

**DIGITAL
INNOVATIONS**

in Education

Brief N°. 3

100 STUDENT VOICES

on AI and Education



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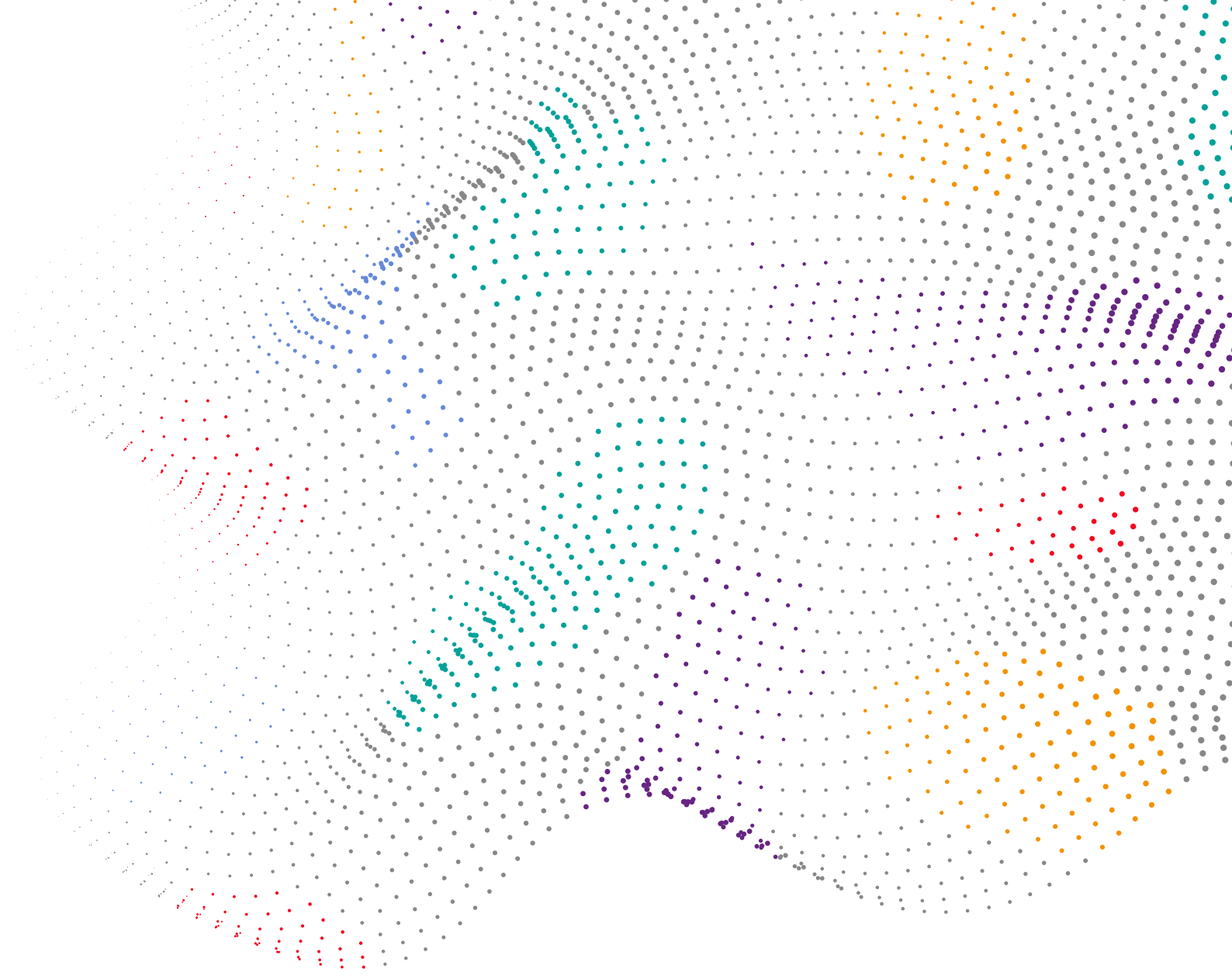
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100 STUDENT VOICES

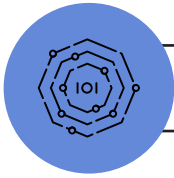
on AI and Education



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SECTION A: BACKGROUND

EXECUTIVE SUMMARY

The rapid advancement of artificial intelligence (AI) is disrupting the landscape of higher education (HE), presenting both opportunities and challenges. This paper discusses the results of focus group discussions conducted in 10 countries (Cameroon, Colombia, Ethiopia, Georgia, Indonesia, Mali, Mexico, Nigeria, Peru, and Rwanda), examining students' perspectives, experiences, and concerns regarding AI's impact on education.

