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Educating in the Age of AI: Preparing Cambodian Teachers and Students for an AI-Augmented Learning Future

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ABSTRACT

This current academic explores Cambodia's readiness to adopt artificial intelligence (AI), particularly generative tools like ChatGPT, in its national education system. It assesses current gaps in teacher training, student digital literacy, curriculum integration, and institutional infrastructure using global and local data. While interest in AI grows, its implementation is impeded by limited professional development opportunities, unequal internet access, and a lack of established AI policy frameworks. Promising trends, including pilot initiatives, students' unofficial use of artificial intelligence, and more government attention, suggest, however, the likelihood of radical transformation. The argument outlines a strategic approach to AI-augmented education in Cambodia, with an emphasis on teacher capacity building, curricular reform, student empowerment, and ethical governance. Policymakers, teachers, and academics should find useful advice here. Future research should concentrate on pilot evaluations, longitudinal effects of AI on learning outcomes, and comparative ASEAN-level studies to enable context-sensitive, inclusive, and long-term AI integration in Cambodian schools.

INTRODUCTION

Artificial intelligence (AI) in education represents a significant shift in the design, delivery, and experience of learning. Among the most prominent developments is ChatGPT, a large language model developed by OpenAI that received global attention upon its public release in late 2022. Renowned as a "digital tutor" (Dwivedi *et al.*, 2023), generative artificial intelligence technology ChatGPT can mimic human-like discourse, summarize content, provide explanations, and support individualized learning. Beyond ChatGPT, a burgeoning ecosystem of AI-powered learning technologies, such as adaptive learning platforms, automated feedback systems, and intelligent tutoring systems, is transforming global educational practice. These tools promise personalized learning pathways, faster feedback loops, and increased access to high-quality instructional support, especially for underserved learners (Holmes *et al.*, 2019; Huot & Em, 2024).

However, this technological revolution throws into question traditional roles performed by teachers and students. In AI-augmented classrooms, teachers transition from knowledge providers to facilitators of critical thinking, ethical reasoning, and reflective involvement, while students are expected to navigate, evaluate, and co-create information utilizing digital platforms (Huot & Em, 2025; Luckin & Holmes, 2016). This new terrain calls for a redefining of educational agency in which artificial intelligence is incorporated constructively instead of just embraced (UNESCO, 2023). Because of the increasing use of artificial intelligence in education, governments, especially those in the Global South, are

being pushed to examine their preparedness to use AI technologies not just for enhanced efficiency, but also for encouraging creativity, fairness, and inclusivity. Cambodia, a low-middle-income nation with a rapidly expanding educational system, is set to experience an AI-powered revolution. Low-middle-income country Cambodia with fast growing educational system is poised for an AI-powered revolution. The Ministry of Education, Youth, and Sport (MoEYS) has launched a decade-long ambitious makeover of the country's educational system. Low-middle-income nation Cambodia, with fast growing educational system, is about to undergo transformation driven by artificial intelligence. Beginning major projects aiming at modernizing the infrastructure of education in the nation throughout the last 10 years, the MoEYS started ambitious improvements (MoEYS, 2021). According to the World Bank (2022), just 32% of rural households have reliable internet connectivity, compared to 67% in cities. Significant technology utilization in classrooms remains restricted, particularly in provinces beyond Phnom Penh, due to bandwidth constraints, electrical reliability, and device availability. Furthermore, many instructors indicate low confidence in employing digital technologies, citing a lack of professional development and pedagogical support (Hara, 2024). Education outcomes are also indicative of these disparities. National student tests routinely demonstrate poor performance in reading and mathematics, particularly in rural and underprivileged groups (UNESCO, 2023). Under this framework, AI technologies such as ChatGPT provide chances to augment instructor capacity, assist challenging students, and advance creative learning strategies, but

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only if carefully and incorporated.

This present study addresses the crucial requirement to evaluate Cambodia's readiness for AI integration in education by combining global and regional data. Specifically, it seeks: (1) to examine international literature on how teachers and students are being prepared to engage with AI tools such as ChatGPT in formal learning settings; (2) to evaluate Cambodia's current readiness for AI-augmented education, focusing on teacher capacity, student digital literacy, curriculum design, and infrastructure; and (3) to propose a strategic roadmap that identifies actionable priorities and institutional reforms required to ensure that this paper attempts to provide insights not only locally relevant but also applicable to other Southeast Asian and low-resource environments facing comparable changes by placing Cambodia in the larger global debate on artificial intelligence in education.

