ARTIFICIAL INTELLIGENCE AND EDUCATION SYSTEMS IN 2035

Fourteen trends and five scenarios for how the future might unfold

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EdTech Hub

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EdTech Hub is a global research partnership. Our goal is to empower people by giving them the evidence they need to make decisions about technology in education. Our evidence library is a repository of our latest research, findings, and wider literature on EdTech. As a global partnership, we seek to make our evidence available and accessible to those who are looking for EdTech solutions worldwide.

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If you have any questions, please contact hello@edtechhub.org.

What's in this deck

AN INTRODUCTION TO THIS STRATEGIC FORESIGHT STUDY

Join us in imagining education ten years from now

An introduction to this strategic foresight study

The next ten years will see big challenges for education systems in low- and middle-income countries (LMICs).

In particular, IDRC and EdTech Hub believe that two drivers of change will fundamentally shift national education systems: developments in artificial intelligence (AI), and the increase in conflict and crises around the world.

To support governments and education stakeholders, we have embarked on a multi-year programme of work, aimed at answering the following research questions:

What will be the key challenges facing national education systems over the next ten years, with a specific focus on artificial intelligence and education in conflict and crisis settings...

... and how can governments in low- and middle-income countries (LMICs) build capacity to successfully overcome those challenges?

To understand how LMIC governments can effectively build capacity, we need to better understand the shifts that might take place in education systems.

That's the purpose of this strategic foresight study. Our goal is to explore possible futures for LMIC education systems. This exploration will go on to share a programme of research into how governments in LMIC contexts might adapt and build capacity, in light of such futures.

This document is Part 1 of our strategic foresight study: *Artificial Intelligence and Education Systems in 2035: Fourteen trends and five scenarios for how the future might unfold*.

Part 2 of our study, which includes twelve trends and five scenarios for the impact of increased conflict and crisis on education systems, is available here.

An introduction to trends

The first step in the strategic foresight study was to identify trends. A trend is "a general tendency or direction of development or change over time" (↑Save the Children UK & School of International Futures, 2019).

This document begins by capturing 14 trends in AI that might affect the development of education systems over time. Each trend is illustrated by signals and/or insights from expert interviews.

After identifying trends, we combined them to sketch concrete, tangible scenarios for education systems in 2035, given development in AI.

Our methodology for identifying trends

EdTech Hub identified trends through two key methods:

Developing a database of signals: Signals of change are "concrete, specific events, stories, innovations, or news" that may radically transform our future. Given the rapid, recent developments in AI at the time of writing, scanning and capturing such signals for AI in education systems provided the best indicators of potential change. A database of 60 signals was developed.

One-to-one expert interviews: To complement the database of signals, EdTech Hub undertook semi-structured interviews with 13 key stakeholders, including funders, government officials, and EdTech startups. Eight of these stakeholders were based in LMIC contexts. These interviews were 60 minutes long, and gave participants the opportunity to articulate trends regarding AI and education systems from their vantage point. Quotes from these interviews are shared in blue call-out boxes throughout.

APPROACH & THINKING BEHIND THE WORK

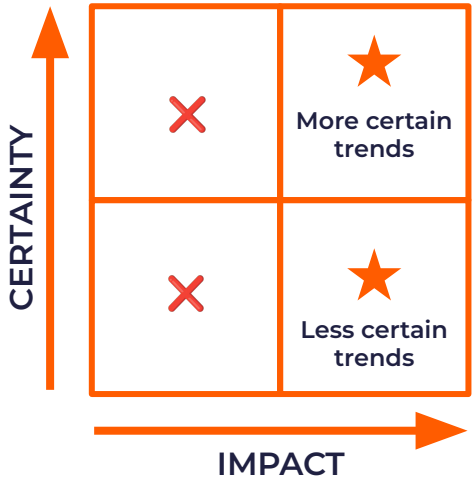
How we explored possibilities to imagine the future of education

We cluster trends that are *more* and *less* certain

This document focuses on high-impact trends, which we believe have the potential to significantly change education systems. We cluster high-impact trends into two categories.

More certain trends: Trends that are high-impact and have higher certainty. These trends, reinforced by a relatively large number of signals and emphasised frequently in interviews, have a higher likelihood of changing education systems.

Less certain trends: Trends that are high impact and have lower certainty. These trends were emphasised less frequently in interviews and/or reinforced by fewer, weaker signals. Additionally, the trends in this section often had opposing or contradictory counter-trends.



