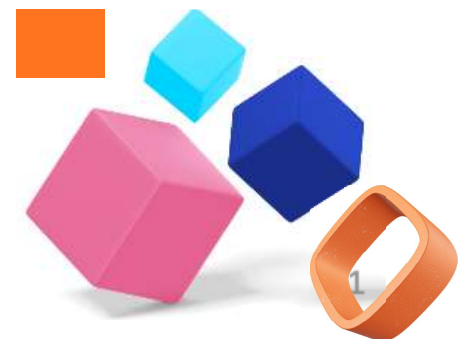




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FAKULTI SAINS KOMPUTER DAN MATEMATIK
UNIVERSITI TEKNOLOGI MARA
CAWANGAN JOHOR



Terbitan Edisi 2025

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PREFACE

Praise be to Allah SWT, with His will, this eBook, ICT Trends that Matter, has been successfully compiled to capture some of the most relevant and transformative discussions in the world of Information and Communication Technology (ICT).

The work is a compilation of various views of the different practitioners, scholars, and professionals who have contributed their ideas and thoughts regarding the emerging technologies and their influence. The chapters provide just a few examples of how cybersecurity, big data harmonisation, artificial intelligence, novel learning tools, and social media analytics demonstrate the extent to which ICT has permeated our everyday worlds, our classrooms, workplaces, and communities.

ICT Trends that Matter offers readers a comprehensive exploration of 14 contemporary ICT themes that are shaping education, industry, and society. The eBook covers a wide spectrum of topics such as Big Data & AI, Digital Learning & Tools, Practical ICT Applications, Social Media & Communication and Smart Campus Initiatives highlighting UiTM Johor's experience in developing a data-driven digital ecosystem.

This eBook is informative and inspirational, with contributions that combine theory, research, and practical work. It makes the readers consider the existing ICT issues and opportunities and provides practical knowledge on personal, educational, and professional development. I would like to say that I am very grateful as the chief editor to all the contributors whose commitment, professionalism, and innovativeness have added value to the contents of this eBook. I believe ICT Trends that Matter will be useful to academicians and students, as well as any industry professional, policymaker and those who are keen to learn more about the dynamic ICT environment.

Whether you are an academic, student, or industry professional, ICT Trends that Matter provides valuable insights into the technologies that are redefining our world today. May this work inspire further dialogue, innovation, and collaboration toward building a smarter and more sustainable digital future.

Dr. Shamsatun Nahar Ahmad
Chief Editor
Brain Hub: ICT Trends that Matter

SYNOPSIS

ICT Trends that Matter is a compilation of 14 thought-provoking chapters, which discuss the most significant trends in Information and Communication Technology (ICT) and their implications on education, industry, and society.

The elements cut across essential areas of the digital world. Discussions about the harmonisation of big data and artificial intelligence to fight cybersecurity and comparative studies concerning popular AI tools will be available to the readers. The eBook also highlights innovative approaches to teaching and learning, such as Easymath2U and V-CCMPedia, to improve conceptual learning in calculus, and AI-assisted tools to improve student engagement.

The useful experience is presented with the help of the following topics: computer tips and tricks, free e-learning applications used by children, and the successful utilisation of social media analytics tools. The role of contemporary communication mediums such as Telegram and the global presence of TikTok are also discussed in the chapters, as well as reflections on institutional work towards data-driven digital ecosystems, such as the UiTM Johor RSP16 experience.

This eBook contains the work of numerous scholars and researchers and offers both theoretical insights and practical solutions, which is why it can be of interest to academics, students, practitioners in the industry, or policymakers. ICT Trends that Matter is not merely an anthology of articles but rather is a convenient way to learn about the latest trends in ICT and predict what to expect and what to take advantage of in the digital age.

ACKNOWLEDGEMENT

The Editorial Board of ICT Trends that Matter would like to thank everyone whose assistance and commitment enabled us to make this publication possible.

We would like to thank the Department of Linkage Industry and Alumni, UiTM Johor, Segamat Campus, for enabling the acquisition of eISBN and subsequent guidance throughout the publication process.

A special mention of gratitude belongs to all contributors, whose skills, knowledge and dedication have been instrumental in the content of this eBook. Every chapter is an embodiment of how well, creatively, and committed our writers were to delivering substantial discussions on the current issues in ICT.