LITERATURE REVIEW

Conceptualizing AI-Augmented Education

The integration of artificial intelligence into education needs a thorough grasp of how AI works in pedagogical settings. Each reflecting different degrees of AI participation in teaching and learning processes, scholars separate AI-assisted, AI-enhanced, and AI-integrated pedagogy (Holmes *et al.*, 2019; Luckin & Holmes, 2016). AI-assisted education denotes the utilization of tools for specific tasks, such as scheduling or grading, whereas AI-enhanced approaches involve more dynamic applications, such as adaptive feedback, tutoring, or content generation. In AI-integrated pedagogy, artificial intelligence is incorporated into instructional design and learning settings as a collaborative agent that influences the learning experience alongside students. Recent studies have been demonstrated how such integration has improved learners' AI modelling tools and skills in science education, highlighting the potential to deepen conceptual understanding (Aduloju & Adedotun, 2025). Especially, the literature distinguishes between co-creation, augmentation, and automation. Automation refers to AI replacing mundane educational duties, augmentation assists instructors and students by amplifying cognitive work, and co-creation puts AI as a creative collaborator alongside human agents (Popenici & Kerr, 2017). This sophisticated conceptual landscape emphasizes the significance of adopting AI tools like ChatGPT as collaborative tools that are contextually linked with human education, rather than as alternatives for human intellect.

The Global Debate on AI and Teacher Roles

Across the worldwide literature, there is widespread agreement that AI should serve as a co-teacher rather than a replacement for human teachers. While AI can automate key educational processes like lesson preparation, grading, and feedback generation, it lacks the emotional intelligence, ethical reasoning, and situational awareness required to teach students holistically (Selwyn *et al.*, 2017;

Zawacki-Richter *et al.*, 2019). Empirical research in high-resource situations have shown that AI technologies may improve teacher efficiency, especially when it comes to tailored teaching and formative feedback (Kasneji *et al.*, 2023). In STEM fields, for instance, AI-assistance modelling tools have been spread widely to enhance and support educators in simplifying complex concepts and improving student comprehension (Aduloju & Adedotun, 2025). However, worries about teacher disempowerment remain, particularly if AI technologies are used without proper training or professional agency. If educational reforms fail to give teacher judgment, professional autonomy, and ethical discernment top priority, some writers draw attention to the danger of lowering instructors to passive consumers of AI-generated information (Holmes *et al.*, 2019; Williamson *et al.*, 2020). As a result, teacher training programs must equip educators to critically analyse AI outputs, contextualize them for various learner requirements, and maintain core decision-making positions in AI-enabled classrooms.

Student Readiness in the Age of AI

Students must develop new kinds of digital literacy that go beyond just functional ICT knowledge as artificial intelligence is ingrained in learning environments. Competencies in data ethics, algorithmic thinking, information verification, and critical AI usage are all emerging as key 21st-century literacies (OECD, 2023; UNESCO, 2023). The ability to utilize ChatGPT or similar technologies successfully is dependent on students' ability to discriminate between genuine and contrived outputs, engage in metacognitive reflection, and use AI as a complement rather than a shortcut. The dangers are great without suitable direction. Studies alert of rising student reliance on artificial intelligence, a phenomena wherein students avoid critical thinking processes in favour of fast responses (Huot *et al.*, 2025; Zhai, 2023). Additionally, there is evidence that students may internalize AI biases, misinterpret "hallucinated" facts, or replicate AI-generated plagiarism when instructors neglect to establish appropriate ethical boundaries (Bender *et al.*, 2021). These concerns are especially relevant in developing contexts such as Cambodia, where AI literacy has not yet been integrated into the curriculum and students frequently interact with tools such as ChatGPT informally and without scaffolding.