Three foundational insights before we explore the trends

Prior to exploring the trends, we highlight three insights. These were emphasised within interviews (interviewee quotes are given in blue), and form important context ahead of exploring more specific trends.

1 There is an explosion of use of AI by all players in the education ecosystem.

200M people use ChatGPT on a weekly basis (↑Fried, 2024). One UK survey on education stated 42% of teachers use GenAI in their role (↑Open Innovation Team & Department for Education, 2024).

Aside from usage of specific AI tools, several interview participants in our study highlighted that many EdTech tools were now incorporating AI.

"Use of AI is ... already exploding. Every tool has or will have AI fundamentally. Teachers, students ... everyone using AI regularly, even if not an AI tool."

2 The rapid pace of developments in AI make it difficult to establish which trends will endure.

The trends identified in this document provide our best understanding at this current moment in time.

Several participants pointed out that it is likely that trends, and other insights from the strategic foresight process, will be quickly out of date.

"Before you finish your foresight process, scenarios have either come to pass or been invalidated."

3 There is significant variance within LMIC governments in their ability to adapt and harness AI in education systems.

Different LMICs (and different governments within those LMICs) face different sets of options for how to build capacity and adapt education systems in light of AI.

Several participants highlighted that factors such as GDP per capita, technological infrastructure, strength of government institutions, and capacity of education systems would affect the ability of governments to respond.

WHAT WE'RE SEEING: FROM CLEAR SIGNALS TO EARLY SIGNS

A look at the trends we're more certain about and those that are still emerging

The fourteen trends

More certain trends

1. AI is supporting teachers, particularly with administrative tasks.
2. AI is supporting administrators with school management.
3. AI is enhancing student feedback and teaching at the right level.
4. AI is supporting learners, particularly with tailored content and feedback.
5. AI products will exacerbate global inequality.
6. The cost of AI infrastructure will exacerbate global inequality.
7. LMIC governments are being increasingly proactive through regulatory activity and guidelines.

Less certain trends

8. AI is transforming the end-to-end assessment process.
9. Generative AI tools produce inaccurate and biased outputs.
10. AI is creating greater equality within and between national education systems.
11. Big tech will dominate the landscape of AI products in education.
12. AI in education is not a ‘winner takes all’ market.
13. There is a significant environmental impact of AI products.
14. Diverse groups are coming together to sense-make and take action.

SEVEN MORE CERTAIN TRENDS

Trends emerging with clarity
across contexts

1. AI is supporting teachers, particularly with administrative/routine tasks

AI products can support teachers to teach. For example, Teacher AI* (highlighted in a blog post by ↑Kazmi (2024) of the Gates Foundation), a chatbot developed to train and support teachers through conversational interactions (powered by GPT-3.5 Turbo) through WhatsApp, was piloted in Sierra Leone. Teachers used it an average of 35 times over 3 months (↑Choi et al., 2024).

In particular, interview participants highlighted that AI products are already reducing the amount of time teachers spend on routine, administrative tasks, and increasing the amount of time they spend on non-routine tasks, such as 1:1 support for learners (see Quote 1). There is potential for them to do this even more in the future (see Quote 2).

Many prominent products at the intersection of AI and education in non-LMIC contexts are supporting teachers. This includes:

- Ummia** and Magic School,*** which support teachers through lesson planning, writing assessments and reports, and professional development.
- Teach FX,**** which provides AI-powered feedback to teachers, based on audio recordings of lessons.

Beyond these specific tools, participants noted that teachers are using general-purpose AI tools to write report cards for students, or other tasks required by government officials.

*See https://www.teacherai.co.uk/. Retrieved 4 July 2025.
**See https://ummia.ai/en/ummia-app-english/ Retrieved 4 July 2025.
***See https://www.magicschool.ai/. See Retrieved 4 July 2025.
****See https://ummia.ai/en/ummia-app-english/. Retrieved 4 July 2025.

"The most promising uses of AI we are seeing is... thinking about AI as something that will take away laborious tasks."
— Quote 1

"At a time when we're coming out of the pandemic, and there's an ongoing strain on teachers — there's an assumption that AI and other technology can solve that, and free up time for teachers."
— Quote 2

2. AI is supporting administrators with school management

AI can enable administrative tasks to be carried out much more efficiently. Interview participants noted that school leaders used AI to write proposals for administrative tasks such as asking for funding to local government or creating timetables (see Quote 3).