We also recognise the unwearying efforts on the part of the Editorial Board, which have been tireless from the very beginning of the conception to the final production of this eBook, which makes it and guarantees its success.

We are most thankful to all who have assisted this undertaking either directly or indirectly. May Allah SWT bless this endeavour and enable it to do good for the readers and the community at large.

AI TOOLS THAT “WOW” YOUR STUDENTS FOR BETTER ENGAGEMENT IN THE CLASSROOM

RASHIDAH MOKHTAR, NUR HUDA JAAFAR

Introduction

This article explores the transformative potential of Artificial Intelligence (AI) in enhancing student engagement within classroom environments. It provides an overview of AI tools that facilitate interactive learning, streamline assessments, and promote creativity in educational contexts. By categorising AI tools into presentation, content creation, and engagement platforms, the study highlights their role in enhancing instructional delivery, student participation, and assessment practices. The discussion further examines future trends, such as microlearning, personalized learning, and immersive technologies, emphasizing AI’s role in supporting lifelong learning. The article concludes that thoughtful integration of AI enhances teaching efficiency and empowers students to become active participants in their own learning journeys. In the evolving landscape of education, student engagement has become a cornerstone of effective teaching and learning. Traditional lecture-based approaches, while foundational, often fall short in maintaining learners’ attention and motivation. The emergence of AI provides educators with innovative tools that enhance interactivity, personalise learning experiences, and enable efficient content delivery. AI allows educators to design adaptive, data-informed, and dynamic learning environments that align with students’ preferences and capabilities.

The learning environment

Malaysian education system has evolved through multiple waves of reform, from teacher-centred instruction to student-centred, technology-integrated learning. Initiatives such as the Smart School Project and the Malaysia Education Blueprint (2013–2025) have laid the foundation for Education 4.0, emphasizing digital literacy and self-directed learning. The COVID-19 pandemic accelerated digital adoption, exposing disparities in infrastructure and highlighting the importance of AI-driven solutions that support inclusive learning. Within this context, AI emerges as a key enabler for reimagining classroom engagement and assessment practices. AI tools that enhance classroom engagement can be categorised into three primary types: dynamic presentation tools, content creation tools, and engagement platforms. Each serves a distinct purpose in enriching teaching and learning experiences.

Dynamic presentation tools

Dynamic presentation tools help educators design visually appealing and interactive lesson materials. Tools such as Gamma AI, Alayna + Google Slides, and Canva AI simplify design while enabling real-time interaction. These applications assist teachers in creating slides, visual stories, and quizzes that captivate student attention.

The table below compares the AI presentation tools and their main features:

Gamma AI	Alayna + Google Slides	Canva AI
AI-powered content generation	Automated summarisation of text and data	AI-powered image generation

Easy presentation outline generation Customisable templates	Customisable templates and design options Integration with Google Slides for seamless workflow	Text-to-design capabilities Automated layout suggestions
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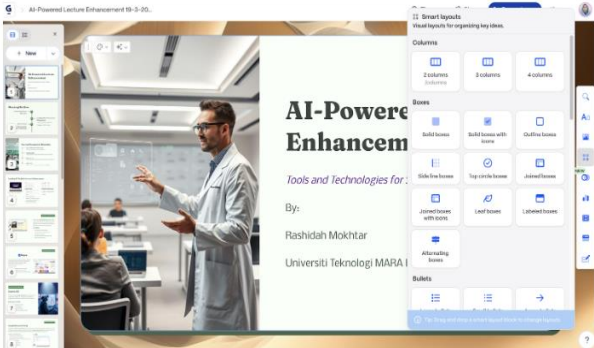


