigate to the join page and enter a game code issued by the instructor.

3.2 Step-by-Step Usage Guide:

The teacher first prepares a quiz using the editor or the AI generator, or selects one from the huge public library.

An example of a subheading Scenario: Live Classroom Review (Formative Assessment)

- **Search** Quizizz on google. It will show Wayground formally quizizz. Hit enter. Now go to signup and create an account using google. Follow the instructions and create your own account. After that choose plans.
- **Launch:** The teacher picks "Start a live quiz" and chooses a game style (e.g., Classic).
- **Join:** A unique 6-digit code is displayed on the teacher's screen. Students navigate to the join URL and enter the code, along with a moniker.
- **Play:** The test starts. Students answer questions independently on their smartphones. They receive rapid feedback, power-ups, and progress updates while the teacher observes a real-time analytics dashboard. Fig 2. Quizizz



Fig 2. Main page

For instance Subheading: Situation: Asynchronous Practice with Self-Paced Homework

- **Assign:** The instructor chooses "Assign as homework" and establishes a due date.
- **Share:** Students can receive the special link or code directly or through a Learning Management System (LMS) like Google Classroom.

- **Finish:** Students finish the quiz at their convenience before the deadline, receiving the same gamified experience and fast feedback.

3.3 Tips and Best Practices

Content Creation and Design Tips

- **Speed Up Question Creation:** Use the "Pro tip" feature for Multiple-choice questions: simply type in the question, hover over an option box, and click 'Generate' to automatically create answer options.
- **Mix Question Types for Deeper Thinking:** When focusing on critical thinking and comprehension, use a mix of fill-in-the-blank and open-ended questions.
- **Leverage Passage Format:** When using the Passage feature (Reading, Comprehension), remember that a single Passage can contain more than 10 question types. When introducing the content, decide whether you will use the text version, read it for students (audio/video), or capture it as an image.
- **Grade Open-ended Questions Efficiently:** Save time by using Wayground AI to automate the grading process for open-ended questions.

Best Practices for AI Integration:

- **Always Review AI Output:** Whether generating questions, lesson plans, or practice worksheets, teachers should 'always put eyes' on what AI produces to ensure it is accurate, appropriate, and aligned with learning objectives.
- **Verify AI Enhancements:** When using 'AI actions' to enhance existing questions (e.g., replacing a question or converting it to a real-world scenario), it is crucial to thoroughly vet and edit the outcome, as the AI can be unpredictable and may inadvertently alter the original question's intent.
- **Search Efficiently:** When looking for content in the resource hub, you can edit the filter to narrow down your search for grade level specific content. A Pro-tip for building content is to upload the PDF of existing slides to Wayground, which will then generate the questions for you.
- **Using Wayground with an AI Tutor:** If you plan to pair Wayground activities with an external AI tutor like Brisk Teaching, the Wayground activity must be assigned asynchronously, not run as a live game.

Differentiation and Accommodation Tips:

- **Differentiate Assessments Seamlessly:** Use Wayground AI to generate leveled assessments by specifying the desired question count and difficulty level. The key practice here is that when assigning them, every student joins using the same single link, ensuring students are unaware they are receiving a personalized, leveled assessment.
- **Set Up Accommodation Profiles Once:** Create individual profiles for each student to toggle on necessary accommodations (extra time, reduced answer choices, Read Aloud, Translation, Dyslexia Font, etc.). The selections are saved so you only need to set this up once.
- **Support Persistence at Home:** When students use Wayground independently at home, encourage them to utilize the redemption and retake questions built into the platform to foster self-regulation and persistence.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

The pedagogical theory of gamification, which incorporates game elements to turn tedious duties into entertaining activities, is the foundation of the tool's effectiveness. Students' motivation and involvement are greatly increased by this method. Furthermore, its immediate, actionable feedback mechanism supports a mastery-based learning approach by allowing students to correct misconceptions immediately and reinforce knowledge retention.

4.2 Impact on Teaching and Learning

Both student learning results and instructor effectiveness are improved by the platform.

- **For Teaching:** It saves teachers a lot of time by automating grading. Teachers are empowered by the comprehensive analytics to transition to data-driven instruction, which enables quick intervention for problematic pupils and individualised coaching. It easily interacts with well-known LMS systems.
- **For Studies:** Students report improved interest, motivation and self-confidence in their studies. Test anxiety is lessened by the self-paced format, which fosters a supportive and engaging learning environment.

4.3 Specific Classroom Applications

- **Integrate Lessons with Interactivity:** Use Wayground as an instructional tool, not just for review. Import existing presentations (like Google Slides or Canva) and add interactive

elements such as check-in questions, polls, and word clouds throughout the lesson.

- **Empower Student Content Creation:** Encourage students to create their own assessments and flash cards for peers. This practice involves higher-order thinking and helps them learn more by creating content rather than just passively receiving it.
- **Use Student-Curated Content for Review:** Students can collaborate on a topic by adding content to a shared Padlet wall. A helpful tip is to copy the URL of the Padlet wall into Wayground to transform the student work into practice flashcards or an assessment.
- **Promote Reflection:** Have students share their Wayground experience with the larger class community to facilitate discussion and allow them to see how others interpreted the content differently. Using tools like Padlet or VoiceThread for sharing and reflection may be helpful.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- **Technology Reliance:** Effective use is dependent on stable internet connectivity and the availability of student devices, which can be an equity concern.
- **Game-Centric Focus:** The heavy emphasis on speed and competition in some modes can potentially frustrate or disadvantage certain learning styles or anxious students.
- **Content Quality:** While the content library is vast, teachers must still curate and validate public quizzes to ensure alignment with their specific curriculum standards.

5.2 Ethical and Equity Considerations

- **Data Privacy:** Quizizz prioritises student data security by letting students to engage anonymously without registering accounts, which helps maintain a safe atmosphere.
- **Accessibility:** The platform is developed with accessibility features, including support for Text to Speech (TTS) readers, screen magnification, and colour contrast, seeking to be accessible for students with varied needs.
- **Fair Use of AI:** Teachers must be aware that AI-generated content is only a starting point and still has to be reviewed by humans for accuracy, bias, and alignment with educational objectives.