Some AI-powered EdTech startups are emphasising the role of AI in school management. For example, Teachmint (an Indian startup valued at USD 500m) pivoted from providing learning content to teachers and learners to integrated, AI-powered school platforms (offering teaching management, fee collection, admissions support, etc.) (↑Vardhan & Upadhyay, 2023).

Several participants highlighted AI tools for school management was a potential benefit as it is perceived as 'less risky' than usage of AI by teachers, and in particular by students, for content delivery/lesson planning, given accuracy issues (see Quote 4).

At a national level, countries including the United Arab Emirates, Kenya, Bhutan, and Kyrgyzstan are using AI to analyse existing data in their education management information systems (↑Pedró et al., 2019).

"'Can we use it to make the timetable?'. This is the most frequent question I get asked regarding use of AI."
— Quote 3

"Our first [AI] proof of concepts didn't target teachers or students, but school leaders. It meant we could control risk."
— Quote 4

3. AI is enhancing student feedback and teaching at the right level

In July 2025, AI for Education's use case regarding AI in education with the highest number of votes is to "assess students' learning levels and [...] generate tasks of the appropriate challenge" (see 'Top Three AI Ideas' on ↑AI for Education (no date). These votes, cast by a range of stakeholders, signal that the education ecosystem sees most potential in AI supporting teachers to generate differentiated tasks, particularly in large classrooms.

This trend was frequently emphasised by many interview participants. Several noted that AI could diagnose what children did not know much more quickly, and at a fraction of the cost (see Quote 1). For example, AI tools can use data from learner worksheet scores or assessments to highlight areas for development and suggest future exercises or lesson plans (↑Moustafa et al., 2024).

> ***"The diagnostics of what kids don't know and need to know, is much better [with AI tools]".***
> ***— Quote 4***

EIDU's 'Solver Platform', for example, feeds real-time learning measurement data back to teachers, content providers, and researchers. As AI capabilities develop, participants emphasised these capabilities would become more useful (↑Friedberg, A., 2022).

Participants also highlighted that, in the future, learner progress data at school-level could enable interventions for children who were falling behind, much more speedily than before. At national level, countries including Chile, Peru, and Uruguay have implemented early warning systems to identify students at risk of dropping out (↑Molina., 2024, p. 6).

4. AI is supporting learners, particularly with tailored content and feedback

Globally, personalised learning startups using AI are receiving vast amounts of funding. Although these startups are based in high-income countries, the products will be adopted in and influence LMICs. For example:

- ↑Riiid (no date), a South Korean startup, raised USD 175m in May 2021 and has applied AI algorithms to create a tailored AI tutor.
- ↑Squirrel AI (no date), a Chinese startup, raised USD 180m by April 2019. It analyses students' learning behaviours and creates tailored learning paths and adaptive assessments.
- ↑Amira Learning (no date), a US startup, raised USD 11m in April 2021 and utilises AI to provide learners with an intelligent reading assistant.

Interview participants highlighted Rori, a conversational maths tutor (↑Henkel et al., 2024) and ↑Khanmigo (no date), which provides AI-powered education on demand, as examples of LMIC-specific products.

Additionally, ↑AI for Education (2024) has a live map of AI-powered EdTech solutions in sub-Saharan Africa, India, and Pakistan. In this map, 36 out of 84 (43%) of tools are classified as 'adaptive personalised learning platforms', and 20 out of 84 (24%) of tools are classified as 'student-facing chatbots'. In Brazil, AIED Unplugged, an initiative to integrate AI into existing schools in LMICs (↑da Silva, 2023), has been implemented across 7,000 schools, benefiting over 500,000 students by enhancing their writing skills (↑Isotani et al., 2023). The AI tool provided students with feedback on their writing.

"In LMICs, students are ahead of the teachers when it comes to use of AI."
— Quote 5

"Individualised tutors is one of the most positive outcomes resulting from AI."
— Quote 6

5. Different levels of access to AI products will exacerbate global inequality

Many interview participants highlighted that people in LMIC contexts may be less likely to access AI-enabled EdTech tools. This might be because of the prohibitive cost of devices that can run such tools, including smartphones, high-end computers, or virtual reality headsets.