Figure 1: Gamma app GUI

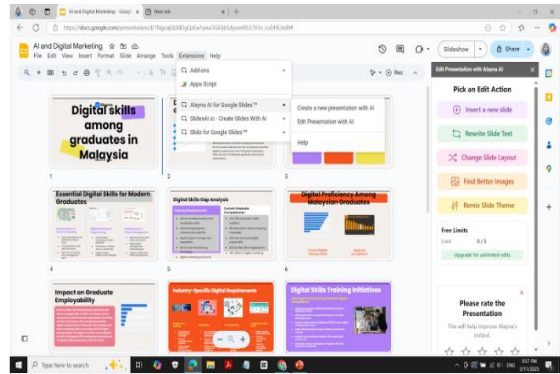


Figure 2: Google Slides and Alayna GUI

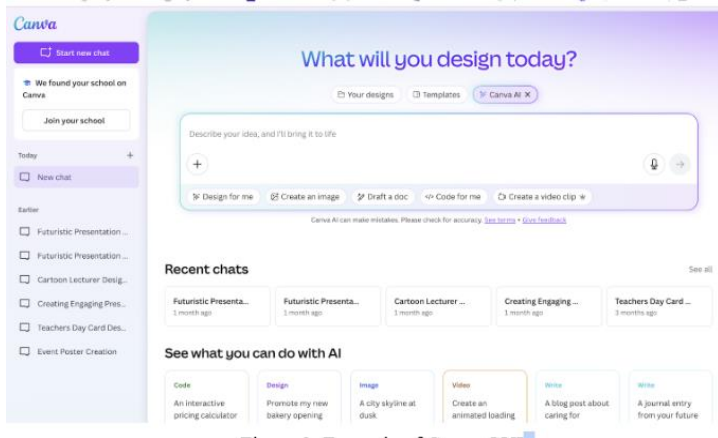


Figure 3: of Canva GUI

Content creation tools

AI-powered content creation tools such as GitMind, InVideo, ElevenLabs, and Napkin.ai empower educators to generate mind maps, videos, audio, and visual notes efficiently. These tools reduce preparation time and encourage creativity among both teachers and learners.

The Table below compares AI Content Creation tools and their main features.:

GitMind	InVideo	ElevenLabs
<ul style="list-style-type: none"> • Collaborative mind mapping • Real-time brainstorming • Templates for various use cases • Customisable themes and styles • Export to multiple formats 	<ul style="list-style-type: none"> • Extensive library of customisable video templates • Drag-and-drop interface for easy video editing • AI-powered video creation tools • Royalty-free music and stock footage • Direct sharing to social media platforms 	<ul style="list-style-type: none"> • Realistic text-to-speech generation • Voice cloning technology • Customisable voice parameters (pitch, speed, etc.) • Support for multiple languages • API for integration with other applications