Theoretical Frameworks

To facilitate the development of AI-augmented education, it is beneficial to employ a variety of theoretical frameworks to help guide both research and practice. The TPACK framework (Technological Pedagogical Content Knowledge) continues to serve as a core paradigm for teacher preparation in EdTech integration. Emphasizing the interaction among technology, pedagogy, and subject matter, TPACK argues that good teaching using artificial intelligence calls for not just technical expertise but also an awareness of how AI could be linked with

instructional objectives and learner requirements (Mishra & Koehler, 2006). Bloom’s Digital Taxonomy provides even another insightful prism through which to see how artificial intelligence technologies fit cognitive learning mechanisms. It places AI applications in hierarchical domains ranging from remembering and comprehending to producing and assessing, encouraging instructors to create challenges that foster higher order thinking rather than knowledge recall (Amin & Mirza, 2020; Huot *et al.*, 2025). Furthermore, Paulo Freire’s development of Critical Pedagogy, which modern digital education researchers have modified, reminds teachers that AI usage must be human-centred and justice-oriented (Giroux, 2010; Shor, 2002). Emphasizing dialogical learning, cultural relevance, and the political aspects of technology, this method invites teachers to consider whose knowledge AI encodes and who gains from its use (Paek & Kim, 2021; Selwyn *et al.*, 2017). Also, language use in digital platforms like AI interfaces is not merely functional but also carries deep sociocultural meaning, reinforcing the need for pedagogy that is both critically aware and ethically grounded (Maliseni & Chimowa, 2025).

Regional and Global Case Studies

Comparative studies from Southeast Asia increasingly provide understanding of how artificial intelligence is

being used in educational institutions confronted with comparable socioeconomic limitations. The Skills-Future Framework and AI-for-Education (AI4Ed) are two of the many Singaporean programs that are working to advance AI’s use in the classroom. These initiatives are designed to improve the AI literacy of students and improve the skills of teachers in the early grades (MOE Singapore, 2023). In Vietnam, experimental initiatives funded by UNDP and the Ministry of Education have used AI chatbots and adaptive learning platforms to improve language and STEM training in rural regions (UNESCO, 2023). Indonesia has begun national AI education policies that include teacher capacity development, curriculum design, and public-private collaborations to localize AI technologies (ADB, 2022). These illustrations highlight how important policy consistency, infrastructure development, and contextual adaptability are to achieving the promise of artificial intelligence. A number of international organizations have issued detailed recommendations to better prepare educators and students for futures with AI enhancements, including the Asian Development Bank, the Organization for Economic Cooperation and Development (ADB, 2022; OECD, 2023; UNESCO, 2023). As shown in Table 1, these experiences and frameworks provide realistic entry points for designing localized policies that are both ambitious and attainable in Cambodia.

Table 1: Key Themes in Preparing for AI-Augmented Learning

No.	Theme	Key Insights
1.	Thinking about education that uses AI	It makes clear the differences between AI-assisted, AI-enhanced, and AI-integrated education, as well as automation, augmentation, and co-creation.
2.	AI and What Teachers Do	AI should not replace teachers; it should aid them. Facilitates planning and feedback while protecting teacher autonomy, ethics, and professional judgment.
3.	Students’ Preparedness	Focuses on the importance of using AI, ethics, and critical thinking. Warns against AI dependency, misinformation, and plagiarism risks.
4.	Theoretical Frameworks	TPACK: Integrating technology into teacher practice; Digital Bloom’s: Mapping AI to learning levels; Critical Pedagogy: Ensures human-centred, ethical AI use.
5.	Regional and Global Case Studies	Singapore, Vietnam, and Indonesia show varying models for integrating AI. Multilateral bodies provide strategic policy guidelines and capacity-building tools.

MATERIALS AND METHODS

Review Type and Rationale

This research conducted a narrative, policy-oriented integrative review method to synthesize existing evidence on teacher and student readiness for AI-augmented education, with a particular emphasis on the Cambodian setting. An integrative review method is especially well-suited to this topic because it allows for the inclusion of both empirical research and policy-oriented literature, allowing for a comprehensive understanding of educational readiness from pedagogical, infrastructure, and strategic perspectives (Whittemore & Knafl, 2005). This scholarly effort is designed as a narrative, policy-oriented integrative review. Unlike systematic reviews that focus narrowly on empirical studies and rigid protocols,

this approach permitted the incorporation of diverse sources, including qualitative findings, policy analyses, theoretical models, and regional case studies, to capture the complex and multidimensional nature of AI adoption in education.