This report is composed of three main sections. **The first section** provides a general background on the impact of AI in HE, the labor market, and *Youth and AI*. Through a thorough review of emerging evidence, this section explores the pivotal role that higher education institutions (HEIs) should play in training AI talent, equipping students for an AI-driven workforce, and shaping research and policies around AI's societal impacts. AI offers avenues to augment teaching, learning, administration, and decision-making through tools like AI-assisted grading, adaptive learning systems, and automated data analysis. However, integrating AI also necessitates re-examining academic programs, enhancing technology infrastructure, tackling ethical risks around privacy and bias, and cultivating uniquely human skills like critical thinking that AI cannot easily replicate. Achieving AI-readiness requires institutional changes like upskilling educators, developing governance frameworks, ensuring equitable access to AI resources, and fostering a culture of innovation to harness AI's full potential responsibly.

Section two of the report discusses key findings on students' AI percep-

tions, uses, and concerns based on focus group discussions conducted in 10 countries. The research revealed that while students regularly use AI tools for academic purposes such as writing, coding, and creative projects, barriers such as high internet costs and low connectivity still persist in some regions. Additionally, students recognized AI's potential to enhance learning through personalized feedback and accelerated skill acquisition. However, many learners voiced concerns about how overdependence on the technology may stifle critical thinking. Their awareness of emerging AI career paths like prompt engineering varied, but a common thread was acknowledging insufficient preparedness from current higher education curricula, signaling the need for specialized AI training. Across institutions, AI integration displayed disciplinary disparities, with Science, Technology, Engineering, and Mathematics (STEM) fields being early adopters. To bridge this gap, students advocated for comprehensive AI education spanning all disciplines, robust ethical frameworks, hands-on skill development opportunities, and academic-industry partnerships to equip graduates with AI fluency for the future workforce.

The third section provides reflections and suggestions for enhancing AI preparedness and fluency in HE. To harness AI's transformative potential responsibly, governments must champion safe, responsible, and human-centered policies alongside public awareness initiatives, research funding, and AI integration into education accreditation frameworks. HEIs should proactively rethink teaching approaches,

curricula relevance to evolving job markets, administrative governance models, and equitable technology access - facilitating faculty AI training, personalized AI-assisted learning, ethical usage guidelines, and digital infrastructure. Prioritizing ethics and inclusion are paramount, as HEIs and faculty leverage AI to enhance accessibility, identify outcome disparities, and empower diverse stakeholders.

1. CONTEXT

In recent years, the nexus between education and artificial intelligence has evolved rapidly. AI innovations, especially generative AI, are already transforming teaching and learning. As machines become “smarter” and labor markets and economies get transformed, education systems must rethink their operating models to ensure that they can skill, upskill, and reskill individuals for the jobs of the future. HEIs are at the forefront of this change, given their “feeder” role for labor markets.

While there is no single definition for the term “Artificial Intelligence” (AI), it generally represents data-intensive systems that can perform tasks that are typically associated with human intelligence¹. While defi-

nitions vary, three key attributes typically characterize AI systems: (i) They are machine-based systems; (ii) They can infer outputs (predictions, content, or decisions) based on human objectives; (iii) These outputs are often indistinguishable from those of humans².

The relationship between AI and higher education systems is neither linear nor unidirectional.

On the one hand, AI systems are significantly shaping teaching and learning experiences in HE. On the other hand, HEIs could play a role in training AI-ready workforce, equipping learners for an AI dominated world, and shaping research and the policy discourse on the role of AI in society (see Illustration 1). The field of AI emerged on a university campus, when an American university professor organized the Dartmouth Summer Research Project on Artificial Intelligence in 1956. As the technology becomes more pervasive, universities and TVET institutions will play a key role in skilling and reskilling individuals for AI-dominated or -influenced labor markets. Additionally, HE researchers will shape both the technical dimensions (development, testing, design, efficacy, and accuracy) and policy discourse around artificial intelligence systems.