5.3 Future Outlook and Roadmap

Deeper personalisation and increased AI integration are the platform's future goals under the new Wayground name. This contains plans for:

- **Personalised insights:** sophisticated analytics to offer each learner more specific, tailored practice suggestions.
- **AI diversification** is the process of extending AI's ability to provide a greater variety of tasks, including those that enhance useful abilities like communicating, possibly through voice or video responses.
- **All-inclusive Resource centre:** Transitioning from a quiz tool to a comprehensive intelligent learning centre with lesson and unit preparation materials.

6. Supplementary Information and References

6.1 Tool Access Details

- **Official URL:** The platform is accessible via its original domain, but its branding is moving towards Wayground: <https://wayground.com/?lng=en>
- **Pricing/License Model:**
 1. **Free (Basic):** Offers a perpetual free tier with fundamental features, quiz creation, and access to the public library for small group sessions.
 2. **Paid Subscriptions:** Include a Standard plan and a Premier plan (about \$19/month and \$37/month, respectively, typically discounted with annual billing) for individual educators, which enable premium capabilities including strong AI creation, extensive host controls, and greater participant limitations.
- **Enterprise:** Custom pricing is offered for schools, districts, and larger organisations, giving specialised services like LMS integration and dedicated account management.

6.2 Further Reading and Documentation

- Official documentation on using advanced features like the Adaptive Question Banks.
- Tutorials and guides available within the platform's support centre (Wayground/Quizizz).

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WolframAlpha

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1. Introduction and Tool Overview

1.1 Tool Name and Core Functionality

WolframAlpha is an AI tool that doesn't just look up information — it actually works out the answers for you. Instead of giving a list of websites, it directly shows clear solutions. That's why teachers and students heavily rely on it. It can solve math problems, show each step, draw graphs, analyse data, and explain science topics in a simple, understandable way.

It covers many subjects like Math, Physics, Chemistry, Economics, Data Science, and Computer Science. For educators, it acts like a quick helping hand, making tough concepts easier to explain and helping students learn with more clarity.



Fig.1 WolframAlpha Logo

1.2 Brief History and Development

WolframAlpha, launched in 2009 by Stephen Wolfram, began as part of the wider Wolfram ecosystem built around Mathematics. Over time, it has grown into a reliable learning companion. The platform has expanded with a huge collection of carefully selected data, better natural language understanding, and useful features like step-by-step solutions and interactive graphs.

In recent years, it has also been connected with advanced AI technologies, making it even more user-friendly, and accessible for teachers and students across the world.

1.3 Target Audience and Scope

WolframAlpha is useful for anyone who needs clear explanations or fast calculations.

Its main users include:

- School and college teachers
- Students at all levels
- Research scholars
- Data analysts
- STEM educators

It supports classroom teaching, homework, project work, self-learning, and blended models of education (Kumar & Rodrigues, 2021).

2. Characteristics and Features

2.1 Core Capabilities

- WolframAlpha can perform a variety of tasks that help in teaching and learning:
- Solving equations from simple arithmetic to advanced calculus
- Creating graphs and visual representations
- Showing step-by-step solutions
- Performing data analysis and statistics
- Giving real-world factual information instantly
- Understanding natural language queries
- Working with formulas in science and engineering

These features make it a valuable tool for giving quick clarity to students, and making lessons more interactive (Wolfram Research, 2023).

2.2 Key Features and User Interface (UI)

Its interface is very simple and easy to understand.

Users get:

- One main search bar to ask questions
- Well-organised answers
- Steps and explanations
- Graphs, diagrams, and tables
- Web and mobile access
- Practice questions for learners
- Custom widgets for specific subjects



Fig. 2 Features

Results are presented clearly, which helps students focus on understanding rather than feeling lost (Marr, 2020).

2.3 Differentiating Characteristics

WolframAlpha is different from normal search engines or AI chat tools because:

- It calculates answers instead of searching the web
- It uses verified and curated data
- It is reliable for academic subjects
- It can explain solutions step-by-step
- It connects with powerful Wolfram technologies

These strengths make it especially suitable for classrooms and STEM learning (Lane, 2022).

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

Educators need:

- Internet access
- A device (mobile, laptop, tablet)
- A free or Pro account

Steps to begin:

- Visit www.wolframalpha.com.
- Create a free or Pro account.
- Type your question (e.g., 'Differentiate $x^2 \sin x$ ').
- Explore the explanation, graphs, and steps.
- Use the output during teaching or share it with learners.

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario A: Teaching Mathematics Concepts

- Enter a problem such as 'Integrate $2x e^x$ '.
- Show the students how WolframAlpha breaks down the steps.
- Use the graph to explain visually.
- Discuss how the solution was reached.

This makes the learning process more concrete and less intimidating.

Scenario B: Explaining Science Concepts

Examples of queries:

- 'Projectile motion of a ball thrown at 30° at 20 m/s'
- 'Electric field of a point charge'
- 'Boiling point of ethanol at 1 atm'

WolframAlpha calculates the formula and gives diagrams that support classroom teaching.

Scenario C: Research and Data Analysis

In higher-level classes or projects

- Upload datasets (Pro feature)
- Perform statistical tests
- Generate charts and graphs
- Export results for assignments

This supports inquiry-based learning and research thinking.

3.3 Tips and Best Practices

- Encourage students to understand the steps, not just copy answers.
- Use results during discussions or group work.
- Combine the tool with handwritten work for balance.
- Introduce students to the idea of verifying formulas and results.
- Use it to differentiate instruction for higher and lower performers.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

- WolframAlpha aligns with modern teaching approaches like:
- Inquiry-based learning
- Constructivist methods
- Visual and step-based learning
- Immediate feedback
- Student-driven exploration

It helps students develop conceptual clarity through visualisation and guided steps (Mayer, 2021).

4.2 Impact on Teaching and Learning

- Builds confidence in subjects like maths and science
- Saves teachers' time on complex calculations
- Makes difficult topics less overwhelming
- Supports flipped classroom models
- Encourages independent and self-paced learning

4.3 Specific Classroom Applications

Educators can use WolframAlpha for:

- Graphing algebraic and trigonometric functions
- Balancing chemical equations
- Physics problem solving
- Analysing social science data
- Studying economic models
- Homework support and revision
- Demonstrations in classroom presentations

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

- Some features require paid versions
- Students may get dependent on the tool
- Internet is required for usage
- Not suitable for open-ended or subjective answers
- Sometimes results need teacher guidance to interpret (Marr, 2020)

5.2 Ethical and Equity Considerations

- Teach students to use the tool responsibly
- Encourage learning the concept, not copying final answers
- Be mindful of the digital divide
- Guide students on academic honesty
- Ensure privacy when uploading data files (UNESCO, 2021)

5.3 Future Outlook and Roadmap

WolframAlpha is expected to add:

- More AI-driven explanation features
- Better integration with classroom platforms
- Interactive simulations
- Expanded data resources
- More personalised learning support

It will continue to play a strong role in AI-supported learning environments (Wolfram, 2023).