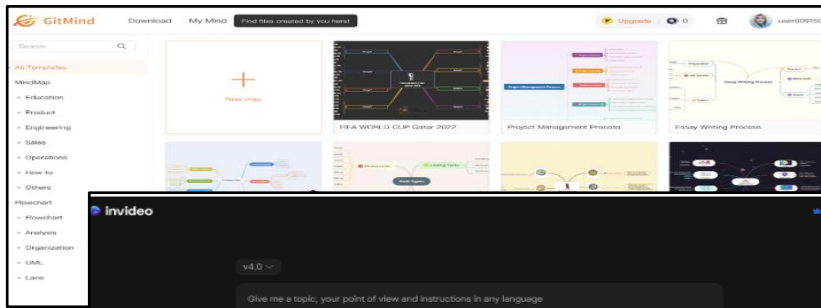


Figure 4: GitMind GUI

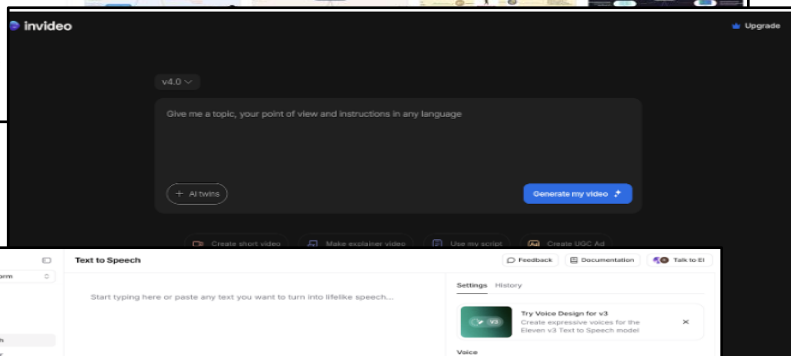


Figure 5: InVideo GUI

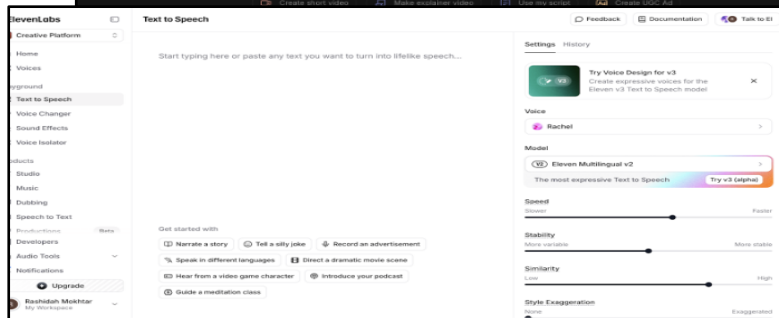


Figure 6: ElevenLabs GUI

Engagement and interaction tools

Interactive learning platforms such as Eduaide.ai, Perplexity AI, and Educaplay encourage collaboration, real-time feedback, and gamification in learning. These tools transform passive classrooms into active learning spaces through quizzes, polls, and multimedia activities.

The following table compares the AI engagement tools for student motivation and their main features :

Eduaide.ai:	Perplexity AI	Educaplay
<p>Interactive Quizzes and Polls: Integrates real-time quizzes and polls to keep students actively involved during lectures.</p> <p>Collaborative Whiteboards: Offers shared digital whiteboards for group problem-solving and brainstorming activities.</p> <p>Personalised Feedback: Provides instant, AI-driven feedback to students understand and improve their performance.</p>	<p>AI-Powered Answers: Provides direct answers to questions using AI, rather than just listing links.</p> <p>Source Citations: Includes citations to show the sources of the information provided, enhancing trust and verification.</p> <p>Follow-Up Questions: Suggests follow-up questions to help users explore topics in more depth.</p>	<p>Activity Creation: Design various types of interactive activities easily.</p> <p>Multimedia Integration: Incorporates images, audio, and video into activities.</p> <p>Customisation : Adapts activities to specific learning objectives and student needs..</p>