¹ WIPO (2024). What is Artificial Intelligence?

² EU AI Act (2024). Article 3: Definitions

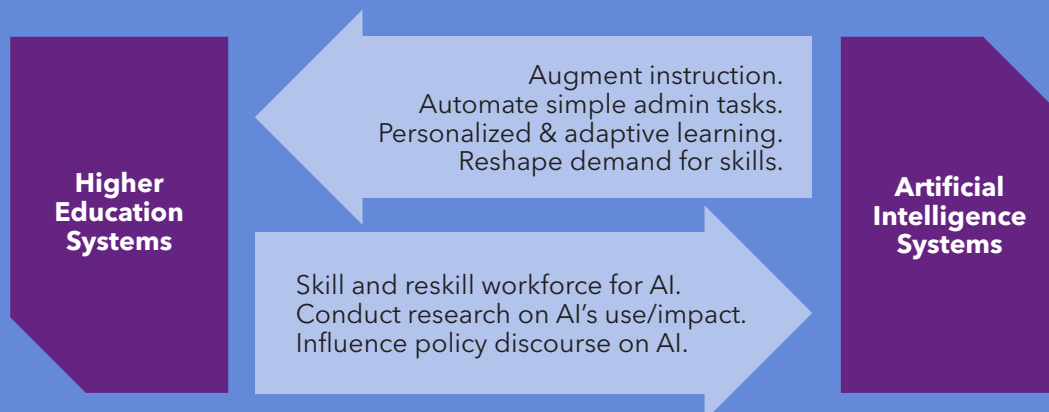


Illustration 1: Relationship between AI and HE systems

The potential of AI in HE is vast, offering avenues to augment the experiences of instructors, learners, administrators, and policy makers. AI-assisted grading and feedback mechanisms can alleviate the burden on instructors, freeing up time for more meaningful interactions with students. Learners also stand to benefit from AI-powered adaptive learning systems that tailor educational content and delivery methods to their individual needs, ensuring a more effective and efficient learning experience. The use of AI in education transcends individual institutions. Ministries of education are increasingly leveraging the tool to support curriculum development and nation-wide content generation at scale.

However, the advent of AI raises significant risks and challenges that HEIs must address. The integration of AI in education not only necessitates a re-examination of academic programs but also the existing capacity building methodologies. In addition, there is a need to enhance the data and technology infrastructure of HEIs. As AI increasingly automates routine tasks, there is a growing emphasis on develop-

ing skills that are uniquely human, such as critical thinking, creativity, and emotional intelligence. HE systems must adapt their programs to cultivate these skills, ensuring that graduates are well-equipped to navigate an AI-driven workforce.³ Achieving this will necessitate revisiting planning, instruction, and assessments to impart and evaluate these novel skills for the 21st century. In an age where machines can think, education systems shouldn't just teach individuals to have the right answers, but also to ask the right questions. Moreover, as the chart below indicates, interest in AI skilling is rising (see Illustration 2). This represents a unique opportunity for HEIs, as they can help upskill working professionals through formal and informal training programs in domains such as machine learning, deep learning, and other related areas.

³ de Bem Machado, A., dos Santos, J. R., Sacavém, A., & Sousa, M. J. (2024). Digital Transformations: Artificial Intelligence in Higher Education. In *Digital Transformation in Higher Education Institutions* (pp. 1-23). Cham: Springer Nature Switzerland.

