LEARNING BRIEF

How is AI Disrupting Teachers' Roles in Low- and Middle-Income Countries?

AI Observatory

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About the AI Observatory

EdTech Hub's AI Observatory and Action Lab exists to help drive greater equity in learning outcomes in the age of AI. The AI Observatory scans global trends, uses a hypothesis-driven approach to test practical applications, leads innovative pilots, and distils practical insights to support decision-makers in low-and middle-income countries.

Our goal is to ensure AI is integrated effectively and equitably, improving education systems and learning outcomes for all. EdTech Hub's AI Observatory is made possible with the support of the UK's Foreign, Commonwealth and Development Office.
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Recommended citation

Adam, T., & Lester, J. (2026). *How Is AI Disrupting Teachers' Roles in Low- and Middle-Income Countries?* [Learning Brief]. EdTech Hub.
https://doi.org/10.53832/edtechhub.1151
Available at
https://docs.edtechhub.org/lib/UXT3K2K3

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Acknowledgements

Daniel Plaut, Tyler Zang, and Rebecca Daltry. Special thanks to Laila Friese for her expert copy-editing.

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Abbreviations and acronyms

AI	Artificial Intelligence
DPL	Digital personalised learning
GPT	Generative Pre-trained Transformer
KSL	Kenyan Sign Language
LLM	Large Language Model
LMIC	Low- and middle-income country
PAL	Personalised Adaptive Learning
RCT	Randomised controlled trial
TaRL	Teaching at the Right Level
TPD	Teacher professional development

Why this matters

Artificial Intelligence (AI) is increasingly being leveraged to support teachers in low- and middle-income countries (LMICs) to address teaching challenges. Teachers in LMICs often have to contend with overcrowded classrooms, poor teaching conditions, a lack of teacher materials and resources, and poor-quality training (↑Amiri, 2025; ↑Amoah-Oppong et al., 2025; ↑Eke, 2024; ↑Henkel et al., 2024; ↑Nyaaba, 2024). AI (including machine learning and predictive and generative AI) can potentially enhance teaching by automating routine tasks, supporting lesson planning and assessment, personalising learning, improving accessibility, and reshaping pedagogy (↑Bozkurt et al., 2024; ↑Ogoke et al., 2025). While AI could help overcome educational barriers in LMICs, concerns include limited teacher professional development (TPD) to effectively use AI, difficulties verifying the authenticity of students' work, unreliable or irrelevant AI outputs, loss of professional skills, reduced metacognition and increased cognitive offloading, and potential job displacement (↑Bozkurt et al., 2024; ↑Kosmyna et al., 2025).

At a systems level, teachers' use of AI is shaped by broader concerns, including limited digital infrastructure and device access, persistent digital divides, absent or unclear policies and governance frameworks, ethical concerns about AI, safeguarding risks, and the rapidly evolving AI landscape, which demands continual adaptation and lifelong learning. While these wider issues are critical, this brief will address them only where they directly intersect with teachers' roles, as each issue could warrant a standalone analysis.

In this learning brief series, we are exploring the extent to which AI is upgrading, disrupting, and transforming teachers' roles in LMICs. This topic focuses on the 'empowered teachers' North Star, one of the 'Six North Stars' identified by EdTech Hub's AI Observatory as key leverage points for change to narrow the learning divide in the age of AI (↑Luz et al., 2025). We draw on the Three Horizons Theoretical Framework of EdTech Hub's AI Observatory (↑Luz et al., 2025), using the descriptions of each 'horizon' to envision what upgrading, disrupting, and transforming mean in the context of AI's impact on teachers' roles (see Table 1 below). Having a systematic view of education and a long-term view of its goals helps us spot the key leverage points for change, so we can shape what we learn, how we teach, and how education systems are run and designed to keep pace with AI's impact on learning and systems.

Table 1. EdTech Hub's Three Horizons Framework for empowering teachers

Three Horizons	What does this mean for empowering teachers?	Use cases
Horizon 1: Current dominant system, where change happens incrementally within existing structures.	**UPGRADE** Early integration of AI into teachers' roles, where some existing tasks and processes become streamlined or enhanced, while new demands emerge around oversight, adaptation, and judgement.	■ **AI for content creation and lesson planning** ■ **AI for administrative tasks** ■ **AI for assessments, grading, and feedback** ■ **AI for professional development and coaching**
Horizon 2: Turbulent space of innovation & experimentation as society shifts from the status quo to a new paradigm.	**DISRUPT** AI use is increasingly formally evaluated and embedded in teaching, addressing some early identified issues and disrupting aspects of teachers' roles in ways that shift their practice or time allocation.	■ **AI-enhanced digital personalised learning** ■ **AI tutor chatbots** ■ **AI teaching assistants** ■ **AI-powered inclusive education and language accessibility**
Horizon 3: Radical new visions of the future that exist on the fringes today compete to become the dominant system.	**TRANSFORM** The role of teachers is fundamentally changed, with AI being a core facet of the teaching and learning experience in novel ways.	■ **'Teacherless' classrooms** ■ **Teacher-AI complementarity and hybrid intelligence** ■ **Multi-intelligence learning in unbound learning environments**

This learning brief is the second in a series of three on the impact of AI on teachers' roles. It maps where AI use in LMICs is becoming more embedded and evaluated to understand the extent to which AI can 'disrupt' teachers' roles (Horizon 2). While disruption, in an innovation sense, refers to processes in which new technologies reshape existing, stagnant systems by making them cheaper, more accessible, or more efficient (↑Christensen, 1997), this learning brief looks at disruption beyond the technological to its social, political, and ethical impacts. Companion briefs focus on the extent to which AI can 'upgrade' (Horizon 1) (↑Adam & Lester, 2025), and 'transform' (Horizon 3) teachers' roles (↑Adam, 2026). By presenting AI integration in education along these horizons, we hope to make system shifts feel more navigable for educators.

What we’re learning

This section outlines the primary use case categories of AI for ‘disrupting’ teachers’ roles and their ability to teach in LMICs. The use cases chosen for the ‘disrupt’ horizon shift teachers’ practice and/or how they allocate their time. The disrupt space experiments with more novel and innovative uses of AI for teachers, seeking more evidence and embeddedness in teaching.

For each use case, we describe:

- The contextual challenges that teachers experience before AI use.
- The value AI can provide to address their challenges and/or provide them with additional support.
- Examples or evidence available to illustrate the current or potential value.
- The complications, risks, or concerns that may arise from such use.

While examples from LMICs are prioritised, we also draw on examples from other countries, where relevant.

AI-enhanced digital personalised learning platforms

Contextual challenge

In LMICs, large class sizes, limited numbers of qualified teachers, and wide variations in students’ learning levels make it difficult to provide individualised instruction and support within traditional classroom settings. Teaching at the Right Level (TaRL) has emerged as a promising pedagogical approach in LMICs, emphasising tailoring instruction to students’ current learning levels rather than relying on age-based or grade-level groupings (↑Banerjee et al., 2017). Over the last two decades, digital personalised learning (DPL) has built on the principles of TaRL by using technology to assess students’ abilities and deliver tailored instruction at scale, adapting to individual progress in real time (↑Major et al., 2021).