The greatest inequality in usage of AI products may be *within* LMICs. Data from the World Bank shows that middle-income economies contribute more than 50% of global traffic of generative AI tools, while low-income economies contribute less than 1% (↑Liu & Wang, 2024).

Participants highlighted that AI products, largely built and based in the Global North while monetising data from users in the Global South, can be extractive in nature. As such, they further entrench inequality between low- and high-income countries.

6. The cost of AI infrastructure will exacerbate global inequality

Participants also highlighted that inequality in access to AI infrastructure will further exacerbate inequality. For example:

- The prohibitive cost of computing power available to developers and product teams in LMIC contexts, will make it difficult for teams to build EdTech products harnessing AI for their context.
- Varying ability to access a reliable internet connection.

The 2021 World Risk Poll on Risk from AI (which included 125,911 people across 121 countries, highlights that people in LMICs are less likely to believe that AI will "mostly help" people in the next 20 years (↑Lloyd's Register Foundation & Gallup, no date, p. 13).

Twenty-two per cent of people in Eastern Africa, 23% in Northern Africa, and 24% in Southern Africa thought AI would "mostly help", compared to 48% in Northern/Western Europe, 43% in Australia & New Zealand, and 33% in Northern America. This demonstrates that the perceived benefits of AI (in and beyond the education sector) are more likely to be felt in higher-income countries.

7. LMIC governments are being increasingly proactive, through regulatory activity & guidelines

A range of governments is making active interventions relating to AI. For example:

- In June 2024, Brazil's passed an AI legal framework through its Federal Senate (↑COVINGTON, no date). In March 2024, India's government issued a GenAI Advisory note to firms (↑Deep, 2024).
- In September 2024, the Government of Saudi Arabia launched an initiative to train one million citizens in AI (↑Arab News, 2025).
- In March 2024, seven African nations have drafted national AI strategies (↑Okolo, 2024).
- In July 2024, Nepal's government launched a concept paper on the use and practice of AI (↑Rastriya Samachar Samiti, 2024).

In particular, child data protection has emerged as an increasingly important area for regulation in the age of AI. Several countries, including India (↑Nanda, 2024), Nigeria (↑Eke et al., 2023), and Brazil (↑Fernandes, 2024) laid out extensive safeguards for obtaining, processing, and storing data relating to children. Two participants noted that data rights for children were a particular concern for governments.

Two interview participants pointed out that LMIC governments use the approaches of other countries as templates to guide their AI policies. For example, Pakistan's draft AI policy is said to mirror China's. Brazil's framework, which classifies AI systems based on risk, echoes the EU's AI Act.

> ***"There's lots of discussions going on — and lots of education. There are more strategies and manifestos.***
>
> ***There are some papers, where people state their position regarding AI. But the regulations aren't there yet."***
>
> ***— Quote 17***

SEVEN LESS CERTAIN TRENDS

Ideas gaining traction, but still evolving

8. AI is transforming the end-to-end assessment process

Interview participants highlighted the role AI is playing at different stages of the end-to-end assessment process. However, perspectives on its effectiveness were mixed:

- Several participants noted that AI is being used to mark assessments.
- All, however, noted that this process is time-consuming and does not produce high-quality results. This is particularly true for 'marking' longer answers, where the potential for bias and higher complexity is a barrier (see Quote 8).
- That said, participants mentioned that it still saves teachers time, as they can start with 'pre-graded' answers.

There is significant activity relating to this trend. In October 2023, Fab Inc. hosted an event with 100 participants from 17 countries (largely across sub-Saharan Africa) to discuss how AI can be used to generate, mark, and analyse assessments (↑Fab Inc., 2023).

↑Gates Foundation (no date) funded the University of Cape Town in South Africa to develop an AI-powered voice recognition model for early grade reading assessments. Tools such as Smartpaper* (an Indian startup currently in free beta) offer AI-assisted feedback and grading.

Some participants also noted that teachers are using AI tools to create their own assessments.

*See https://www.smartpaperapp.com/. Retrieved 4 July 2025

> ***"It takes years for teachers to learn how to do assessment well. Even then, inter-grader agreement is not super high. 'What is good enough?' remains the key question?"***
> ***— Quote 8***

> ***"For marking exams, this is critical. Those exams decide the future for my kids. It's high stakes,if algorithms can break when marking assessments."***
> ***— Quote 9***

9. Generative AI tools produce inaccurate and biased outputs

Many interview participants highlighted that AI tools are limited by training data that is inaccurate or biased, as well as the imprecise synthesis of information. AI-generated resources, assessments, and answers are frequently incorrect across subjects.