Data Sources and Search Strategy

The review’s policy orientation is designed to help governments, including Cambodia’s MoEYS, make evidence-based decisions as they evaluate strategic paths for incorporating AI technology into teaching and learning. The data set for this study was compiled from a variety of academic and institutional articles published between 2020 and 2025, a time highlighted by increasing worldwide interest in artificial intelligence in education,

notably with the emergence of generative AI tools such as ChatGPT. The sources included a diverse array of materials, such as peer-reviewed journal articles from fields including education, digital learning technologies, and public policy; official government documents from Cambodia and neighbouring ASEAN countries; and institutional reports published by international organizations like UNESCO, with a focus on digital competencies, AI in teacher education, and inclusive technology access. Additional materials were obtained from global education bodies such as the OECD, ADB, and World Bank, particularly those addressing education in low- and middle-income nations. To guarantee comprehensiveness and relevance, literature was searched in five main academic and regional databases: Scopus, Web of Science, ERIC, Google Scholar, and ASEAN-focused research platforms including SEAMEO and the ASEAN Education Network. Keywords covered were “AI in education,” “teacher readiness,” “ChatGPT,” “digital pedagogy,” “student AI literacy,” and “Cambodia.” The first search yielded up 93 papers. After applying filters for topic relevance, English language, and contextual alignment with the study’s aims, a final sample of 58 papers was selected for full-text examination and theme coding.

Inclusion and Exclusion Criteria

To keep the evaluation focused on thematically relevant and contextually transferable ideas, precise inclusion criteria were adopted. Eligible materials included literature on AI-related teacher training, including both pre-service and in-service professional development programs. Studies and reports that addressed student digital literacy, especially those emphasizing AI competencies, ethical reasoning, and critical engagement with technology, were also prioritized. In addition, the review incorporated publications that discussed AI-focused curriculum development, particularly those detailing integration strategies, instructional design, and new mode of assessment. Another inclusion factor was global and regional case studies of EdTech adoption, if they focused on difficulties and methods relevant to low- and middle-income nations. Studies stressing problems of accessibility, scalability, educational value, and equality have attracted particular attention. Sources were excluded if they focused exclusively on technical AI development

without any educational application, were commercial white papers lacking peer review, or centred solely on high-income national contexts without consideration for adaptability in Southeast Asian or Cambodian education systems.

Analytical Framework

The final corpus of literature was analysed using Braun and Clarke’s (2006) six-step theme analysis methodology, which offered a methodical and rigorous approach to detecting, organizing, and interpreting patterns in the data. This technique enabled both deductive coding, which was consistent with the study’s established goals, and inductive coding, which allowed new subthemes to arise naturally from the data. Four basic theme categories produced by the study each indicate a major facet of artificial intelligence preparedness in education:

1. With an eye especially on technologies like ChatGPT, this topic included literature evaluating teachers’ knowledge, confidence, and professional growth about artificial intelligence integration. It highlighted the necessity for targeted training programs and institutional support to enhance teachers’ readiness for AI adoption.

2. Studies on students’ capacity to interact ethically, critically, and constructively with artificial intelligence systems included this subject on student digital literacy. Additionally, it evaluated their exposure to digital literacy frameworks, emphasizing the significance of incorporating AI literacy into curricula to equip students with the necessary skills to thrive in an AI-driven world.

3. Institutional Infrastructure: This category analysed school-level preparedness, including access to digital devices, internet connection, and administrative ability to incorporate new technologies. The literature underlined how strong infrastructure helps to enable good artificial intelligence integration.

4. With an eye on implementation gaps, governance frameworks, and curriculum reform, this subject aggregated material on national and regional plans for incorporating artificial intelligence in education. It underlined the importance of consistent rules to direct the acceptance of artificial intelligence in educational environments.