6. Supplementary Information and References

6.1 Access Details

Website: <https://www.wolframalpha.com>

Versions: Web, Mobile App

Plans: Free, Pro, Pro Premium

6.2 Further Reading and Documentation

- Wolfram U courses
- Mathematics and computer science resources
- AI in education research papers
- STEM digital learning reports

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Xeropan

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

Xeropan is an AI-powered language-learning application that helps students practice real-world communication skills, expand their vocabulary, and enhance their grammar in an entertaining and dynamic way. It creates an organised yet entertaining digital learning experience by combining conversational AI, interactive teaching, speech recognition, and individual feedback.

The app offers complete educational activities that mimic navigating through real-world scenarios, such as traveling, placing food orders, having conversations and more. It also supports many languages. With its aesthetically pleasing and user-friendly interface, Xeropan offers users of all ages a personalised and entertaining learning experience by guiding them step-by-step through stages and tasks.



Fig 1. Logo of Xeropan

1.2 Brief History and Development

A group of European educators, neurological scientists, and developers created Xeropan with the intention of using technology to make language learning more accessible and engaging. The app, founded in 2013 was made public subsequently, grew quickly as teachers realised they needed resources that could improve student engagement and adjust to their specific requirements. The disadvantages of traditional approaches, such as the absence of real-time feedback and inadequate speaking practice opportunities, were intended to be addressed by the developers. Xeropan expanded its language services and became a worldwide digital learning partner through the use of better AI algorithms over time.

1.3 Target Audience and Scope

- Students studying foreign languages in schools and colleges.
- Teachers wishing to use smart gadgets to enhance classroom instructions.
- Adult learners getting ready for work, travel or tests
- Anyone looking for flexible, interactive, and structured language practice

The app is a flexible teaching tool that can be customised to meet a variety of learning objectives because it covers everything from basic vocabulary and grammar lessons to conversational fluency and real-world situational discussions.

2. Characteristics and Features

2.1 Core AI Capabilities

Xeropan uses adaptive features that create learning paths based on learner performance. Its AI-driven voice recognition evaluates pronunciation and fluency and offers quick changes. Online discussion sessions that replicate real-world conversations are made possible by natural language processing. The technology also provides future feedback, identifies learning gaps, and adjusts the degree of content difficulty to ensure continuous improvement. When combined, these qualities produce a clever and effective learning classroom environment.



Fig 2.3. Features of Xeropan AI

2.2 Key Features and User Interface (UI)

The visually appealing game-like interface of Xeropan encourages students to finish lessons.

its key features are:

- Interactive educational videos
- Daily tasks and objectives
- A level-based, systematic learning path
- Grammar, vocabulary, listening, reading, and speaking practice exercises
- In-app conversational chatbot for dialogue practice
- Dashboard for teachers in the classroom

Learners are motivated by UI's animations, characters, bright colors. Xeropan ensures accessibility and consistency across desktop browsers, tablets, and mobile devices. The teacher dashboard, which facilitates monitoring, assessment, and classroom integration, is also advantageous to educators.



Fig 3. Languages and different courses

2.3 Differentiating Characteristics:

- Xeropan is unique because to:
- Lessons in story-based learning take place in the form of narrative episodes.
- Badges, levels, experience points and prizes are examples of gamification.
- AI-assisted speaking practice: authentic communication free from pressure
- Monitoring lessons and creating assignments are examples of teacher integration.
- access across desktop, tablet, and mobile platforms.
- These components turn Xeropan into a complete learning ecosystem rather than just a word-learning tool.

3. Practical Implementation and Usage

3.1 Prerequisites and Setup

1. In order to make use of Xeropan, users need:

- A computer, tablet, or smartphone
- A reliable internet connection
- A premium or free Xeropan account

2. Steps for Setting Up:

- Get the app online or on Google Play or the App Store.
- Make a Google or Apple account or log in.
- Decide on your level of proficiency and target language.
- A suggested learning path is produced by the AI.
- Launch classes, finish tasks, and monitor advancement.

After that, the AI system creates a customised learning plan and suggests classes based on individual requirements. Learners can start exploring without technical difficulty because the setup is easy and user friendly, which help learner journey smooth

3.2 Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: A beginner student begins taking English classes

1. The student opens the Xeropan app and chooses English Beginner Level.
2. The first mission, 'Greetings and Introductions,' is suggested by the AI.
3. Common phrases are introduced through interactive videos.
4. The student can practice saying things like Hello my name is...thanks to speech recognition.
5. AI assesses pronunciation and identifies errors.
6. New terms are reviewed via vocabulary flashcards.
7. Quick tests are used to gauge comprehension.
8. After gaining experience points, the learner can access their next mission.

Scenario 2: Practicing Conversations in Real Life

1. Conversation Practice is chosen by the user.
2. Would you like to order something to eat? asks an AI-powered virtual assistant.
3. The learner either speaks or types in response.
4. After analyzing the response, the AI chatbot provides a natural response.
5. Errors in grammar or vocabulary are explained and fixed.
6. Like a true dialogue, the conversation goes on.

3.3 Tips and Best Practices:

Frequent use boosts development since Xeropan's adaptive mechanism improves memory through spaced learning and repeated exposure. In order to ensure reliable AI feedback, speaking activities work better in

calm settings or with headphones. Long-term retention is supported by going over previously taught material and vocabulary. By adding app-based missions into classroom activities and using the dashboard to track progress, teachers may enhance learning outcomes.

4. Educational Implications and Applications

4.1 Pedagogical Rationale

Xeropan is in line with current educational methods that place an emphasis on self-paced learning, quick feedback, and personalised instruction. Its layout is in line with language learning concepts that prioritise contextual awareness, repetition, and immersion. Xeropan uses AI-driven feedback and interactive multimedia to reinforce learning in a way that promotes communicative and cognitive growth.