Several participants highlighted that these mistakes compromise confidence in AI tools, leading to much slower adoption. While some degree of error is present in any educational resource, participants felt current error rates were above the level teachers, learners, and parents would accept in education.

Additionally, since models are trained on English-language data, largely from Western countries, three participants emphasised that outputs were limited in generating content that was not Western-centric, and not in English (see Quote 10).

While some participants felt that more diverse data and development in AI models might lead to fewer inaccuracies, most were less certain.

> ***"When prompted to plan a mathematics lesson on fractions, the model outputs a lesson around pizza slices. That's not useful to a teacher in rural Kenya."***
> ***— Quote 10***

10. AI is levelling the playing field within and between national education systems, including through tailoring and creating educational resources

Interview participants emphasised the potential of AI to lead to greater equality between schools and national education systems (see Quote 11). Access to AI tools might enable a larger number of teachers and children to access high-quality education at lower cost.

One way in which AI has the potential to create a more level playing field is through tailoring Open Educational Resources (OERs):

- Participants highlighted that AI is being used to support learners with disabilities, for example by translating OERs for deaf students.
- Participants highlighted the ease with which AI can translate OERs into local languages (see Quote 12). Relatedly, AI can be used to align open OERs with national curriculums and socio-cultural contexts (see ↕Alexandre, 2023).

Additionally, participants emphasised the potential for AI to enable teachers to create their own learning resources and content (see Quote 12). EdTech organisations are experimenting with this use case: for example, in 2023, Unacademy* launched AI editor Cohesive AI, which aims to make content creation more accessible to anyone who writes.

This development can enable more educators to build more, higher-quality resources around the world.

*See https://unacademy.com/. Retrieved 4 July 2025.

"The commonality with all AI use cases is that they level the playing field."
— Quote 11

"A team of experts came in to help Chat-GPT create books in Mali's local language.

Together, they created 150 books in 6 months. There's no a way a publisher would do that."
— Quote 12

11. ‘Big Tech’ will dominate the landscape of AI products in education

‘Big tech’ companies are expanding their presence in LMIC ecosystems, raising awareness and usage of their brands and models. For example:

- OpenAI launched a Learning Impact Prize in October 2023, in collaboration with the Tools Competition. Prize winners receive USD 100K, as well as API credits and technical guidance from OpenAI engineers (↑Tools Competition, 2023).
- NVIDIA’s ‘Emerging Chapters’ provides access to learning, tools, and networks to help communities grow local AI projects. 30+ African developer community groups have joined the network in 2021 (↑Kallot, 2021).

> ***“Really overwhelming to figure out these apps separately. Basically, Chat-GPT might get you 80–90% of the way there.”***
> ***— Quote 13***

Interview participants highlighted the likelihood of ‘Big Tech’ companies dominating the market for AI tools in LMICs. Reasons for this include:

- Capital from investors and/or existing high-margin products.
- Product capabilities across the greatest diversity of use cases (see Quote 13).
- Most brand recognition.
- Capital to ‘give away’ products for free to a large number of users, leading to user familiarity and large amounts of data.
- Ability to attract the most talent and computing power.

As highlighted above, (see *Differing levels of access to AI products will exacerbate global inequality*) this dynamic can extract value (in the form of capital and data) from LMIC contexts.

12. AI in education is not a ‘winner takes all’ market

Some interview participants highlighted that AI in education would not be a ‘winner takes all’ market, dominated by Big Tech. Potential reasons include:

- The large number of organisations working on use cases such as school management and assessments, which means constant competition.
- “Commoditisation” of large language models (LLMs), leading to a lower barrier to entry for new models.
- Increasing ability to build high-quality language models at lower cost, using smaller datasets and less computing power.
- Value of unique brands, business models, and implementation models in different contexts means different actors will thrive in different markets (see Quote 15).

Participants also highlighted that major players, including Meta (↑Meta, 2024) and Mistral AI (↑Mistral AI, no date), have open-sourced LLMs which are not far behind proprietary models (see Quote 14). At the application level, EIDU, a personalised learning platform used by 350,000 learners in Kenya, has open-sourced their source code (↑Lawrence, 2024).