This synthesis was cross-referenced with Cambodia’s national education policies and digital development objectives to evaluate alignment, identify policy gaps, and

Table 2: Methodological Summary of the Review

No.	Component	Description
1.	Type of Review	Narrative, policy-oriented integrative review combining empirical studies, policy documents, and conceptual frameworks (2020–2025).
2.	Data Sources	Peer-reviewed journals, government documents, UNESCO, OECD, ADB, World Bank reports.
3.	Databases Accessed	Scopus, Web of Science, ERIC, Google Scholar, ASEAN research portals (e.g., SEAMEO, ASEAN Education Network).
4.	Search Terms	"AI in education", "teacher readiness", "ChatGPT", "digital pedagogy", "student AI literacy", "Cambodia".

highlight strategic opportunities for capacity-building in preparation for AI-augmented education, as summarised in Table 2.

Findings

Teacher Preparedness and

Combining global and regional literature with Cambodian policy and infrastructure reality exposes several capacity shortages and growing innovation potentials essential to the integration of artificial intelligence in education. Four interconnected dimensions, teacher preparedness, student competency, curriculum and assessment systems, and institutional infrastructure, assemble these results. The little exposure Cambodian teachers have had to AI technologies during both their pre-service training and in-service professional development marks one of the most urgent gaps found. Cambodia's ICT in Education Strategy (MoEYS, 2021), has supported programs that teach digital literacy, but they haven't yet included AI-specific lessons. As a result, many teachers don't know how to use tools like ChatGPT or what the bigger effects of generative AI are in the classroom. The literature points to several important obstacles: a general lack of continuing professional development (CPD) opportunities targeted on AI integration; fears among teachers that AI could diminish their professional relevance; and the absence of contextually adapted pedagogical tools that show how AI could support, rather than replace, instructional roles (Williamson *et al.*, 2020). These issues are exacerbated by Cambodia's dependence on conventional, teacher-centered teaching approaches, which could oppose innovations challenging classroom hierarchy. Still, this difference offers a possibility as well. Teachers need real, hands-on training in AI ethics, prompt engineering, and digital pedagogy, including how to create AI-supported learning experiences that enable inquiry, feedback, and diversity, according to a growing worldwide agreement. Adopting such modules with an emphasis on enabling teachers to function as critical mediators of artificial intelligence in learning settings might help Cambodian teacher preparation programs.

Student Competency

According to this synthesis, Cambodian students are increasingly using AI technologies such as ChatGPT, notably for document translation, assignment problems, and producing written material. Still, this participation is mostly unofficial, unorganized, and unsupported by institutional direction, which presents a big problem. Most students lack formal teaching in artificial intelligence literacy, including abilities related to judging the reliability of AI-generated material, spotting deception, or comprehending the ethical limits of AI usage. This gap increases the risk of overreliance, plagiarism, and surface-level learning, particularly in a system that is still dominated by high-stakes, exam-oriented assessment. Nonetheless, the findings also point to potential innovations. AI tools like ChatGPT can offer scaffolding

support for low-performing students, assist linguistically marginalized learners, and facilitate self-paced learning when framed appropriately.

Curriculum and Assessment

For Cambodia's students who speak more than one language (many speak local languages along with Khmer), AI could be a way to make learning more specialized, as long as issues of access and fairness are considered. The research reveals a significant structural gap: there are no clear AI goals in Cambodia's national curricular frameworks. Though the ICT curriculum covers fundamental computer and internet abilities, it does not yet incorporate AI literacy, algorithmic thinking, or data ethics, competences now generally acknowledged as important for 21st-century learning (OECD, 2023; UNESCO, 2023). Moreover, rather of being ingrained throughout disciplines including civics, language arts, or science, where AI technologies may be usefully used, AI-related abilities stay segregated inside ICT or technology courses. This reduces students' chances to interact in multidisciplinary and inquiry-driven ways with artificial intelligence. The way assessments are done is also not linked. Creativity, critical thinking, teamwork, and digital discernment are all essential components of AI-augmented learning, but they are not well assessed by the standardized testing and rote memorization that characterize Cambodia's existing educational system. Re-evaluation of assessment methods including formative, project-based, and portfolio evaluations reflecting AI-supported learning objectives is desperately needed.