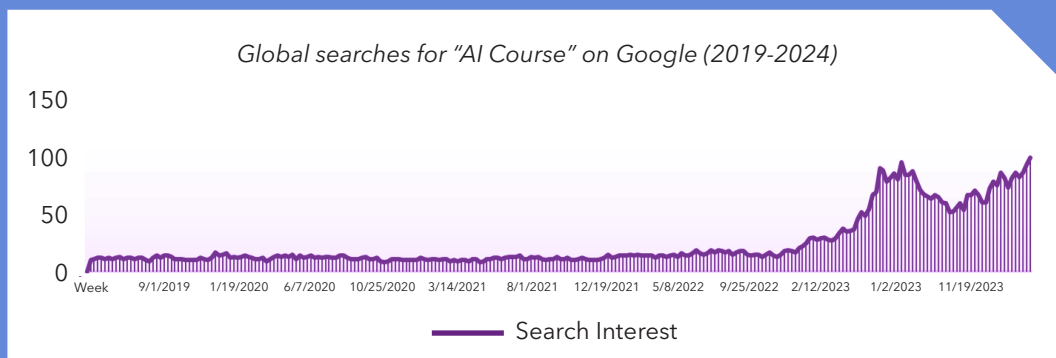


Illustration 2: Interest in AI skilling

Note: Between 2022 and 2023, searches for "AI Course" have increased showing interest in AI skilling. This represents an opportunity for HE to contribute to workforce development. Source: Google Search Trends

2. AI AND THE LABOR MARKET

According to the IMF,⁴ around 40 percent of global employment is estimated to be exposed to AI, with a notable divide between advanced, emerging markets, and developing economies. In advanced economies, the share of employment exposed to AI is around 60 percent, reflecting the preponderance of cognitive-intensive occupations in these economies. In contrast, the share of employment exposed to AI is lower in emerging markets (around 40 percent) and substantially lower in low-income countries (around 26 percent), where the employment structure is tilted more toward manual and routine tasks. The expected changes in the labor market due to AI remain ambiguous, while some researchers consider that AI adoption might include shifts in job types and tasks,

potential displacement of workers in some occupations, others consider that AI could also lead to more inclusion and stronger economic mobility by improving education quality and access, expanding credit availability, and lowering skill barriers.⁵ The impact of AI on workers will vary depending on their education level and age. Young college-educated workers are considered the most adaptable but also the most vulnerable, as they may need to frequently switch job types. Historical patterns suggest that high-exposure, high-complementarity roles may offer wage premiums, while switching to low-exposure roles could lead to decreased wages. The ability to adjust to AI-induced changes will be crucial for navigating the labor market.

⁴ International Monetary Fund. (2024). Gen-AI: Artificial Intelligence and the Future of Work (IMF Staff Discussion Note No. SDN/2024/001). Washington, D.C.: International Monetary Fund.

⁵ Filippucci, F. et al. (2024). Should AI stay or should AI go: The promises and perils of AI for productivity and growth



Table 1: AI benefits and concerns

DIMENSION	AI BENEFITS	AI RISKS & CONCERNS
Teaching and research	<ul style="list-style-type: none"> . AI-powered labor market insights can improve course design. . AI can help develop instructional materials (lesson plans, presentations, etc.) . Automated grading and feedback relieve burden of instructors . AI supports teacher professional development . AI research tools can support literature review, data collection, and processing 	<ul style="list-style-type: none"> . AI-generated curricular content may be biased, inaccurate, and/or low quality . Over-reliance on AI may inhibit teachers' or curriculum experts' agency . Excessive use of AI may de-humanize teaching experience . AI-assessment tools may amplify biases in their data . Teachers may fear being replaced by AI
Learning	<ul style="list-style-type: none"> . AI can support self-directed learning (AI personal tutors, AI quiz generators, etc.) . AI can provide personalized and instantaneous, actionable feedback learning experiences 	<ul style="list-style-type: none"> . Over-dependence on AI may limit students' critical thinking . Individualized AI learning solutions may undermine social learning, self-regulation, and the community aspects of learning
Equity and inclusion	<ul style="list-style-type: none"> . Automatic captioning benefits learners with disabilities . AI can support the creation or adaptation of content into local or languages 	<ul style="list-style-type: none"> . AI may perpetuate historical bias . Digital divides may become AI-divides, and key groups like women may be left behind
Governance and data	<ul style="list-style-type: none"> . Automate early warning systems . Speed up data processing and analysis for decision making 	<ul style="list-style-type: none"> . AI raises privacy concerns . Bad actors may use AI to cause harm . Lack of guidance and support may leave teachers and/or students in a weak position
Skills and labor market linkages	<ul style="list-style-type: none"> . AI may create new job opportunities for graduates of HEIs. . AI solutions can support employability efforts within HEIs (AI interview practice, AI CV review, etc.) 	<ul style="list-style-type: none"> . AI may disrupt labor markets faster than institutions can respond, creating a threat of obsolescence.