4.2 Impact on Teaching and Learning

For Learners:

- Uses creativity to boost motivation
- Promotes involvement
- Increases self-assurance when speaking and listening
- Provides tailored assistance without worrying about failing

For Teachers:

- Minimises workload by using automated evaluations
- Gives performance data in real time
- Makes differentiated education possible
- Helps learners with different rates of learning

It supports differentiation by allowing students and teachers to progress at different speeds while still following a structured plan.

4.3 Specific Classroom Applications

Teachers may use Xeropan tasks for in-class practice or assign them as homework. The AI chatbot allows students to participate in speaking exercises that help them get ready for real-world communication. Teachers can use the teacher dashboard to monitor each student's development, pinpoint areas of strength and weakness, and provide targeted instruction to meet learning needs. Xeropan teaches topics through interactive digital practice, making it a useful addition to classroom training.

5. Challenges, Ethics, and Future Directions

5.1 Limitations and Challenges

Despite being a potent and modern AI-based language learning tool, Xeropan nevertheless has a number of drawbacks and difficulties that affect how effective it is in certain learning situations. Its need for consistent and reliable internet access is one of the main obstacles. Because Xeropan uses cloud-based AI processing for interactive content delivery, adaptive learning, and speech recognition, learners with limited network connectivity may encounter erroneous feedback, sluggish loading times, or the inability to access specific lessons. When incorporating the app into formal learning environments, educators must take into account the digital gap caused by this constraint, which disproportionately affects learners in rural or economically poor areas.

The fact that Xeropan's advanced features, such as limitless lesson access, premium missions, in-depth feedback, and other AI-powered tools, require a paid subscription is another major obstacle. For students who cannot afford the premium level, the entire learning experience is less accessible because many of the most effective learning tools require payment, even though the free version gives basic functionality. Before implementing the tool widely, schools must also take license costs into account. Equity and inclusion may be impacted by this financial barrier, especially in areas with tight resources for technology.

5.2 Ethical and Equity Considerations

Data privacy is a major concern because Xeropan gathers usage patterns, speech samples, and learning data. Transparency and security measures to secure user data are necessary for the ethical usage of such products. Unequal access to devices or reliable internet might lead to accessibility issues. Accent diversity can occasionally cause speech recognition systems to suffer, potentially leading to biases. To successfully and fairly incorporate the tool into the classroom, teachers require assistance.

5.3 Future Outlook and Roadmap

As the platform continues to develop in line with quick developments in artificial intelligence, language processing technology, and digital education, Xeropan's future seems very bright. Improving conversational AI is one of the most important areas of development. More advanced dialogue engines that can comprehend emotional tone, communication intent, and context-sensitive language use are anticipated to be included in further iterations of Xeropan. This would enable students to participate in more lively and organic dialogues that resemble closely exchanges with actual human speakers. A more

comprehensive communication experience could result from the app's ability to offer richer cultural context, situational awareness, and incorrect explanations that go beyond grammar and vocabulary thanks to improved NLP models.

The growth of Xeropan's language catalog and content richness is another key component of its future. Although the platform now supports a number of widely used languages, other languages, regional dialects, and culturally diverse communication modules are probably in the works. This would guarantee that learners of less often taught languages receive the same variety and caliber of content and make the app available to a larger global audience. In addition to this growth, the platform might offer curriculum-aligned modules created especially for use in various national school systems, allowing educators to more easily incorporate the technology into already-existing frameworks.

6. Supplementary Information and References

6.1 Tool Access Detail:

Official URL: <https://www.xeropan.com>

Pricing/License Model: In addition to a paid subscription that grants complete access to courses, customised learning directions, and smart AI feedback, Xeropan offers a free plan with a limited number of daily lessons. Educational licenses that include classroom management tools and teacher dashboards are available for purchase by educational institutions.

6.2. Further Reading and Documentation

Additional resources include academic studies on NLP-based tutoring, Xeropan's Help Center educational technology research on AI-supported language learning, and literature on gamified educational systems. These resources offer more in-depth explanations of the technological framework and educational basis of the instrument.

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XMIND AI

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1. Introduction and Tool Overview

1.1. Tool name and core functionality:

Xmind AI is an AI-enhanced extension of the Xmind mind-mapping platform, designed to transform prompts, documents, and web content into structured visual



Fig 1 . Logo of Xmind

maps, outlines, and project plans (EdrawSoft, 2025; Xmind Ltd., 2025b). It combines traditional node-and-branch mind mapping with generative AI so that users can automatically create and refine topic hierarchies, action lists, and timelines rather than building every node manually (MindMap AI, 2025; Xmind Ltd., 2025a).

1.2. Brief history and development:

Xmind originated as a visual thinking and brainstorming application, later expanding into a cross-platform productivity suite with desktop, web, and mobile versions (Xmind Ltd., 2025a; Xmind, n.d.). As generative AI tools became common in productivity and note-taking software, Xmind Ltd. introduced Xmind AI to automate repetitive structuring tasks and position the product as an AI-powered mind-mapping and planning environment for both individual and team use (EdrawSoft, 2025; USA TODAY Studios, 2025).

1.3. Target audience and scope:

The intended users of Xmind AI include students, educators, professionals, and project teams who need to organise large amounts of information quickly and visually (*Xmind Ltd. 2025a, 2025c*). In education, its scope ranges from lesson and unit planning to student note-making, project-based learning, and presentation of understanding, making it suitable for secondary and higher-education contexts where visual organisers and collaborative planning are valued (*EdrawSoft, 2025; Xmind Ltd., 2025c*).

2. Characteristics and Features

2.1. Core AI capabilities:

Xmind AI can generate a complete mind map from a short natural-language prompt, automatically producing a central topic, main branches, and sub-branches in seconds (*EdrawSoft, 2025; Xmind Ltd., 2025b*). It also offers an AI copilot mode that summarises long-form text, web pages, or PDFs into node-based outlines, allowing educators to convert curriculum documents and readings into editable maps for teaching and revision (*EdrawSoft, 2025; Xmind Ltd., 2025d*).

2.2. Key features and user interface (UI):

The user interface is centered on a flexible node-and-branch canvas that supports various layouts, including traditional radial mind maps, logic charts, tree diagrams, and organisational-style charts (*Xmind Ltd., 2025a; Xmind, n.d.*). Users can collapse and expand branches, apply color coding and icons, and switch into Pitch Mode or Gantt-style timeline views so that the same map serves as both a thinking tool and a presentation or planning artefact (*USA TODAY Studios, 2025; Xmind Ltd., 2025a*).