Potential value of AI

Numerous AI tools support DPL by adapting content, assessments, sequencing, pathways, and feedback through analysing students’ past behaviours, preferences, choices, and networks to tailor learning experiences and improve learning gains, student satisfaction, student engagement, and student motivation (↑Prinsloo, 2025). The use of AI in DPL predates generative AI (GenAI); a review by ↑UNICEF (2022) found that 28 out of 40 DPL products in LMICs used AI techniques such as expert systems, natural language processing, and/or machine learning. While the majority of DPL platforms are direct-to-learner, many applications can be implemented for individual and school-cohort use, and most have a teacher and/or parent portal (↑Plaut, 2024). Beyond tailoring pathways, GenAI can:

- Extend DPL capabilities by creating adaptive learning materials, questions, assignments, and simulations adjusted to a learner's pace and style.
- Integrate AI-powered assessments and provide personalised feedback in written, audio, or visual formats.
- Optimise predictive modelling based on a student's previous use.
- Personalise a course to a student's hobbies, goals, interests, and academic history (↑Guettala et al., 2024).

This section focuses on the abovementioned uses of AI in DPL, noting that free-form, inquiry-driven AI tutor chatbots (discussed in the following section) are now often integrated into DPL.

Examples and evidence

The examples listed below spotlight AI-enhanced DPL in which the teacher's role is integrated by design.

EIDU's[1] DPL platform — deployed on low-cost Android devices and aligned with Kenya's competency-based curriculum — has scaled to hundreds of thousands of learners across Kenya, coupling DPL with teacher dashboards and digitised lesson plans (↑EIDU, 2025). A randomised controlled trial (RCT) involving 1,955 learners across 291 government pre-primary schools conducted by EdTech Hub and partners, found an effect of 0.534 standard deviations[2] from baseline to endline, with similar numeracy (0.450 standard deviations) and literacy (0.449 standard deviations). Notably, the effect was more limited between midline and endline, indicating that longer-term content suitability and the optimal duration of implementation need further consideration (↑Major et al., 2026). Related EdTech Hub research has also identified the critical role that teachers play in the effective integration of the tool in early grade classrooms (↑Daltry, et al., 2025b). Providing

[1] See https://www.eidu.com/. Retrieved 18 February 2026.

[2] There are various approaches to interpreting standardised effect sizes in education settings. Following guidelines from the UK ↑Education Endowment Fund (2023), 0.53 standard deviations is considered large by education research standards, equivalent to around seven months of educational progress. This interpretation should be taken with caution, accounting for contextual differences.

teachers with data dashboards has been found to lead to changes to pedagogical practice and affect levels of device usage (↑Daltry et al., 2025a). However, design-based research highlights how the effectiveness of this classroom-integrated tool depends on teacher facilitation. It identifies the risks of inequitable device access (fast learners using devices more often) and misaligned perspectives of DPL technology, highlighting the critical need to prioritise teachers' voices in DPL design to maximise the potential positive impact of implementation (↑Daltry et al., 2025a).

Chimple,[3] an AI-powered game-based DPL app, has shown promise in enhancing foundational learning outcomes among early grade students in India. An RCT found a 0.35 standard deviation improvement in maths test scores for Grade 1 students, with the lowest-performing learners at baseline benefitting the most (↑Burga et al., 2024). The app's design allows for personalised learning experiences, adapting to each child's level and providing real-time feedback. Teachers play a pivotal role in Chimple's implementation by assigning content through the app based on their lesson plans, monitoring student progress, and adjusting classroom instruction accordingly. They also facilitate communication with parents via WhatsApp to encourage student participation. The app's curriculum is aligned with the National Council of Educational Research and Training (NCERT) standards, ensuring familiarity for educators (↑Handa, 2022).

Ei Mindspark[4] is an inquiry-based and gamified curriculum-aligned DPL platform in India. Mindspark utilises machine learning to diagnose a student's precise learning level and misconceptions, delivers dynamically differentiated content with voice-over support, and offers complex challenges for advanced learners, all while leveraging AI to assist students in refining complex skills like reading comprehension and creative writing (↑Saklani, 2024). An RCT found that after 4.5 months of access, students using Mindspark scored 0.36 standard deviations higher in maths and 0.22 standard deviations higher in Hindi relative to the control group. The programme's relative impact was greatest for academically weaker students, whose progress rate was close to zero in control schools, and was highly cost-effective (↑Muralidharan et al., 2019). Mindspark supports teachers by providing real-time student performance data through dashboards, enabling them to tailor instruction, target struggling learners, and focus on deeper teaching while the platform manages individualised practice (↑Saklani, 2024).

[3] See https://www.chimple.org/. Retrieved 18 February 2026.

[4] See https://mindspark.in/. Retrieved 18 February 2026.

ConveGenius.AI's[5] Personalised Adaptive Learning (PAL) software is used in over 1,000 schools in Andhra Pradesh, India. It provides tablet-based, adaptive maths practice, delivered in schools through two 40-minute sessions per week. An RCT found that students who used PAL for roughly 17 months (i.e., for about 35 hours of use) scored about 0.43 standard deviations higher than the control group—equivalent to roughly 1.9 additional years of learning (↑Eble et al., 2025). Gains were observed across all grades, with particularly strong improvements for younger learners and girls. Students who spent more time using the software showed larger gains. Cost-effectiveness analysis indicates that PAL delivers substantial learning improvement at a relatively low per-student cost (USD 20 annually).

[5] See https://convegenius.com/. Retrieved 18 February 2026.

AI-enhanced digital personalised learning platforms: AI use case summary

The AI-powered DPL platforms from Kenya and India discussed above combine adaptive technology with deliberate teacher and classroom integration. In this scenario, the evidence indicates that AI-enhanced DPL can generate moderate learning gains at relatively low cost. Across these programmes, effective strategies included embedding active teacher involvement, with teachers assigning tasks, interpreting dashboards, and adjusting instruction to student needs. Curriculum alignment ensures that adaptive pathways reinforce national learning goals, while low-cost, reliable hardware supports consistent access. Platforms that provide real-time feedback loops, such as dashboards and misconception diagnostics, help teachers target support. Finally, intentional implementation is needed to prevent inequitable device access and use, especially for slower learners.

Beyond the evidence highlighted above, rigorous evidence on the effectiveness of AI-enhanced DPL in LMICs remains limited, especially relative to the rapidly growing number of such DPL platforms. Many platforms report internal impact metrics or increased engagement statistics, yet provide no independent evaluation of actual learning outcomes. Often, these statistics are presented without detailing critical implementation features, which are as important as product design for success. This gap makes it challenging for governments and implementers to determine which tools genuinely improve learning at scale and how to deploy them effectively. Additionally, many platforms now market themselves as AI-enhanced without clarifying how AI is integrated. Notably, DPL was already a promising approach before the 2023 AI surge, raising questions about whether observed effectiveness stems primarily from foundational adaptive and TaRL-based design principles or from the added AI layer (↑Major et al., 2021; ↑World Bank et al., 2020).