Open-source LLMs will give a wide range of players the ability to build products on top of state-of-the-art AI models, leading to a more diverse market for products.

“Open-source LLMs seem to have a 6-month lag to closed products, but they eventually catch up. I’m confident that the way open source is evolving means we won’t have a winner takes all market.”
— Quote 14

“Figuring out how to use AI tools and make them affordable and relevant to populations across Africa — this won’t be commoditised.”
— Quote 15

There is a significant environmental impact of AI products

Large language models are having a significant environmental impact, which is increasing as their usage increases:

- The energy consumption, leading to CO2 emissions. The work to train GPT-3 produced the equivalent of 500 tons of CO2 (↑Coleman, 2023), with running costs of approximately 1.5g per query (↑Vanderbauwhede, 2025, p. 1). At an estimated hundreds of millions of queries per day, this equates to hundreds of thousands of kilograms of CO2, produced daily. By way of comparison, the car of a typical US road user emits 4,600 kg of CO2 in a year (↑US EPA, 2016).
- Training and using AI models also leads to significant water consumption. Chat-GPT consumes 500 millilitres of water for every 5–50 prompts (↑Bosch et al., 2024). Establishing and expanding data centres in LMICs threatens to exacerbate water insecurity.

Diverse groups are coming together to sense-make and take action

Stakeholders across different countries and organisations are coming together to share expertise and better understand how to navigate the complex and fast-moving intersection of AI and education in LMIC contexts.

For example:

- AI for Education seeks "to create a vibrant community of AI in education in LMICs" (↑Fab Inc., 2023). They host convenings, provide grants to support piloting and development of AI tools, and host an open knowledge platform.
- In 2024, Honoris United Universities, a network for universities in Africa, held a two-day summit, including the formation of a collaborative roadmap for the advancement of AI across the network (↑Honoris United Universities, 2024).
- One participant highlighted the trend of South-South collaboration to support governments in LMICs to build capacity and expertise in using AI. For example, India is sending teams to support IT professionals in other LMICs. The ↑African Union's (2024) Continental AI Strategy, launched in August 2024, provides a blueprint to countries in sub-Saharan Africa when few national governments have AI strategies or policies of their own.

FIVE SCENARIOS FOR EDUCATION SYSTEMS IN 2035

An introduction to scenarios

Imagine it's 2035...

A combination of key trends identified so far has developed over the last ten years.

We have sketched five scenarios, indicating how these different combinations might lead to different versions of the future. Think of the trends as ingredients, like flour, sugar, and butter. The scenario is the cake, once you put those ingredients together.

These scenarios provide an overview of an LMIC education system, focusing specifically on the impact of developments in AI.

They are designed to be distinct and provocative, to stimulate reflection by LMIC governments and education stakeholders.

Our methodology for sketching scenarios

Once the trends had been identified, EdTech Hub led the creation of scenarios through a series of workshops.

The first workshop included 5–6 participants from EdTech Hub and IDRC. Through prompting questions, it encouraged participants to take a cluster of trends, and imagine a 'headline from 2035' based on those trends.

The second workshop included 15–20 participants, with the invite extended to those who took part in expert interviews. In this workshop, participants reflected on and iterated the scenarios.

In the third workshop, the same participants ranked the scenarios based on:

- Which scenarios were most likely to occur (**likelihood**)
- Which scenarios LMIC governments and education stakeholders most need to strengthen capacity for (**urgency**)

*Scenarios provide a **consistent and coherent description** of a hypothetical future, that reflect different perspectives on past, present and future developments, which can **serve as the basis for action***

↑Think Scenarios, Rethink Education OECD, (2006)

*"Scenarios are not forecasts because they are **not aiming to be accurate, but to be useful**"*

↑Tim Harford, *Financial Times* (2025)

List of scenarios (ranked based on likelihood)

#	Scenarios for 2035	Trends that lead to this scenario			
1	**AI exacerbates the learning divide**	Generative AI tools produce inaccurate and biased outputs.	Differing levels of access to AI products will exacerbate global inequality.	The cost of AI infrastructure will exacerbate global inequality.	
2	**The AI distraction**	Generative AI tools produce inaccurate and biased outputs.	Big Tech will dominate the landscape of AI products in education.		
3	**Effective personalised learning for all**	AI is enhancing student feedback and teaching at the right level.	AI is supporting learners, particularly with tailored content and feedback.	AI is creating greater equality within and between national education systems.	AI in education is not a ‘winner takes all’ market.
4	**Learning in an age of surveillance**	AI is supporting learners, particularly with tailored content and feedback.	Big Tech will dominate the landscape of AI products in education.	LMIC governments are being increasingly proactive, through regulatory activity and guidelines.	
5	**AI lightens the bureaucratic load**	AI is supporting teachers, particularly with administrative/routine tasks.	AI supports with school management and administration.	LMIC governments are being increasingly proactive, through regulatory activity and guidelines.	