Dimension	Description
Core AI capability	Automatic generation of mind maps, project structures, and To-Do lists from prompts or imported content, using generative AI to create hierarchical branches within seconds (<i>EdrawSoft, 2025; Xmind Ltd., 2025b</i>).
User interface	Visual node-based interface with multiple layouts (mind map, logic chart, org chart) and quick

	switching to presentation or timeline views, designed for cross-platform consistency (USA TODAY Studios, 2025; Xmind Ltd., 2025a).
Collaboration	Cloud-based sharing and co-editing that allow teams or classes to view, comment on, and edit the same map in real time (Xmind Ltd., 2025a; Xmind Ltd., 2025c).
Platform support	Native applications for major operating systems plus a web client, enabling use on personal and institutional devices in varied classroom settings (Xmind Ltd., 2025a; "Xmind," n.d.).
AI for teachers	Teacher-oriented AI functions such as AI mind-mapping, AI explain, and AI-generated To-Dos, highlighted in Xmind's guidance on practical AI tools for educators (Xmind Ltd., 2025c, 2025d).

Table no . 1



Fig 2 . XMind

2.3. Differentiating characteristics:

Compared with non-AI mind-mapping tools, Xmind AI is distinguished by its level of automation, its integrated project-planning features, and its tight cross-device synchronisation (*EdrawSoft, 2025; MindMap AI, 2025*). Teacher-oriented resources highlight dedicated AI functions such as AI mind-mapping, AI explain, and AI-generated To-Dos, which are specifically promoted as time-saving supports for lesson planning and classroom coordination (*Xmind Ltd., 2025c, 2025d*).



Fig 3 . Features of XMind

3. Practical Implementation and Usage

3.1. Prerequisites and setup:

To implement Xmind AI in schools, institutions typically require compatible devices (desktops, laptops, or tablets), stable internet connections, and accounts for teachers and, where permitted students (*Xmind Ltd., 2025a, 2025c*). Because AI's features are tied to cloud services and subscription tiers, administrators must also consider licensing models, privacy policies, and any local regulations regarding storage of student data (*EdrawSoft, 2025; USA TODAY Studios, 2025*).

3.2. Step-by-step usage guide:

Scenario 1: Teacher lesson-planning map

1. The teacher signs in to Xmind AI and selects an AI-enabled template or a blank canvas. (*Xmind Ltd., 2025b*)
2. A prompt such as 'Grade 8 unit plan on narrative elements in short stories is entered', Xmind AI generates an initial map with branches like Plot, Character, Setting, and Theme (*Edrawsoft, 2025*).
3. The teacher edits the branches to align with curriculum outcomes, adds assessment checkpoints, and color-codes sections for different weeks (*Xmind Ltd. 2025c*).
4. The refined map is shared with students or exported as a PDF to serve as the visual overview of the unit (*Xmind Ltd., 2025a*).

Scenario 2: Student inquiry project

1. Student groups formulate an inquiry question, such as 'How does plastic pollution affect marine life?', and enter it into Xmind AI (*MindMap AI, 2025*).
2. Xmind AI produces a draft conceptual map, which students verify using textbooks and reliable websites, editing nodes and adding sources as evidence (*EdrawSoft, 2025; Xmind Ltd. 2025a*).
3. Branches are converted into tasks with assigned owners and due dates using Xmind's project and timeline views, turning the conceptual map into a simple project-management board (*MindMap AI, 2025; USA TODAY Studios, 2025*).

3.3. Tips and best practices:

Reviewers and teacher-oriented guides consistently recommend treating AI-generated maps as draft organisers rather than final answers, with teachers checking factual accuracy and alignment to learning objectives before classroom use (*EdrawSoft, 2025; MindMap AI, 2025*). Xmind's education-focused blog suggests modelling critical AI use by asking students to explain why they accept, modify, or delete particular AI-generated branches, thus integrating the tool into lessons on evaluation and bias (*Xmind Ltd., 2025c, 2025d*). Saving multiple versions of a map over time—AI draft, teacher-edited, and student-revised—can also provide rich evidence of learning progression for formative assessment (*Xmind Ltd., 2025c*).

4. Educational Implications and Applications

4.1. Pedagogical Rationale:

Mind mapping is consistent with constructivist views of learning, which argue that students build understanding by actively organising and linking concepts rather than passively receiving information (*'Xmind'*,

n.d.). Visual organisers can also be interpreted through dual-coding theory, where combining verbal and visual representations enhances processing and recall, especially for complex material (*MindMap AI, 2025; Xmind Ltd., 2025c*).

By automating the initial structure of a map, Xmind AI can free cognitive resources for higher-order tasks such as comparing ideas, generating examples, and evaluating relationships, rather than spending time on layout and node creation (*EdrawSoft, 2025; Xmind Ltd., 2025d*). When teachers deliberately ask students to interrogate and refine AI-generated maps, the tool becomes a stimulus for critical thinking rather than a shortcut that replaces it (*MindMap AI, 2025; Xmind Ltd., 2025c*).

4.2. Impact on Teaching and Learning:

For teachers, Xmind AI can reduce planning time when designing units, projects, or revision summaries by generating draft outlines that can be aligned quickly with curriculum requirements (*EdrawSoft, 2025; Xmind Ltd., 2025d*). It also supports differentiation, as the same core map can be simplified or elaborated for learners at different levels, and branches can be assigned to small groups for targeted investigation (*Xmind Ltd., 2025c; USA TODAY Studios, 2025*).

For students, potential benefits include improved organisation of ideas before writing, more active participation in group projects through shared visual spaces, and increased transparency of expectations when tasks are represented as branches and sub-tasks (*MindMap AI, 2025; Xmind Ltd., 2025c*). Opportunities to compare hand-drawn maps with AI-generated versions can also foster AI literacy by helping learners recognise both the affordances and the limitations of automated tools (*EdrawSoft, 2025; Xmind Ltd., 2025d*).

4.3. Specific Classroom Applications:

Common applications in language and humanities classes include using Xmind AI to generate essay plans, narrative structure maps, and character relationship diagrams that students then annotate with textual evidence (*EdrawSoft, 2025; Xmind Ltd., 2025d*). In science and social studies, teachers can prompt the tool to produce conceptual maps of systems, cycles, or historical events, which learners expand with real-world examples, data, and timelines (*MindMap AI, 2025; Xmind Ltd., 2025c*).