Risks and concerns regarding AI use

The growing use of AI-enhanced DPL has sparked debates about hyper-personalisation and its pedagogical, ethical, and social limitations (↑Aerts, 2025). Pedagogically, many pathway-focused DPL platforms are rooted in critiqued behaviourist traditions, privileging mastery of envisaged outcomes, rather than fostering critical thinking, analytical skills, or creativity (↑Sarwar, 2022; ↑Watters, 2021). While DPL promises efficiency, the quickest path is not always the most meaningful. Struggling with concepts, grappling with difficulty, and engaging in co-creative human dialogue are central to more in-depth learning. While marketed as personalised, this approach can risk reducing learners to passive recipients and downplays the inherently social, relational, and collective dimensions of education, where learning through difference often emerges from peer-to-peer engagements and serendipitous interactions (↑Prinsloo, 2025). This is particularly problematic when DPL is used as the primary learning source. These systems often shift agency away from learners, centring machine-driven decision-making (↑Bernacki et al., 2021). The integration of AI could lead to standardising and limiting learning processes, thereby privileging uniformity and predictability at the expense of diversity, creativity, complexity, and cultural specificity (↑Teacher Task Force, 2025; ↑Nemani, 2025). Teachers also face significant shifts in authority and accountability, with algorithms and developers (who are harder to hold accountable) increasingly determining instructional sequencing and feedback that may be flawed or biased, thereby raising questions about responsibility and professional autonomy (↑Teacher Task Force, 2025).

Furthermore, current platforms often lack sufficient ethical safeguards, especially for children and vulnerable populations (↑Prinsloo, 2025; ↑Nemani, 2025). The increased emphasis on data collection and monitoring to measure learning ('learnification') embeds surveillance into everyday learning practices (↑Biesta, 2016; ↑Holmes et al., 2025). This could lead to student's suppression of critical and divergent thinking, particularly around contentious topics (e.g., politics, identity, and religion), a focus on pleasing (or gaming) the system, or cause of psychological stress and disengagement. ↑Rouxused & Nodenot (2023) caution that these systems are not neutral but arise from particular epistemological and ideological orientations, which shape how knowledge and learning are framed. Overall, the "issue is not whether AI-enabled personalization 'works' or not, but how it embodies a particular view and understanding of knowledge, of learning and of being human" (↑Prinsloo, 2025, p. 72).

AI tutor chatbots

Contextual challenge

In many LMICs, overcrowded classrooms and persistent teacher shortages prevent one-to-one support for students, while limited subject expertise forces teachers to teach with little capacity for differentiated instruction. Scarce time, language and resource barriers, and assessment bottlenecks further constrain teachers, making it difficult to provide timely feedback, formative assessment, locally relevant instruction, and sustained pedagogical innovation.

Potential value of AI

AI tutor chatbots, a subcategory of intelligent tutoring systems, offer conversational, free-form, inquiry-driven learning, unlike DPL platforms, which tend to emphasise following a learning path to a predetermined learning outcome. AI tutor chatbots potentially make learning more interactive, responsive, and engaging. AI tutors can extend teachers' reach by providing scalable, one-to-one practice and step-by-step guidance in a conversational manner, offering learners immediate feedback and remediation that overburdened teachers cannot always deliver (↑Davar et al., 2025). AI tutors can personalise support, facilitate debate and role-play, shift attitudes, diagnose misconceptions, and adapt instruction to different learning paces. Voice-enabled and SMS-based systems can broaden access across languages and devices (↑Corbett & Tangen, 2025). By tailoring support to students, AI tutors can free teachers to focus on specific student needs, higher-order pedagogy, social and emotional support, and classroom facilitation. They can also generate insights on learner progress, enabling teachers to target in-person interventions more effectively and optimise scarce instructional time for deeper, more collaborative learning experiences.

Examples and evidence

The examples below illustrate how AI tutor chatbots are disrupting teachers' roles.

In Nigeria, an RCT was conducted on the use of Microsoft Copilot for virtual tutoring in English language learning for first-year secondary school students in Nigeria through a six-week after-school programme (↑De Simone et al., 2025). Students engaged in 90-minute, prompt-guided sessions aligned with the national curriculum and supervised by trained teachers. Results were promising, with the control group scoring 0.23 standard deviations higher. The intervention was highly cost-effective, yielding 3.2 equivalent years of schooling per USD 100 invested, with the most substantial benefits observed among female and high-performing students. The tool was freely available and required minimal customisation. Challenges experienced during the intervention included difficulty creating accounts, internet disruptions, and power outages. Results from this RCT should be interpreted with caution, given shortcomings in the experimental design, including the absence of an equivalent after-school programme in the control group. This makes it difficult to determine whether the impact was due solely to extra after-school contact time, access to technology, or the AI tutoring programme (↑Pershan, 2025). Additionally, students volunteered to join the study rather than being randomly selected, and the programme's high dropout rates could have led to a higher number of successful students taking the endline assessment.

Rori[6] is a Claude-based AI-powered chat-based maths tutor that delivers personalised, adaptive support via WhatsApp, enabling students to learn at their own pace, even in low-bandwidth contexts. Using natural language processing and specialised language models, the tutor allows for more open-ended engagement with learners about maths goals and metacognitive skills. Evidence from Ghana, in a study with Grade 3–9 students in 11 schools, showed substantial improvements in student learning outcomes, with an effect size of 0.36 standard deviations, equivalent to an extra year of learning (↑Henkel et al., 2024).

Khanmigo[7] is built on Large Language Models (LLMs) that simulate a one-to-one tutor. Using Socratic-style dialogues, it prompts learners step by step, asking guiding questions to encourage reasoning and problem-solving. It adapts to learners' input, provides personalised hints, and can adjust explanations based on a learner's level of understanding. While efficacy studies on Khanmigo are underway, no results have been published yet. An independent mixed-methods study was conducted on Khanmigo to support undergraduate physics education tutoring in the USA, with the experimental design component comparing three groups: Khanmigo, search engine, and paper-only (↑Slijepcevic & Yaylali, 2025). The study found that none of the treatment types yielded any significantly better learning outcomes than others. Qualitative findings showed that students perceived it positively and appreciated the step-wise process, although they viewed it as supplementary. Khanmigo faces challenges, including the Generative Pre-trained Transformer (GPT) model struggling with complex maths, occasional contextual misunderstandings, usage

[6] See https://rori.ai/about. Retrieved 18 February 2026.

[7] See https://www.khanmigo.ai/. Retrieved 18 February 2026.

limits, risks of fabricating information, and potential bias from its training data (↑Puran, 2024).