1. AI has exacerbated the learning divide between and within nations

Likelihood (rank)	1st (out of 5)
Urgency (rank)	1st (out of 5)
Scenario	It's 2035. Higher-income economies, with the enabling environment to harness the full potential of AI, have made transformative gains in learning. Meanwhile, many low- and middle-income countries remain trapped in a cycle of underachievement. The percentage of children experiencing learning poverty globally — 70% in 2022 — has remained consistent since. In this scenario, unequal benefits from AI have sprung from many different sources: 1. A lack of access to connectivity and reliable energy, combined with low digital literacy in the education system, meant many AI products weren't usable in low-income countries. 2. Highly cost-effective AI tools have proliferated in LMIC contexts. However, access to these products alone does not generate learning outcomes. In high-income countries, learners benefit from AI-enabled products combined with teachers, which does lead to learning outcomes. 3. Lack of availability of computing power in LMIC contexts meant that sophisticated AI models and cutting-edge AI applications remained focused on high-income countries. EdTech products imported to LMIC contexts were not contextually relevant, and therefore were less effective and usable in LMIC contexts. 4. Proactive governments attempted to regulate data privacy, and limit usage of non-homegrown AI tools by learners. Such actions backfired, with these countries 'left behind' from the benefits of AI. In this scenario, children leave school unprepared to thrive in an AI-enabled workforce, or to be the teachers and administrators of an AI-enabled education system. The learning divide compounds over time.
Where is it most likely?	This scenario is likely to take place in low-income countries, with significant infrastructure gaps (e.g. Democratic Republic of Congo). Additionally, it is likely to take place in smaller, low-income countries.

2. An AI distraction has diverted resources away from learning outcomes

Likelihood (rank)	2nd (out of 5)
Urgency (rank)	2nd — joint (out of 5)
Scenario	It's 2035. The hype around AI led to donors and governments making substantial investments in AI products, with the hope of leapfrogging endemic challenges in learning outcomes. Tech companies influenced this push, through brand building and evangelising their AI-enabled products. This 'tech saviour' narrative is proving increasingly misguided. AI-powered products show little evidence of impact. Inaccuracies remain too high for teachers, school administrators and parents to trust AI-powered products. Additionally, the cost of these products remains stubbornly high, not helped by the cost of computers, and water scarcity limiting the building of data centres in LMIC contexts. Overall, very few AI-powered products represent 'value for money', relative to proven ideas such as structured pedagogical interventions and targeted teacher professional development. Where learners do use AI products, it limits their critical and creative thinking, and reduces their cognitive development. Where products are effective, their impact is unequally distributed. Impact is particularly low where factors such as connectivity, digital literacy, and access to devices is low. This scenario has revealed how difficult it is for AI systems to replicate the role of a teacher, which remains more art than science. While AI products could evaluate a child's educational progress in a narrow sense, they could not understand and support a child in the context of a classroom. One silver lining is that as the AI mirage lifts, LMIC education ecosystems are starting to invest more in generating rigorous evidence on EdTech, and supporting evidence-backed solutions.
Where is it most likely?	This scenario is likely to take place in countries with high external investment, and fewer institutional safeguards against ineffective tech (e.g. Pakistan).