Institutional Infrastructures

Integration of artificial intelligence in Cambodia still depends fundamentally on infrastructure. Many rural schools still have poor internet connectivity, inadequate digital tools, and erratic energy, all of which seriously restrict the use of AI technology (World Bank, 2022). These infrastructure deficiencies highlight socioeconomic and regional disparities, which makes equitable scaling of AI technologies challenging. Moreover, even if some digital education projects, including those headed by MoEYS, NGOs, and foreign partners, exist, many are scattered, small-scale, and lack strategic coordination. There is currently no uniform national strategy for AI in education, which impedes efforts to pool resources and link investments with long-term capacity-building objectives. Despite these constraints, there is evidence of creativity. Cambodian universities, including the Royal University of Phnom Penh, have launched AI-focused research programs, while non-governmental organizations (NGOs) such as the Open Institute have piloted digital literacy and language learning platforms that could be expanded to include AI tools. These localized experiments represent fertile ground for scalable pilot projects, teacher training hubs, and cross-sector partnerships to support a national vision for AI-enhanced education, referring to Table 3 for details.

Table 3: Capacity Gaps and Innovation Potentials in Cambodia AI-Readiness

Domain	Key Gaps Identified	Innovation Potentials
Teacher Readiness	<ul style="list-style-type: none"> - Minimal AI exposure in pre- and in-service training - Lack of CPD opportunities - Anxiety over AI replacing roles 	<ul style="list-style-type: none"> - Design AI-focused CPD modules - Practical training in AI ethics and prompt design - Empower teachers as AI facilitators
Student Competence	<ul style="list-style-type: none"> - Informal use of ChatGPT without guidance - Low AI literacy - Limited ethical awareness in tool usage 	<ul style="list-style-type: none"> - Use AI to support low-performing or multilingual learners - Scaffolded instruction for critical and responsible AI use
Curriculum and Assessment	<ul style="list-style-type: none"> - AI absent in national standards - AI competencies siloed in ICT - Rote-based assessment misaligned with AI goals 	<ul style="list-style-type: none"> - Embed AI literacy across disciplines - Shift to formative, project-based assessment - Emphasize creativity and reasoning
Institutional Infrastructure	<ul style="list-style-type: none"> - Poor rural connectivity - Device shortages - No national AI-in-education roadmap 	<ul style="list-style-type: none"> - Leverage existing NGO and HEI pilot programs - Develop national strategy - Foster cross-sector partnerships

Discussion

The largest challenge as Cambodia enters the global conversation about using artificial intelligence (AI) in education is not just acclimating to new technologies but also making sure they mesh effectively with the institutional, cultural, and pedagogical frameworks of the nation. The review’s conclusions point to serious problems with infrastructure, digital equity, curriculum preparedness, and teacher preparation. However, they also point out a big opportunity: AI might improve education in Cambodia if everyone works together to develop and implement it rigorously. Giving teachers control is one of the most crucial steps in ensuring AI performs well. AI will continue to be a separate technology layer rather than a teaching aid if educators lack confidence in their ability to use it effectively. These results suggest that, in contrast to countries that have already adopted AI-responsive educational systems, Cambodia may widen the digital divide and equity gap if focused AI literacy initiatives are not included in teacher preparation programs and the curriculum for students. Concerns that instructors would stop being active, critical facilitators of AI content and instead become passive consumers of it are heightened by the existing dearth of AI-focused professional development (CPD). To address this issue, we already require a national AI pedagogy certification that is included in pre-service and in-service training. Practical instruction in creating AI prompts, ethics, data usage, and integrating AI into the classroom in a way that prioritizes students should be part of this. People can learn new things and develop new ideas that work for them through peer-learning groups, teacher labs, and micro-credentialing.

The preparation of the students must also be the top priority. According to the findings, students’ academic performance may suffer and their chances of submitting work that contains plagiarism, over-reliance, and false

information may increase if they are not taught ethical and critical thinking skills related to AI use. Instead of being limited to ICT courses, AI literacy, data ethics, and algorithmic thinking should be incorporated as transdisciplinary abilities within fields like civics, the humanities, science, and language. There is currently no defined framework in Cambodia that connects curriculum design and teacher skill development. However, elementary and secondary schools in Singapore are already implementing AI-for-Education initiatives (MOE Singapore, 2023). Vietnam’s AI-powered STEM and language initiatives, which are now being tested in rural areas with UNDP assistance, could be advantageous to Cambodia (UNESCO, 2023). These recommendations describe how to build models that can be applied in resource-poor environments. Inquiry-based, student-centered teaching strategies that capitalize on AI’s teaching advantages must replace fact memorization in Cambodia’s educational system. Gamified chatbot exercises, writing workshops with AI support, and class discussions about AI-generated material are a few activities that could encourage student participation and improve critical literacy. To work with other languages and cultures, these novel concepts must be modified. AI systems trained on Khmer language data, for instance, can improve learning outcomes for children who do not know English.