Iris is a humanoid, voice-enabled AI tutor developed and used in South Africa and India. It has been designed to support multilingual learners by interacting in South African and Indian languages. The tutor uses NLP and speech recognition to allow learners to speak with it in their home language, receiving explanations, exercises, and feedback orally (↑BSG & Technologies, 2025; ↑Raja, 2024). The aim is to reduce language barriers and help overcome the shortage of localised content for diverse linguistic groups. The (cost-)effectiveness of a life-size humanoid robot tutor compared to a virtual tutor is yet to be determined.

OpenAI's Study Mode,[8] Anthropic's Learning Mode (Claude for Education),[9] and Google Gemini's Guided Learning[10] aim to reorient LLMs from answer-giving towards guided, scaffolded, problem-solving through pedagogical prompting. This design direction aligns with evidence that education is already a major use case for LLMs. ↑Chatterji et al. (2025) report that around 10% of ChatGPT messages involve tutoring or teaching requests. Additionally, emerging research suggests that *how* learners use LLMs is critical. In a study questioning whether LLMs harm learning, ↑Lehmann et al. (2025) found no overall effect on learning, but showed that students who use LLMs to generate solutions tended to cover more content at the expense of understanding, whereas those who used LLMs for explanations developed stronger understanding, although they covered less content. Notably, learners with lower prior knowledge benefited less, raising equity concerns.

[8] See https://openai.com/index/chatgpt-study-mode/. Retrieved 13 March 2026.

[9] See https://www.anthropic.com/news/introducing-claude-for-education. Retrieved 13 March 2026.

[10] See https://blog.google/outreach-initiatives/education/guided-learning/. Retrieved 13 March 2026.

AI tutor chatbots: use case summary

AI tutor chatbots span a broad spectrum, from generic LLM interfaces to education-focused models and highly contextualised, subject-specific tutors. This range requires a nuanced interpretation of the emerging evidence, depending on the purpose, design, and context. Notably, it is unclear whether the observed learning gains highlighted in the above examples can be attributed to AI components in particular, or to increased practice time, feedback, the structured pedagogy embedded in the tools, or simply to a novelty effect.

The contrast between interventions such as the Copilot-based tutoring in Nigeria and WhatsApp-based Rori in Ghana highlights the distinction between generic versus contextually adapted solutions. While all-purpose LLMs can face scaling constraints in LMICs (e.g., due to account set-up processes and connectivity requirements), low-bandwidth designs appear to be more robust and scalable.

In particular, costly investments in anthropomorphic or humanoid tutors warrant scrutiny and further research: it remains unclear whether human-like embodiment enhances learning or risks reinforcing narratives of teacher replacement and creating misleading perceptions of social presence. Overall, the evidence suggests that contextualisation, pedagogical clarity, and delivery modality matter significantly alongside the AI model sophistication, underscoring the need for evaluations that disentangle AI novelty from effective instructional design and programme implementation.

Risks and concerns regarding AI use

Relying on AI tutors as the primary source of learning can pose potential risks to dehumanising education by reducing it to intellectual mastery rather than fostering holistic human development (↑Holmes et al., 2025; ↑Teacher Task Force, 2025). Adaptive tools that prioritise efficiency (e.g., through immediate responses) can strip learners of opportunities for dialogue, deliberation, collaboration, autonomy, and creativity, thereby narrowing the educational experience and reducing their fundamental learning capacity (↑Burns et al., 2026; ↑Laak & Aru, 2025). A study on the effectiveness of AI tutors found that, alongside significant performance gains, when access to GPT-4 was taken away, students performed 17% worse than those who never had access, illustrating that such models can become a ‘crutch’ and harm long-term educational outcomes

(↑Bastani et al., 2024). Similar issues have been documented (↑Holmes et al., 2025), including cognitive offloading leading to adverse effects on critical thinking (↑Gerlich, 2025) and the accumulation of cognitive debt (i.e., a reduction in the effortful cognitive processes required for independent thinking) (↑Kosmyna et al., 2025).

Bias in AI tutors is a significant risk when platforms rely on data from high-income countries, marginalising rural dialects, local content, and diverse learner needs (↑Teacher Task Force, 2025). The dominance of English-language sources reinforces systemic inequalities, while black box decision-making and culturally insensitive outputs highlight the need for strong human oversight (↑Teacher Task Force, 2025; ↑Holmes et al., 2025). In juxtaposition to the extensive national regulations involved around (text)books in schools, a major concern with AI tutors is the issue of live experimentation with 'black-box' models on learners, exposing them to various harms. For instance, Khanmigo's terms and conditions require acknowledging that "Khanmigo or other AI-enabled features may include errors (including without limitation maths errors), may reflect biased, incomplete or incorrect information, may provide objectionable or offensive responses, may not account for events or changes to underlying facts occurring after the AI model was trained, and have other limitations" (↑Khan Academy, 2025a). To mitigate experimentation on learners, national regulations may be needed to ascertain when a product is safe for learners to use before it is introduced in classrooms.

While AI tutor learning modes can help scaffold and support learning, many students use LLMs directly to obtain instant answers, highlighting a broader problem of learners not being invested in their learning. This has led to a surge in concerns of academic dishonesty, skills erosion, and the use of AI detection in plagiarism software (↑Flaherty, 2025). Such software is being banned in some institutes due to its unreliability and increased student surveillance (↑Mashinini, 2025), requiring educators to adapt their assessment strategies innovatively. This introduces new workloads, approaches, and skill sets that teachers need to ensure students are actually learning.

AI teaching assistants

Contextual challenge

Large teacher workloads, shortages of qualified coaches, weak connectivity, geographic dispersion, and high teacher turnover constrain sustained coaching support for teachers (↑Hennessy et al., 2022; ↑Nyaaba, 2024; ↑Popova et al., 2018). Despite adapted cascade models (↑El-Hamamsy et al., 2024) and technology-supported communities of learning for teachers (↑Adam et al., 2025), expert support tends to be episodic rather than continuous, limiting its impact on everyday instructional practice and classroom realities. Further mechanisms are required to provide ongoing support to teachers, guiding them in addressing everyday challenges (↑Jain, 2025).

Potential value of AI

An AI teaching assistant's strengths lie in supporting teachers in a range of activities, tying together AI's ability to support information access, lesson planning, content creation, administrative tasks, professional development, coaching, and student progress tracking, among others.[11] The platforms usually take a toolbox approach, offering a range of functionalities, such as generating quizzes, grading, creating report card comments, and lesson planning tools. Often, they are paired with a connected student platform or can integrate with learning management systems.

Examples and evidence

As an emerging field, there is no rigorous evidence on the effectiveness of AI teaching assistants in basic education in LMICs. Examples prioritised here are those that support a broad range of teacher activities, where products self-define as AI teaching assistants, rather than, for example, tools specifically for lesson planning or TPD.