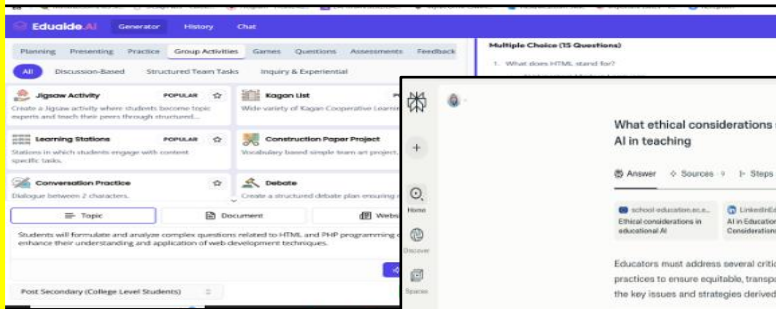


Figure 8: Eduaide.ai GUI

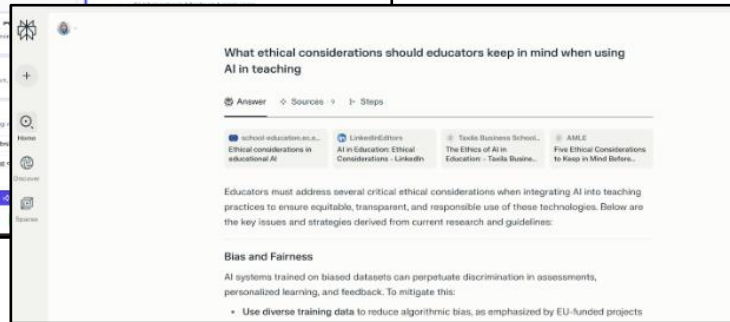


Figure 9: Perplexity GUI

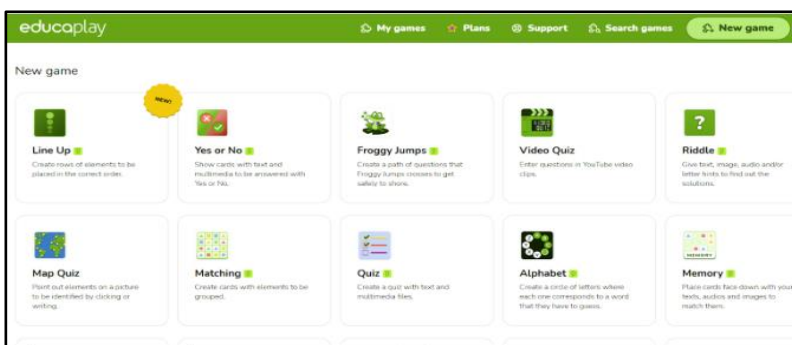


Figure 10: Educaplay GUI

AI Question Generator

AI technologies help educators in many ways. The AI tools help educators in generating questions which can be cumbersome, especially when the educator lacks new ideas. Nowadays, many AI tools can solve this problem. With AI tools, educators can generate a wide range of questions, including multiple-choice questions (MCQs), short-answer questions, and essay-based assessments. However, they need to know the strategies to generate assessments. Tools like ChatGPT and Quillionz assist educators in creating diverse assessment formats.

The following table compares the AI Question Generators and their main features :

ChatGPT	Quillionz
<p>Natural language understanding: Responds in human-like, coherent text.</p> <p>Customisable output: Generates questions, summaries, explanations, and examples based on the educator's instructions.</p> <p>Adaptive complexity: Can simplify or deepen content depending on learners' levels.</p> <p>Creativity and variety: Provides multiple formats such as open-</p>	<ul style="list-style-type: none"> • Automatic question generation: Creates questions directly from input text. • Multiple question formats: Supports MCQs, short-answer, and higher-order thinking questions. • Customisation : Educators can edit, refine, and adjust generated questions.

<p>ended, multiple-choice, or problem-solving questions. Efficiency: Saves time in preparing learning materials.</p>	<ul style="list-style-type: none"> ● Time-saving: Reduces the effort in preparing quizzes and assessments. ● Content alignment – ensures questions are directly tied to the material provided.
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AI in Assessment: Smarter Feedback and Greater Engagement

With the AI tools, it can also save time and reduce educators' burden in gradings and giving feedback on students' assessment performance. Moreover, AI tools can also help educators ensure that students consistently demonstrate high integrity in their assessments. AI tools can also help educators transform assessments into fun, game-based, and interactive activities that can indirectly boost student motivation to explore learning subjects more deeply. Gradescope and CoGrader streamline help in grading and feedback processes.

The following table compares the AI assessment tools and their main features:

Gradescope	CoGrader
<ul style="list-style-type: none"> ● AI-assisted grading: Automatically groups similar answers for faster marking. ● Multiple formats: Supports paper-based, online, and programming assignments. ● Customisable rubrics: Has dynamic and reusable grading criteria. ● Time efficiency: Reduces grading time significantly for large classes. ● Detailed analytics: Provides insights into student performance and question difficulty. ● Fairness and consistency: Can Ensures uniform grading across all responses. 	<ul style="list-style-type: none"> ● AI-Powered Feedback Generation: Quickly produces draft grades and detailed feedback, saving significant time. ● Consistent, Equitable Grading: Has objective, rubric-based scoring that helps reduce human bias. ● Classroom Insights & Analytics: Gives reports on student performance trends, helping target instruction and planning. ● Academic Integrity Tools: Detects AI-generated content and plagiarism to maintain honesty. ● Human-in-the-Loop Design: While AI assists, teachers always have the final say on grades and comments. ● Privacy & Ethics Focused: Anonymises data and does not use student submissions to train AI.

Future Trends and Implications

The integration of AI in education is closely linked to emerging trends such as microlearning, AI-personalised learning, immersive technologies (VR/AR), and lifelong learning. Microlearning allows bite-sized knowledge delivery, while AI-personalised platforms tailor lessons to individual learner profiles. Immersive technologies enhance experiential learning through simulation, and lifelong learning initiatives are strengthened through AI-driven recommendations and flexible content access. Together, these trends indicate a shift toward more adaptive, continuous, and learner-centric education ecosystems. Artificial Intelligence is reshaping education by empowering teachers with tools that enhance engagement, efficiency, and equity. The fusion of AI technologies into classroom practices supports dynamic content delivery, creative content production, and authentic assessment. Future educators must embrace AI not as a replacement, but as a collaborator that amplifies teaching capabilities and inspires lifelong learning.

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