Cambodia must create a framework for AI in education at the national policy level. This framework should outline moral principles, procedures for implementing them, and methods for monitoring them that are appropriate for the economic and social circumstances of the nation. The goal of OECD nations is to protect data and increase the transparency of AI in education (OECD, 2023). However, legislation governing the use of AI in schools have not yet been created by Cambodian education authorities. Equitable governance and the contextual use

of AI can be ensured by establishing AI research institutes and ethical committees with members from a variety of backgrounds, including students, educators, engineers, and civil society. For more individuals to embrace AI-enhanced learning, we also need to invest in long-term infrastructure, particularly in rural areas. This implies that funding for Khmer-specific digital tools, training courses, and content platforms requires public-private partnerships (PPPs). Though it is adapted to Cambodia's particular problems, such as erratic internet connectivity, a centralized approach to curriculum development, and teachers who are not prepared for AI, this proposed roadmap is based on what has succeeded elsewhere. By prioritizing fairness and cultural relevance over efficiency, it encourages the development of capacity through inclusive, people-centered, and context-sensitive design. To ensure that AI has a good impact on Cambodia's educational system rather than a detrimental one, we must move swiftly and with data-driven decisions. By employing international techniques that benefit the local population, Cambodia can create a just, future-ready AI education paradigm for Southeast Asia.

CONCLUSION

As artificial intelligence continues to reshape the landscape of global education, Cambodia finds itself at a crossroads, confronting both institutional limits and revolutionary prospects. Examining the nation's readiness to use AI technologies like ChatGPT in formal education, this paper synthesizes local reality, regional case studies, and worldwide observations. The results highlight how urgently Cambodia must create a strategic, inclusive, and morally based strategy to AI integration if it is to assist its more general aims for education reform and increase capacity for the knowledge economy of the twenty-first century. The study makes clear that Cambodia must move quickly and deliberately to equip instructors and pupils for the artificial intelligence age. Teachers continue to be underexposed to AI tools and underfunded in terms of professional development, whilst students engage with generative AI informally, with no formal instruction on critical thinking, ethics, or digital responsibility. Most importantly, human-centred, equity-driven strategies will determine how well artificial intelligence fits into Cambodian schools. This includes putting educators at the centre of AI adoption as empowered agents of innovation, making sure underprivileged students have access to AI-supported learning, and customizing AI tools and material to fit Cambodia's linguistic and cultural setting.

Policymakers, teachers, and academics must all take important action if it is possible to apply the results of the review. Policymakers should create a national AI-in-education policy that includes clear goals, ethical guidelines, and implementation strategies. Funding must be directed toward teacher training programs with a focus on rural inclusion. Incentives should be provided to schools and teachers to experiment with AI-supported

teaching. Educators are encouraged to use ChatGPT as a supportive tool, not a replacement, and to design student-centred activities that promote inquiry and ethical AI use. Teachers should also join peer learning groups and pursue micro-credentials to build confidence in AI pedagogy. Studies on the application of artificial intelligence in Cambodian classrooms and its effects on culture and learning must be carried out by researchers. These insights may be used to enhance teacher training and curriculum development. Regional benchmarking of Cambodia depends on cooperation with ASEAN countries.

Guiding Cambodia's incorporation of artificial intelligence into its educational system should be mostly dependent on future studies. First, pilot studies are required to assess the efficacy of AI training programs for instructors, especially in terms of improving their preparedness and classroom practice. With an eye on critical thinking, autonomy, and academic progress, second longitudinal studies should look at how artificial intelligence affects student learning outcomes.

Fundamentally, comparative research with other ASEAN nations may assist to pinpoint regionally flexible models for artificial intelligence-in-education planning and implementation as well as best practices.

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