Tari[12] is an AI-powered teaching assistant that supports teachers in real time. It is being piloted in Rwanda in one of EdTech Hub's Teachers-in-the-Lead sandboxes; results are expected in 2026 (↑EdTech Hub, 2025; ↑Rising Academies, 2025). It supports subject knowledge assistance, lesson planning, the generation of instructional materials and activities, and supporting student assessments. Built using Claude as the

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[11] In this learning brief, 'AI teaching assistant' refers to AI that is designed to support teachers; in the literature, particularly studies in higher education, 'teaching assistant' is also used to refer to AI that provides students support. This brief uses 'AI tutor chatbots' for the latter.

[12] See https://www.risingacademies.com/tari. Retrieved 18 February 2026.

underlying LLM, Tari is delivered via WhatsApp and is text-based, using Natural Language Processing, machine learning, and AI-powered analytics (↑Claude, no date).

Khanmigo[13] also serves as a web-based AI teaching assistant helping teachers generate differentiated lesson plans, quizzes, lesson hooks, class activities, rubrics, exit tickets, progress reports, analyses of student progress, and sending emails, among others. It is available to teachers for free in most countries and territories, in over 30 languages (↑Khan Academy, 2025c). It is powered by Azure OpenAI service, in partnership with Microsoft. Teachers remain central by reviewing AI outputs, editing generated materials, enforcing academic oversight, and integrating Khanmigo-driven supports into instruction (↑Toppo, 2025). Teachers are encouraged to accept, reject, or adapt, rather than fully relying on AI for pedagogical approaches (↑Khan Academy, 2025b).

Hodari[14] is a mobile AI teacher assistant used in Kenya that helps teachers with administrative tasks, grading, and personalised lesson planning (↑Kytabu, 2025b). When coupled with Somanasi, the student-facing student tutor, it can analyse student performance data and suggest interventions (↑Kytabu, 2025a). It also connects to SUPA School, an intelligent school management information system, which uses AI to uncover deeper patterns in data. Critically, Hodari is aligned with Kenya's Competency-Based Curriculum (CBC), has signed memoranda of understanding with two of Kenya's largest teacher associations, and is supported by Amazon Web Services to provide Hodari to schools (↑Kytabu, 2025b). In the pipeline is Hodari Vision, a wearable version of Hodari designed to give teachers real-time prompts and hands-free support (↑Kytabu, 2025a).

In Pakistan, a case study investigated how mobile-based AI tools could assist teachers in a low-resource government school (↑Hafeez & Zehra, 2025). A 90-minute structured workshop introduced 20 teachers to ChatGPT, Meta AI, Copilot, Google Gemini, MagicSchool, and Canva, supported by ongoing WhatsApp guidance. Teachers practised lesson planning, creating assessments, generating Urdu and English content, producing audio stories, and designing visual learning materials. After the intervention, 98% of teachers integrated AI into daily teaching, and approximately 70% reported improved lesson delivery and reduced workload. Teachers valued the combination of generative AI and content

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[13] See https://www.khanmigo.ai/. Retrieved 18 February 2026.

[14] See https://kytabu.africa/hodari/. Retrieved 18 February 2026.

creation tools for saving preparation time, enhancing instructional quality, and increasing student engagement. The case study suggests that scalable, mobile-based AI training coupled with low-cost, context-sensitive AI interventions can enhance teaching quality.

In Qatar, the WISE AI testbed evaluated the use of AI tools by 65 teachers. Flint,[15] MagicSchool,[16] Seesaw,[17] and NotebookLM[18] were tested across the pedagogical learning cycle, from lesson planning to classroom instruction and student engagement to assessment (↑Moustafa et al., Forthcoming). An evaluation framework was developed and used to analyse six domains: purpose and evidence of effectiveness; usability and user experience; pedagogical effectiveness; equity and accessibility; ethics, data privacy, and security; and cost. Key findings include:

- **Teachers as designers:** Teachers benefitted most when they were actively engaged, using AI as a creative partner, as opposed to passively consuming AI-generated content. While this improved pedagogical approaches, it required time investments.
- **Increasing inequity:** High-agency, independent users thrived, while lower-ability users often felt overwhelmed, suggesting that AI risks widening the equity gap unless it is paired with significant scaffolding and simplified interfaces.
- **Feature fallacy:** While fancy features were enticing to use, they did not always lead to pedagogical effectiveness. For example, turning dense text into audio podcasts led to passive consumption and disengagement by students.
- **System readiness:** Evaluating the use and effectiveness of AI tools requires evaluating the school's and education system's ability to support it, and requires aligning policy, infrastructure, and human support systems.

[15] See https://flintk12.com/teachers. Retrieved 18 February 2026.

[16] See https://www.magicschool.ai. Retrieved 18 February 2026.

[17] See https://seesaw.com/, Retrieved 18 February 2026

[18] See https://notebooklm.google/. Retrieved 18 February 2026

Other AI teaching assistants used globally include Classdojo,[19] Redmenta,[20] Teachy,[21] HMH Classcraft,[22] Shiksha Copilot,[23] and Camara.[24] TheTeacher.AI[25] in Sierra Leone—discussed under AI for TPD in ↑Adam & Lester (2025)—also resembles an AI teaching assistant (↑Björkegren et al., 2025), as do AiTeacha[26] and the Naija teacher AI[27] initiative in Nigeria. While some tools have teacher testimonials, evidence of effectiveness remains scarce.

[19] See https://ai.classdojo.com/. Retrieved 15 March 2026.

[20] See https://redmenta.com/. Retrieved 18 February 2026.

[21] See https://teachy.ai/. Retrieved 18 February 2026.

[22] See https://www.hmhco.com/programs/classcraft. Retrieved 18 February 2026.

[23] See https://www.microsoft.com/en-us/research/blog/teachers-in-india-help-microsoft-research-design-ai-tool-for-creating-great-classroom-content/. Retrieved 18 February 2026.

[24] See https://camara.org/bringing-ai-to-classrooms-in-africa/. Retrieved 18 February 2026.

[25] See http://TheTeacher.AI. Retrieved 18 February 2026.

[26] See https://aiteacha.com/educator-tools. Retrieved 18 February 2026.

[27] See https://www.unesco.org/sdg4education2030/en/knowledge-hub/naija-teacher-ai-ai-powered-system-transforming-teacher-capacity-scale. Retrieved 18 February 2026.

AI teaching assistants: AI use case summary

Although causal evidence on effectiveness is not yet available, the abovementioned examples suggest promising potential for AI teaching assistants to support teachers. An integrated one-stop shop that supports the range of teachers' tasks may be especially useful in reducing cognitive overload from the many AI tools and features available. In contrast, ↑Moustafa et al. (Forthcoming) found that when different AI platforms—often serving overlapping purposes—were offered, teachers felt overwhelmed, leading to decision paralysis. Professional development that focuses on a few AI features addressing teachers' specific problems may be more effective than briefly introducing the full array of features (↑Moustafa et al., Forthcoming).