In project-based learning, groups may ask Xmind AI to create initial inquiry-question sets or task breakdowns, then assign branches as

responsibilities and convert them into timelines using built-in planning views (*MindMap AI, 2025; USA TODAY Studios, 2025*). For assessment, teachers can collect students' maps as artefacts of understanding, using differences in branch structure, terminology, and cross-links to diagnose misconceptions and plan follow-up instruction (*Xmind Ltd, 2025c, 2025d*).

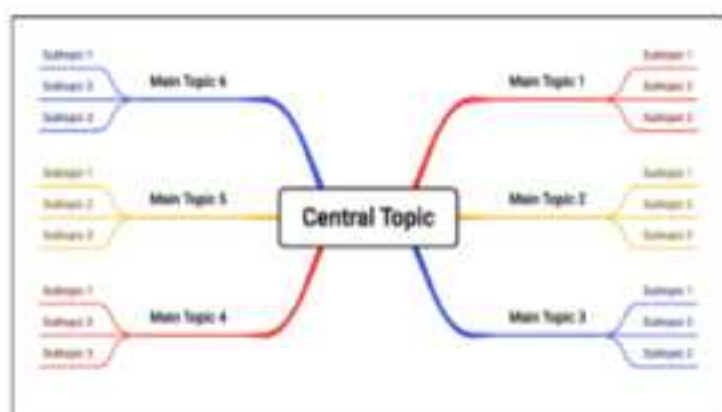


Fig 4. Parts of topic

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges:

Despite its advantages, Xmind AI has several limitations. Reviewers note that AI-generated maps can contain inaccuracies, superficial hierarchies, or missing perspectives, particularly on niche or rapidly changing topics (*EabrawSoft, 2025; MindMap AI, 2025*). If students rely too heavily on these structures, they may fail to practise independent planning and may accept AI outputs as authoritative rather than tentative (*MindMap AI, 2025; Xmind Ltd, 2025c*).

Technical and logistical issues also arise, including the need for stable internet connections, compatible devices, and account management procedures that may exceed what some schools can easily support (*EabrawSoft, 2025; USA TODAY Studios, 2025*). Teachers must balance class time between learning the tool itself and engaging with disciplinary content, so that technology enhances rather than displaces core learning goals (*Xmind Ltd, 2025c, 2025d*).

5.2. Ethical and Equity Considerations:

Ethically, Xmind AI raises concerns around data privacy, algorithmic transparency, and equity of access. Commentators point out that student inputs—such as notes, questions, and project ideas—may be processed on external servers, making clear institutional policies on data use and retention essential (EdrawSoft, 2025; USA TODAY Studios, 2025). Algorithmic systems can also reproduce bias, for example by prioritising dominant cultural or regional perspectives, which reinforces the need for teacher-led critique of AI-generated content (MindMap AI, 2025; Xmind, n.d.).

Equity is another major issue, as schools with limited bandwidth, outdated devices, or restrictive budgets may struggle to adopt subscription-based AI tools (EdrawSoft, 2025; Xmind Ltd., 2025a). Guidance aimed at teachers recommends pairing AI use with explicit instruction on digital citizenship and critical evaluation, and designing alternative low-tech pathways so that learning outcomes do not depend entirely on access to a specific platform (Xmind Ltd., 2025c, 2025d).

5.3. Future Outlook and Roadmap:

Industry analyses suggest that Xmind AI is likely to deepen its integration between brainstorming, scheduling, and analytics, further blurring boundaries between mind-mapping and project-management platforms (USA TODAY Studios, 2025; Xmind Ltd., 2025b). Potential developments include more subject-specific templates, tighter integration with learning-management systems, and automated extraction of action items from maps (Edrawsoft, 2025; Xmind Ltd., 2025c).

For education, reviewers anticipate richer analytics on students' mapping processes—such as tracking revisions, node additions, or collaboration patterns—which could inform differentiated instruction if implemented with strong privacy safeguards (MindMap AI, 2025; Xmind Ltd., 2025c). Accessibility improvements, including screen-reader-friendly structures, multilingual interfaces, and voice-driven command options, are also highlighted as important directions to ensure that AI-supported mind-mapping remains inclusive (EdrawSoft, 2025; Xmind, n.d.).

6. Supplementary Information and Access

6.1. Tool Access Details:

Xmind AI is distributed through the official Xmind website, which offers downloads for desktop platforms, links to mobile app stores, and access to a browser-based version (Xmind Ltd., 2025a). Documentation

indicates that AI features are available within specific subscription plans and that users can sync maps across devices using cloud storage (EdrawSoft, 2025; Xmind Ltd., 2025b). Pricing follows a subscription model with free trials and several tiers that unlock AI capabilities, increased storage, and collaboration features, with some discussion of discounted options for educational institutions (EdrawSoft, 2025; USA TODAY Studios, 2025). Teachers and administrators can use this information, alongside local procurement policies, to decide whether institutional licenses or individual teacher subscriptions are most appropriate (Xmind Ltd., 2025c).

6.2. Further Reading and Documentation:

The vendor's site hosts tutorials, webinars, and blog posts that focus on practical classroom use, including guides such as '12 practical AI tools for teachers' that situate Xmind AI among a wider ecosystem of educational AI tools (Xmind Ltd., 2025c, 2025d). Independent reviews by EdrawSoft (2025), MindMap AI (2025), and USA TODAY Studios (2025) provide complementary perspectives on strengths, limitations, and target users, which can help educators make informed adoption decisions.

Scholars and practitioners interested in theoretical grounding can combine these applied sources with broader literature on mind mapping, knowledge visualisation, and AI in education, using Xmind AI as a contemporary case study of how generative technologies are reshaping planning and learning workflows (Xmind, n.d.; MindMap AI, 2025).

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Yippity AI

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1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

The tool is **Yippity** (yippity.io). Its core function is to be an **automated quiz and flashcard generator**. It converts educational materials—textbook chapters, lecture notes, or website URLs—into study aids (Multiple Choice, True/False, Fill-in-the-Blank).

1.2. Brief History and Development

Developed during the generative AI boom (late 2023/2024), Yippity was built specifically to solve the time-consuming problem educators and students face: manually creating review materials.

1.3. Target Audience and Scope

The audience is strictly **academic**: **Students** (for self-study), **Teachers** (for assessment creation), and **Tutors**.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Concept Extraction:** Identifies key facts and definitions in the text.
- **Question Formulation:** Transform facts into valid test questions.
- **Distractor Generation:** Creates plausible but incorrect answers for multiple-choice questions.