3. Effective personalised learning is available to many learners

Likelihood (rank)	3rd — joint (out of 5)
Urgency (rank)	2nd — joint (out of 5)
Scenario	It's 2035. Personalised learning systems are widely accessible, and the majority of learners benefit from increasingly powerful AI-enabled adaptive technologies. In short, every child has their own AI tutor. As AI systems have grown increasingly powerful, they can go beyond providing learning in 'bite-size' chunks and effectively educate learners on large-scale concepts. AI models are commoditised and/or open sourced, and are trained on different languages and datasets. A diverse array of products (beyond the 'Big Tech' players), are built atop these models all over the world, providing content targeted to the level of the child and applicable to the unique socio-cultural context of different regions and countries. The cost of processing tokens is 'too cheap to meter' meaning these products are affordable to governments, schools, and households in LMIC contexts. As AI models have developed, inaccuracies have become non-existent. Learners with disabilities can also access high-quality content, which can be adapted to their needs at 1% the cost of ten years ago. These platforms provide teachers with detailed overviews of each child's learning journey, and suggestions for where further support is most needed. They also provide government officials with suggestions on where to invest further resources.
Where is it most likely?	This scenario is likely in countries with high levels of digital infrastructure (e.g. Uruguay, India) — although even in these countries, it is unlikely all learners will have the same levels of access. If trends in the affordability and availability of connectivity, energy, devices, and computers continue to improve, more learners in a broader range of LMIC countries may be able to harness these tools.

4. AI-led learning, dominated by big tech, ushers in an era of surveillance.

Likelihood (rank)	3rd — joint (out of 5)
Urgency (rank)	4th (out of 5)
Scenario	It's 2035. AI has permeated every aspect of our education system. Faced with rising populations, many LMIC governments turned to AI to manage increasingly crowded classrooms. In this scenario, AI-enabled products provide an intimate, always-on interface for teaching and learning. The role of the teacher is to supervise and maintain AI systems. 'Big Tech' players, with vast profits from other parts of the world, 'give away' educational products at no cost. This is often in vendor lock-in agreements with governments and telecoms companies, who 'bundle' AI EdTech products into existing platforms. For individual users, opting out is impossible. These products, tailored for high-income contexts, don't reflect the culture or language of users in the Global South. For many, 'EdTech' is now synonymous with the 'Big Tech' player who has the agreements in their country. This might be Google/Microsoft, or a new, AI-first player that has risen to prominence in the intervening years. The decisions these companies make to the product, interface, and learning content profoundly affect the lives of millions of learners, often without them realising this. The data input in return is commercialised or used by the 'Big Tech' companies to refine their models. Agreements with governments also give them access to learner data, for surveillance purposes.
Where is it most likely?	This scenario is likely to take place in low-income countries (with low ability to pay), and a strong government committed to harnessing technology (e.g. Rwanda, Kenya, Nigeria). Additionally, it might take place in a country with a rapidly growing population and high existing adoption of tech (e.g. India).

5. AI lightens the bureaucratic load for teachers and school administrators

Likelihood (rank)	5th (out of 5)
Urgency (rank)	5th (out of 5)
Scenario	It's 2035. Whether it's drafting a report card, or planning the school timetable, or applying for funding, or allocating teachers and learners, AI systems have saved hours of time. In this scenario, we envisage complex, bureaucratic processes have been automated without significant unintended consequences. With more time, teachers are able to focus on delivering lessons and deepening their understanding and connection with individual learners. Pedagogical training means teachers can make the most of this time to support learners directly. Teacher satisfaction and retention has skyrocketed, translating to improved outcomes for learners at all levels. School leaders and administrators, too, can focus their energy on understanding and responding to parents', teachers' and learners' needs. Powerful, AI-enabled systems can function autonomously, without requiring lots of human input. Potential tasks, such as device management, data management, and troubleshooting technical issues, create only a minimal additional burden. Where human input is required, school leaders, teachers, and administrators are well-trained to manage the AI-enabled systems quickly and effectively. Whether as the result of strong regulations (of AI applications or data privacy), or slower development of products, AI-enabled tools are used less by learners themselves.
Where is it most likely?	This scenario takes place in a country that has stability, is upper- low- or middle-income, has reasonably well digitally literate and motivated teachers, and has been able to adopt AI tools into its education system effectively through investing in connectivity and device access. (e.g. Kenya, Vietnam, Brazil)

Where do we go from here?

We have shared fourteen trends and five scenarios, based on expert insight and real-world signals of change.

We're using this window into the future to design a programme of research on capacity strengthening for LMIC governments and education stakeholders. We hope this work will also support you to design and stress-test strategies for education in the age of AI.

Our accompanying foresight study explores trends and scenarios for education, given the increase in conflict and crisis around the world. You can read that **here**.

This foresight study was part of the IDRC and EdTech Hub's partnership, under IDRC's EmpowerED programme.

For more information or to get in touch about our findings, contact hello@edtechhub.org

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