Another key theme emerging across the examples is contextual adaptation: Khanmigo expanded to support over 30 languages, Hodari aligned with the Kenyan national curriculum and secured teacher union support, and Tari used text-based WhatsApp delivery suited to low-bandwidth contexts. In TheTeacher.AI in Sierra Leone, accessing AI via WhatsApp reduced data costs and connectivity barriers, reportedly being "98% less expensive than loading a web page" (↑Björkegren et al., 2025). Additionally, teacher support via WhatsApp can provide real-time support informing classroom practice, offer context-specific advice, integrate with WhatsApp communities of learning, and bridge the gap between theory and application (↑Walker & Hill, 2026). Overall, effectiveness appears to depend heavily on integration into teacher workflows, training, local relevance, and infrastructure, rather than the AI teaching assistant tool alone.

Risks and concerns regarding AI use

Cultural bias, contextual inaccuracies, and ethical blind spots found in mainstream GenAI can seep into AI teaching assistants. In response, ↑Nyaaba (2025) proposes a globalised design approach in Ghana, embedding local, linguistic, cultural, and curricular knowledge into an AI assistant for pre-service teachers while aligning with international ethical frameworks. Situated within broader critiques of digital neocolonialism (↑Nyaaba et al., 2025), the design foregrounds equity and cultural relevance over externally imposed models. Pilot findings noted challenges, including hallucinations linked to limited indigenous-language corpora and access barriers associated with premium subscriptions, highlighting practical constraints in the localised deployment of AI teaching assistants.

Relatedly, a South African study on teachers' preparedness for AI integration found that AI ethics did not directly influence teachers' readiness to integrate AI into schools (↑Ayanwale et al., 2024). This suggests that simply knowing about ethical issues theoretically, or valuing ethical AI, does not make teachers feel more practically prepared to use AI. Rather, readiness for ethical AI integration may depend more on hands-on experience or practical training. Thus, more policy efforts may be needed to support teachers in practically implementing the plethora of emerging AI ethics frameworks (↑Teacher Task Force, 2025), shifting practice from a compliance focus to one about navigating power, bias, and care.

Teachers also face hidden labour burdens: instead of saving time, they often spend hours repairing, reworking, or editing AI-generated outputs perceived as inadequate, which challenges industry claims that AI reduces workload and highlights how automation depends on human co-production (↑Selwyn et al., 2025). This additional prompting work that relies on tacit knowledge that AI cannot replicate raises concerns about deprofessionalisation if new teachers become reliant on AI without developing these skills (↑Teacher Task Force, 2025).

A related concern is the risk of reducing teachers' roles to passive oversight, positioning them as "data managers" or "technology supervisors" (↑Wotton et al., 2026). With increasing reliance on overly scripted or AI-driven lessons and deference to AI's decision-making, teachers' professional discernment may erode. However, ↑Moustafa et al. (Forthcoming) illustrate that when teachers co-create with AI as a pedagogical partner, they demonstrate high agency and cognitive engagement, amplifying their impact. This finding aligns with research suggesting that the most effective professional development models are semi-structured, in which teachers retain agency and learning opportunities (↑Hennessy et al., 2022). Therefore, teachers need to be kept in the lead, not just in the loop, safeguarding their agency and centrality in pedagogy (↑Plaut, 2025).

AI-powered inclusive education and language accessibility

Contextual challenges

In LMICs, inclusivity in education and language accessibility face multiple challenges that intersect with social, economic, and technological inequalities. For learners with special needs, including neurodivergent learners, limited availability of assistive technologies, inaccessible digital content, and inadequate teacher preparation to support special needs further exacerbate exclusion. Additionally, many LMIC education systems operate in multilingual contexts, but the language of instruction is often a colonial or national language rather than children's home languages, creating barriers to comprehension and participation (↑UNESCO, 2025). These realities marginalise rural learners and minority groups. Digital platforms often prioritise dominant languages, with around 50% of online content in English (↑Statista, 2025), sidelining local dialects and cultures. Connectivity gaps, lack of affordable devices (including assistive technologies), and low digital literacy compound these inequities, restricting inclusive, equitable participation in education.

Potential value of AI

AI can extend the capabilities of previous technological solutions, which often required manual input or were expensive. Examples include automated translation, transliteration, text-to-speech, speech-to-text, voice-enabled interaction, adaptive interfaces, chatbots, and personalised lesson plans and materials for learners with special needs, such as visual or hearing impairments or neurodivergent learners (↑Montoya Lunavictoria et al., 2024). With supporting professional development, the tools listed above can help teachers to manage classrooms that include learners with special needs. In regions with diverse languages, AI can help overcome language barriers in educational content by translating educational materials into local languages to improve accessibility and comprehension for both students and teachers. Specialised language models, available offline, can also reach teachers and learners in remote and hard-to-reach areas. ↑Handa (2022) reports that, foreign language and literature teachers used the Claude LLM for more than 75% of their professional tasks, illustrating the extent of the support AI can give to such teachers.

Examples and evidence

The following examples illustrate how AI is being used to make educational offerings more inclusive and accessible.

Kolibri[28] is an offline-first, open-source educational platform used across LMICs. It utilises AI-driven caption generation in Kolibri studio, leverages transformative AI to support curriculum alignment, and AI-driven translation tools to adapt content to local languages such as Swahili, Yoruba, or Amharic (↑Akash, 2023; ↑Alexandre, 2023). Speech-to-text and text-to-speech systems also help non-literate learners engage with digital materials (↑iAfrica, 2025). These features enable greater inclusion by reaching minority groups in rural and remote locations through offline modes.

In Mali, RobotsMali[29] produced over 180 culturally relevant children's books in the local language, Bambara, at a fraction of the traditional cost. It utilised a combination of generative AI and human editors. First, the RobotsMali team attempted to use ChatGPT to create stories in Bambara, but the outputs were "nonsensical and unreadable" (↑Fu & Donner, 2024, p. 62). Instead, they shifted to generating stories in English and French and translating them into Bambara. The second method generated better results, but the stories were "heavily Eurocentric" and required human editors to adapt them culturally.

In Kenya, researchers at Maseno University developed assistive AI technology that converts spoken English to Kenyan Sign Language (KSL) (↑Ayere et al., 2024). The technology uses a virtual Avatar for visual representation. The data for the project was collected from 48 deaf educators and 400 deaf learners, generating a dataset of 4,000 English sentences, 4,000 words, and 20,000 signed KSL sentences. The initiative aims to break communication barriers between deaf students and their peers and teachers in mainstream schools, increase learning outputs, and sustain inclusion in schools. Similar tools from Signvrse[30] are being developed in Kenya using LLMs and computer vision to translate spoken language into sign language and vice versa in real time. Three products are currently available: a web application (including offline mode), a browser extension with overlays, a virtual sign language interpreter, and an API that can be integrated into other applications.

Read Along by Google[31] (formerly Bolo) is an AI-powered app that helps children learn to read by listening and providing real-time pronunciation feedback in local languages such as Hindi, Tamil, English, and Swahili

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[28] See https://learningequality.org/kolibri/. Retrieved 16 March 2026.