2.2. Key Features and User Interface (UI)

- **Input Box:** Paste text or a URL.
- **Output Grid:** Displays generated questions on customisable cards.
- **Share Button:** Generates a link for others to take the quiz.
- **Export:** Copy to clipboard or export to other flashcard apps (like Anki or Quizlet).

2.3. Differentiating Characteristics

- **Speed:** Designed for instant ‘paste-and-go’ generation.
- **Simplicity:** Minimalist interface focused solely on assessment generation.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Account:** Free or paid account required.
- **Source Material:** Digital text or a website link.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Teacher Creating an ‘Entry Ticket’ Activity

1. **Source:** A history teacher finds a good article about the causes of WWI.
2. **Generate:** They paste the URL into Yippity and ask for 5 Multiple Choice questions.
3. **Review:** The teacher quickly checks the questions for accuracy.
4. **Use:** They display the questions on the projector at the start of class as a ‘Bell Ringer’ activity to check reading compliance.

Scenario 2: Student Cramming for a Biology Exam

1. **Source:** A student copies their notes on ‘Cellular Respiration’ from a Google Doc.
2. **Generate:** They paste the notes into Yippity.
3. **Study:** Yippity creates 20 flashcards. The student uses the ‘Test Yourself’ mode to quiz themselves on the bus ride to school.

3.3. Tips and Best Practices

- **Chunking:** For long chapters, paste one section at a time for better detail.
- **Fact-Check:** AI can make errors; always verify the answer key.
- **Edit:** Use the edit feature to tweak question wording for clarity.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Yippity supports **Retrieval Practice** and **Spaced Repetition**, two of the most evidence-backed study strategies. It moves students from passive review (re-reading) to active recall (quizzing).

4.2. Impact on Teaching and Learning

- **Efficiency:** Saves teachers hours of quiz-writing time.
- **Metacognition:** Helps students realize what they *don't* know by testing them objectively.

4.3. Specific Classroom Applications

- **Study Groups:** Students generate a quiz from the week's reading and challenge each other.
- **Formative Assessment:** Teachers generate quick checks for understanding during a lesson to adjust instruction.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Garbage In, Garbage Out:** If the notes are poor, the questions will be poor.
- **Nuance:** AI struggles with 'critical thinking' questions; it is better at factual recall.

5.2. Ethical and Equity Considerations

- **Academic Integrity:** Students should use it to study, not to cheat on remote exams.
- **Cost:** The limit on free generations can disadvantage students who cannot afford the pro plan.

5.3. Future Outlook and Roadmap

- **LMS Integration:** Potential future plugins for Canvas or Google Classroom.
- **Question Types:** Adding short answers or matching questions.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://yippity.io/>
- **Pricing:** Freemium (Free tier limited to ~3 generations/month).

6.2. Further Reading

- Yippity Blog.
- Guides on 'AI for Study Skills'

6.3. References

- Yippity Official Website.
- EdTech reviews on quiz generators.

Zendy AI

Prof. (Dr.) Rajeav Indramani Jha

Professor & SDC Mentor

Bombay Teachers' Training College

(A Constituent of HSNL University, Mumbai)

1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality:

- **Tool Name:** Zendy (featuring ZAIA - Zendy AI Assistant)
- **Core Functionality:** An AI-powered academic library, it provides access to millions of research papers and uses AI to help users find, read, and summarise scholarly content.



Fig 1. Logo of Zendy AI

1.2. Brief History and Development:

Created by Knowledge E in 2019, Zendy was built to make research accessible and affordable, particularly for students and researchers in developing regions. ZAIA (the AI assistant) was added in late 2023 to help navigate this vast amount of information.

1.3. Target Audience and Scope:

The audience is strictly academic: Undergraduates, Postgraduates, PhD Candidates, and Faculty Researchers.

2. Characteristics and Features

2.1. Core AI Capabilities

- **RAG (Retrieval Augmented Generation):** The AI answers questions based *only* on the academic text provided, preventing made-up facts (hallucinations).
- **Semantic Search:** Finds papers based on concepts, not just keyword matching.

2.2. Key Features and User Interface (UI)

- **ZAIA Chat:** Ask research questions (e.g., "What are the effects of sleep on memory?") and get answers with citations.

- **Keyphrase Highlighting:** Automatically highlights important terms in a PDF.
- **Summary Tool:** Condenses a 20-page paper into a paragraph.

2.3. Differentiating Characteristics

- **Credibility:** Unlike ChatGPT, ZENAI provides real citations that link to actual papers in its library.
- **Affordability:** Designed to be cheaper than traditional academic databases.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Account:** Registration required.
- **Access:** Web browser.

3.2. Step-by-Step Usage Guide (Scenario-Based)

Scenario 1: Undergraduate Writing a Term Paper

1. **Task:** A student needs sources for a paper on 'Climate Change impact on Coral Reefs.'
2. **Query:** They ask ZENAI: 'Summarise recent studies on coral bleaching.'
3. **Result:** ZENAI provides a summary with 5 citations.
4. **Verification:** The student clicks the citations to read the abstracts and verify the source supports their argument.

Scenario 2: PhD Candidate Conducting a Literature Review

1. **Task:** A researcher needs to quickly scan 50 papers to see which are relevant.
2. **Action:** They use the **AI Summary** feature on each search result to decide if it's worth reading in full.
3. **Analysis:** For the chosen papers, they use **Keyphrase Highlighting** to quickly find the 'Methodology' sections.

3.3. Tips and Best Practices

- **Cite Sources:** Always use the original paper for citations, not the AI summary.
- **Broad to Narrow:** Start with broad questions to explore the topic, then ask specific questions to find data.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

Zendy aids in **Information Literacy**. It helps students navigate the overwhelming volume of academic literature, allowing them to focus on synthesis and analysis rather than just searching.

4.2. Impact on Teaching and Learning

- **Research Efficiency:** Drastically cuts down the time needed to find relevant sources.
- **Equity:** Provides access to high-quality journals for students whose institutions might not subscribe to expensive databases.

4.3. Specific Classroom Applications

- **Research Methods Class:** Students use ZALA to find opposing viewpoints on a controversial topic.
- **Thesis Prep:** Students use the tool to build their bibliography.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Library Coverage:** While huge, it doesn't contain *every* journal.
- **Over-reliance:** Students might read only the summary and miss the nuance of the full paper.