[29] See https://robotsmali.org/en/. Retrieved 18 February 2026.

[30] See https://signvrse.com/. Retrieved 18 February 2026.

[31] See https://readalong.google.com/. Retrieved 16 March 2026.

(↑Devenney,, 2025). The app has been deployed in India and other LMICs. An independent assessment in India, with more than 3,500 students, found statistically significant learning improvements, such as 20% of learners improving their fluency in Marathi by one or more fluency level, in comparison to 9.2% in the control group, and 40.6% improving their fluency in Hindi by one or more fluency level, in comparison to 19% in the control group (↑Kashyap, 2020; ↑Sattva, 2020). A study in Ghana found similar results, with the treatment group achieving 50% more correct responses on reading comprehension tests than the control group after a 3-month pilot study (↑Futukpor, 2023; ↑World Education, 2023).

Other global tools supporting inclusive education include Audemy[32] (audio-based learning content), Otsimo[33] (games for speech therapy and communication), and NaturalReader[34] (spoken audio for students with dyslexia or visual impairments).

AI-powered inclusive education and language accessibility: AI use case summary

The examples show great promise for using AI to create more inclusive and accessible educational experiences, particularly regarding languages, such as minority languages or sign languages. AI tools that assist children to read while tracking their progress (such as Google Read Along[35] and Microsoft Reading Progress[36]/Immersive Reader),[37] as well as those that assess reading (such as EGRA-AI[38] in South Africa), have a growing body of evidence on product accuracy and improving reading quality (↑AI-for-Education.org, 2025; ↑World Education, 2023). For deaf and hard-of-hearing learners in LMICs, AI-powered speech/text and language technologies, gesture recognition, computer vision, machine

[32] See https://audemy.org/. Retrieved 18 February 2026.

[33] See https://otsimo.com/en/. Retrieved 18 February 2026.

[34] See https://www.naturalreaders.com/. Retrieved 18 February 2026.

[35] See https://readalong.google.com/. Retrieved 16 March 2026.

[36] See https://learn.microsoft.com/en-us/training/educator-center/product-guides/reading-progress/. Retrieved 18 February 2026.

[37] See https://support.microsoft.com/en-us/topic/languages-and-products-supported-by-immersive-reader-47f298d6-d92c-4c35-8586-5eb81e32a76e. Retrieved 18 February 2026

[38] See https://ai-for-education.org/lbd-egra-ai/. Retrieved 16 March 2026

translation, and avatars all show potential, although issues such as bilingual-bicultural access, cost barriers, and real-time translation still present challenges (↑Coy et al., 2025).

Beyond language, ↑Alsolami (2025) found that AI can improve learning outcomes for students with mild intellectual disabilities: ↑Mohamed (2025) surfaced potential in the conversational practice from ChatGPT for autistic children, however, cautions against sensory overload, ↑Montoya Lunavictoria et al. (2024) discuss the potential of AI to support with emotional regulation for students on the autism spectrum, ↑Naseer et al. (2025) illustrates that intelligent tutoring systems can support students with disabilities to improve academic performance, and ↑El Naggar et al. (2024) argues that while AI can provide differentiated and intellectually stimulating educational experiences, it can lead to confirmation bias and risk of information overload for special needs learners. Overall, effective strategies include human involvement, culturally relevant designs, strong parent–teacher collaboration, conscious development of neurodiversity-affirming AI tools, professional development, and policy support (↑Mohamed, 2025).

Risks and concerns regarding AI use

The central risks in using AI for inclusive education and language accessibility stem from pervasive algorithmic bias and techno-ableism—the embedding of ableist assumptions that force users to adapt to the technology—due to systemic and design flaws (↑Meulder, 2025). AI models trained on data reflecting the 'average' user often lead to the underrepresentation and mischaracterisation of marginalised groups, including people with disabilities, non-native English speakers, and various racial groups. AI models become more error-prone the more minor a language is, with models making mistakes 15% more frequently in Swahili, a widely spoken African language, than English (↑AI-for-Education.org, 2026; ↑Dahir, 2026). While AI tools can support multilingualism (to an extent), they are often monocultural in that they embed dominant cultures and epistemologies (↑Maisiri & Musonza, 2025; ↑Nyaaba et al., 2025). This systemic bias has real-world consequences: studies show some generative AI models misclassified over half of non-native English writing samples as AI-generated, which could unjustly flag students for academic misconduct (↑University of Illinois, 2024). AI-generated content often reinforces harmful stereotypes of people with disabilities, for instance, by depicting them as sad or isolated, or inaccurately portraying accessible technologies, reflecting a critical lack of inclusive training data (↑New York City Bar Association, 2025).

These flaws lead to significant inaccuracy and a loss of nuance, alongside concerns regarding autonomy and privacy. In terms of accuracy, voice-controlled systems struggle to understand diverse speech patterns, including those affected by conditions like Amyotrophic Lateral Sclerosis (ALS) or cerebral palsy (↑Coates, 2025). Similarly, AI-generated alternative text (alt text) often lacks the necessary context for visuals, providing literal descriptions instead of contextually relevant ones, which confuse screen reader users (↑Jenson, 2025). A significant threat to autonomy is the potential erosion of linguistic rights for sign language users, as policy shifts may favour 'cheaper' AI solutions as substitutes for human interpreters in critical, high-stakes settings (↑Meulder, 2025). This imposition risks exacerbating access hierarchies and shifting the burden of accessibility onto deaf individuals with lower socio-economic status. Finally, AI applications that support accessibility can inadvertently process sensitive visual-biometric data and capture private information about a user's surroundings, health, or family, requiring robust privacy protections and community-led development to be trustworthy (↑Coates, 2025).

Navigating what's ahead

As AI becomes more embedded in teaching and learning, it is essential to examine its overarching effects on learners' cognitive, social, and ethical development. Teachers play a large role in ensuring that AI outputs are culturally aligned and ethically used, though they require institutional support to do this effectively.The following recommendations offer ways forward for using AI in effective, equitable and ethical ways to disrupt teachers' roles.

1. Conduct further research on AI that can disrupt teachers' roles

In the use cases highlighted in this brief, many gaps and opportunities for further investigation are highlighted. Future research recommendations for each use case are provided below.

AI-enhanced digital personalised learning platforms

- **Investigate what design characteristics of AI-enhanced DPL support weaker students** to advance more in comparison to models that privilege faster or more tech-savvy students and teachers, based on the opposing findings from the EIDU and Chimple studies (↑Burga et al., 2024, ↑Daltry et al., 2025a).

- **Critically evaluate personalised learning — and embedded learnification traits — from holistic pedagogical, philosophical, political, ethical, and social framings** to look beyond immediate test score improvements to the development of the whole child, i.e., the impact on learners' cognitive, social, and ethical development (↑Teacher Task Force, 2025).

AI tutor chatbots

- **Investigate the cost-effectiveness, benefits, risks, and long-term effects of anthropomorphic or humanoid chatbot tutors** — from personality traits / personas to human-like embodiment — noting both the potential benefits for social engagement and emotional regulation for students on the autism spectrum, and the potential psychological and emotional harms, such as through prolonged sycophantic engagement.

- **Conduct studies that compare AI, EdTech, and human tutoring** to ascertain to what extent the AI components of an intervention lead to increased learning outcomes, in comparison to effective non-AI pedagogical practices (e.g., increased practice time, feedback, or the structured pedagogy embedded in the tools) or programme implementation processes (e.g., additional teaching time, teacher professional development, policy support, or provision of resources).

- **Investigate alternative approaches teachers can take to ensure students are actually learning** in the age of AI, and measure the new workloads, professional development, and skill sets required to implement them.

AI teaching assistants

- **Conduct independent experimental research that investigates the causal impact of AI teaching assistants** on the efficiency gains for teachers and the impacts on students' learning outcomes. While studies on individual components are emerging, such as lesson planning (↑Roy et al., 2024), the integrated teaching assistant package has not yet been evaluated.

- **Investigate the long-term impact of AI integration in education for teachers**, particularly regarding teachers' roles, agency, professional identity, workload, pedagogical autonomy, potential deskilling, and safeguarding students from bias, misinformation, and ethical risks (↑Holmes et al., 2025; ↑Teacher Task Force, 2025).

- **Conduct research with local teacher groups to identify their needs** and determine which tools and features AI teaching assistants should prioritise, to avoid overwhelming teachers with options that may not be pedagogically or administratively useful in their contexts.

AI-powered inclusive education and language accessibility

- **Examine how AI tools can be designed and developed to address intersectional vulnerabilities** often present in LMICs (e.g., disability, displacement, language marginalisation).

- **Investigate the feasibility and (cost-)effectiveness of offline or Small Language Model (SLM) approaches** for accessible learning support in low-resource contexts (↑Kumar et al., 2025).

- **Investigate the privacy and safeguarding risks associated with biometric and behavioural data collection** from learners with special needs (and their environments).

2. Equip teachers to resist AI neocolonialism

Several examples in this brief highlight concerns regarding the limited or superficial cultural relevance of AI outputs and the additional labour of teachers needed to address it. This tangibly illustrates how AI can embed the values and epistemologies of its designers and training datasets, necessitating LMIC education systems to "think critically about whose values and worldviews are echoed in the designs of AI educational tools"(↑Maisiri & Musonza, 2025). As ↑Nyaaba et al. (2025) emphasise, AI systems perpetuate Western-centric cultural models and are overwhelmingly trained on English-language data, marginalising non-Western knowledge and languages.

In efforts to combat digital AI neocolonialism—where educational systems risk dependency on dominant-language, culturally misaligned AI tools created by high-income country or Western technology firms—teachers can play an important role as cultural gatekeepers (↑Adam, 2019; ↑Nyaaba et al., 2025). Teachers must be adequately supported to ensure that technology strengthens—rather than subverts—local cultures, knowledge systems, pedagogies, and linguistic diversity. With the right professional development, teachers can critically interrogate whose knowledge and cultural assumptions AI systems privilege, localise outputs to reflect community contexts, and guide students in questioning algorithmic authority, positioning AI as a tool for empowerment rather than cultural subordination (↑Nyaaba et al., 2025). Teachers should also be meaningfully engaged in the co-development and piloting of AI tools—such as EdTech Hub's Teachers-in-the-Lead Sandboxes—to ensure these technologies enhance, rather than undermine, classroom learning and equity (↑EdTech Hub, 2025; ↑Teacher Task Force, 2025). Continuous, well-designed TPD aligned with emerging digital competencies can strengthen teachers' confidence, practical fluency, and critical engagement with AI (↑Asanre et al., 2024; ↑Stefanus et al., 2025). Although such sustained TPD requires significant investment, without it, AI integration is unlikely to succeed in the long term and may instead exacerbate inequality and contribute to cultural erasure.

However, attention to teacher wellness and digital fatigue is essential, recognising the cognitive and emotional demands of keeping pace with evolving AI technologies. These practices often add to workloads, and teachers cannot shoulder this responsibility alone; institutional support and policy-level governance are required. Policymakers should implement regular audits of AI platforms, develop clear consent mechanisms for learners, and establish standards for student data collection and surveillance (↑Mahari & Pentland, 2024). Finally, policies must balance the need for data to improve AI representativeness with the imperative to protect marginalised learners from over-surveillance or adverse incorporation. Without systemic backing, critical AI use risks becoming an additional burden to teachers rather than a pathway to pedagogical and cultural sovereignty. Stakeholders across the education system need to work together to ensure that AI truly fosters global equity.

3. Implement ethics guidelines and regulations

The integration of AI into teaching and learning needs to prioritise robust ethical frameworks, data privacy, and regulatory oversight, particularly in LMICs where legal protections are often underdeveloped (↑Amiri, 2025; ↑Prinsloo, 2025). Teachers play a central role in safeguarding students' rights and well-being, as they mediate the use of AI tools and monitor their classroom effects. Professional development should equip teachers with knowledge of ethical AI use, including understanding consent protocols, data ownership, privacy considerations, and procedures for reporting algorithmic bias or unsafe outputs (↑McNulty, 2025; ↑Teacher Task Force, 2025). However, theoretical guidance on ethics is not enough for teachers; practical hands-on experience is required to adequately support teachers in the ethical use of AI (↑Ayanwale et al., 2024). Teachers should develop professional judgement and have the authority to select, modify, or reject AI outputs when they conflict with ethical, cultural, or pedagogical considerations, thereby maintaining professional autonomy and educational integrity.

Regulations should ensure that only evidence-based AI tools grounded in robust learning sciences are introduced into classrooms, bridging research and practice while supporting teachers' pedagogical goals (↑Teacher Task Force, 2025). Such evidence should not only report on learning gains, but also on how risks and harms to teachers and learners are mitigated (↑Burns et al., 2026). For example, a similar level of rigour and regulation should be applied to the content generated by AI tools as to the content of textbooks. This requires analysis of the terms and conditions of AI tools to ensure adequate safeguards are in place, and that live testing of LLMs on learners does not happen. Systemwide monitoring of AI tools is essential to prevent discriminatory outcomes, misinformation, gender bias, and other algorithmic harms, particularly in sensitive contexts such as personalised learning and chatbot tutoring (↑Prinsloo, 2025). Robust evaluation frameworks, determining whether an AI tool meets a set of criteria, such as the one by ↑Moustafa et al. (Forthcoming), provide a comprehensive method for governments to evaluate against and standards for AI developers to aspire to. By positioning teachers' perspectives at the centre of ethical and regulatory frameworks, AI in education can advance learning while safeguarding student privacy, centring teacher agency, and promoting fairness. In doing so, education systems can harness AI as a carefully governed public good — one that strengthens teachers, protects learners, and advances equitable, context-responsive educational offerings.

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