5.2. Ethical and Equity Considerations

- **Hallucinations:** While reduced, AI can still misinterpret complex academic text. Verification is key.
- **Access:** Aims to improve equity, but full features still require a subscription.

5.3. Future Outlook and Roadmap

- **More Publishers:** Continually adding more journals to the library.
- **Smart Alerts:** AI notifying users when a new paper in their field is published.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://zendy.io/>
- **Pricing:** Free (Open Access content) and Paid (Premium content).

6.2. Further Reading

- [Zendy Blog](#) on 'AI in Academia.'
- [Tutorials](#) on using ZAIA.

6.3. References

- [Zendy Official Website](#).
- [Announcements](#) of partnerships with publishers like Oxford University Press.

Zoom AI Companion

Prof. (Dr.) Rajeiv Indramani Jha

Professor & SDC Mentor

Bombay Teachers' Training College

(A Constituent of HSNV University, Mumbai)

1. Introduction and Tool Overview

1.1. Tool Name and Core Functionality

The tool is **Zoom AI Companion**. It integrates GenAI into the Zoom platform to assist with **communication, summarisation, and productivity** within virtual classrooms and meetings.



Fig 1. Logo of Zoom AI

1.2. Brief History and Development

Rebranded in late 2023, Zoom AI Companion was developed to reduce 'Zoom fatigue' and help users manage the information flow in virtual environments. In education, it serves to support both synchronous (live) and asynchronous learning.

1.3. Target Audience and Scope

The audience includes **Educators, Students, Administrators, and Remote Learning Staff**. It covers **Live Meetings (classes), Team Chat, and Whiteboards**.

2. Characteristics and Features

2.1. Core AI Capabilities

- **Meeting Summarisation:** NLP algorithms listen to the class/meeting and produce a summary of key points and next steps.
- **In-Meeting Query:** Allows users to ask questions about what was just said (e.g., "What was the homework?").

2.2. Key Features and User Interface (UI)

Feature	Description	UI Location
---------	-------------	-------------

Meeting Summary	Auto-generates a summary after the class ends.	Email / Web Portal.
Catch Me Up	Summarises what happened in case you join late.	In-meeting side panel.
Ask Questions	Privately answers questions about the live transcript.	In-meeting toolbar.
Smart Recording	Divides the recording into 'chapters' by topic.	Cloud Recording interface.

2.3. Differentiating Characteristics

- **Integration:** Built directly into the app schools already use; no new software to install.
- **Cost:** Included at no extra cost for most paid institutional licenses.

3. Practical Implementation and Usage

3.1. Prerequisites and Setup

- **Account:** Paid Zoom account (Pro, Education, etc.).
- **Admin Settings:** School IT admin must enable the feature.

3.2. Step-by-Step Usage Guide (Scenario-Based):

Scenario 1: Student Catching Up on a Missed Lecture Segment

- **Situation:** A student joins an online lecture 15 minutes late due to connectivity issues.
- **Action:** They click 'AI Companion' and select 'Catch Me Up.'
- **Result:** The AI provides a short text summary of the introduction and announcements they missed.
- **Benefit:** The student is up to speed without interrupting the professor to ask, 'What did I miss?'

Scenario 2: Professor Distributing Class Notes

- **Action:** The professor enables 'Meeting Summary' at the start of the lecture.
- **Class:** The lecture proceeds normally.
- **Post-Class:** The professor receives the AI summary via email.

- **Edit & Share:** The professor quickly reviews the summary, corrects minor errors, and posts it to the LMS as 'Lecture Notes' for students to review.

3.3. Tips and Best Practices

- **Notification:** Always ensure students know AI features are active (Zoom displays a disclaimer icon).
- **Review:** Teachers should always review summaries before posting them as official notes.

4. Educational Implications and Applications

4.1. Pedagogical Rationale

It supports **Universal Design for Learning (UDL)** by providing multiple means of representation (audio vs. text summary). It reduces the cognitive load of multitasking (listening + writing), allowing students to focus on understanding.

4.2. Impact on Teaching and Learning

- **Student Support:** Helps students with attention deficits or language barriers keep up with the flow of the class.
- **Teacher Time:** Automates the creation of study guides and minutes for departmental meetings.

4.3. Specific Classroom Applications

- **Virtual Office Hours:** The summary captures specific student questions and the professor's answers for record-keeping.
- **Staff Meetings:** Automatically generates 'Action Items' (e.g., 'Submit grades by Friday') from the faculty meeting.

5. Challenges, Ethics, and Future Directions

5.1. Limitations and Challenges

- **Accuracy:** Heavy accents or technical jargon can confuse the transcription.
- **Nuance:** It might miss sarcasm or the emotional tone of a classroom debate.

5.2. Ethical and Equity Considerations

- **Privacy:** Zoom states they do not train models on customer audio, which is crucial for student privacy (FERPA/GDPR).
- **Consent:** Clear indicators that AI is analysing the audio are required.

5.3. Future Outlook and Roadmap

- **Real-time Coaching:** AI might prompt teachers if they are speaking too fast or not pausing for questions.
- **Visual Analysis:** Integration with the whiteboard to summarise drawn diagrams.

6. Supplementary Information and References

6.1. Tool Access Details

- **Official URL:** <https://zoom.us/>
- **Pricing:** Included in paid Education licenses; not in the Basic free plan.

6.2. Further Reading

- Zoom Blog on 'AI in Education.'
- Zoom Trust Center (Privacy info).

6.3. References

- Zoom Support Pages.
- Industry news on Zoom's AI updates.

APPENDIX A

LIST OF COMMITTEES

Committee	Teacher In-Charge	Members
Student Co-ordinators	Prof. (Dr.) Rajeev L. Jha	Khushi Mishra (Proofreading) Rumsha Merchant (S.Y.B Ed) Shifa Khan (Collection of Articles) Tanisha Jain (Typesetting) Vishwajit Mohapatra (Cover Page Designing)
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APPENDIX B

MENTOR-MENTEE GUIDANCE GROUPS

Prof. (Dr.) Mandeep Kaur Kochar	Prof. (Dr.) Rajeev L. Jha	Prof. (Dr.) M.A. Ansari
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Ms. Farrah Kerrawala		
Aaisha Qureshi Humaira Shaikh Mokshi Desai	D.El.Ed Iram Hira Kajal Paswan Lisa Jain	Mahenoor Sayed Muskan Singh Rukaiyya Sayyed

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