3. YOUTH AND AI

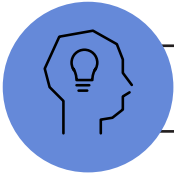
While there have been studies exploring student experiences with AI in education, our paper offers a unique global lens by focusing on 10 emerging countries.

Previous research such as the “Students’ Perceptions of Artificial Intelligence in Higher Education”⁶ and the “AI and the Future of Learning” report by the OECD,⁷ have shared how students in developed nations perceive and interact with AI tools in academic settings. This report

adds to existing research, and aims to amplify the voices of students from diverse cultural, socioeconomic, and academic fields and backgrounds, providing insights into the challenges, opportunities, and ethical considerations surrounding AI’s integration into HEIs across the Global South. By capturing the perspectives of students in countries like Cameroon, Colombia, Ethiopia, Georgia, Indonesia, Mali, Mexico, Nigeria, Peru, and Rwanda, we offer a comprehensive understanding of the nuanced experiences and concerns that shape the adoption of AI in educational contexts outside High Income Countries (HICs).

⁶ Timea & Veres (2023). *Students’ Perceptions of Artificial Intelligence in Higher Education*

⁷ OECD (2023). *AI and the Future of Skills, Volume 2*



SECTION B: YOUTH VOICES ON AI

4. STUDY DESIGN AND METHODOLOGY

To better understand the role that AI will play in education, the World Bank EdTech team undertook a research initiative exploring how HE students are engaging with AI. As university and TVET students will enter the workforce and drive innovation in the coming years, they can offer unique perspectives about the impact of AI in education. By closely examining their current uses of AI tools, the challenges and opportunities they identify, and their ethical considerations surrounding AI adoption, this research initiative aimed to inform policymakers and educators in crafting an AI ecosystem that empowers rather than hinders the next generation.

The research spanned 10 countries, diverse socioeconomic contexts, different fields of study, and gender balance, ensuring a rich diversity of perspectives was captured. Through focus group discussions, the World Bank's EdTech Team delved into the specific AI applications students employed for academic pursuits, creative endeavors, and personal use. The focus group discussions were conducted remotely using Microsoft Teams, facilitating conversations in three languages: English, French, and Spanish. Additionally, the research team probed the perceived accessibility and inclusivity of AI solutions, concerns around privacy and data rights, and the potential displacement of human roles by increasingly capable AI systems. By giving voice to the youth at the vanguard of technological change, this

research sought to identify potential blind spots, biases, or inequities that could arise from unchecked AI proliferation.

RESEARCH APPROACH

As this research aims to answer exploratory questions of students' perceptions, uses, and concerns about AI in HEIs, a qualitative methodology is best suited for this context. A qualitative approach allows to understand the 'meanings' that participants attach to actions and how these understandings influence their behavior. A qualitative approach also provides in-depth understanding of the context in which the research is taking place and how students' practices look like in the specific context. More specifically, the research team has developed a case study for each of the 10 countries where data has been collected, as case studies are appropriate to address 'how' problems and research questions that require in-depth analysis to understand complex social phenomena.⁸ After obtaining approval from the World Bank's country offices in the mentioned countries, the research team supported by local staff identified one HEI per each country, ranging from public to private universities and technical vocational education and training (TVET) institutions. Letters were emailed to the selected HEIs and 100 students agreed to take part in this study. All participants that agreed to participate in the study signed a consent form. The list of institutions is presented in table 2.

⁸ Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: Sage.

Table 2: List of participating countries and institutions

#	COUNTRY	REGION	INSTITUTION	TYPE	MGMT	STUDENTS
1	Cameroon	Central Africa	Catholic University Institute of Buea	University	Private	10
2	Colombia	South America	Universidad de Los Andes	University	Private	7
3	Ethiopia	East Africa	Addis Ababa University	University	Public	8
4	Georgia	Eastern Europe	Georgian Technical University	University	Public	13
5	Indonesia	South East Asia	Universitas Pendidikan Indonesia	University	Public	12
6	Mali	West Africa	University Of Science Of Technical And Technology Bamako	University	Public	10
7	Mexico	North America	Universidad Tecnológica de León	University	Public	15
8	Nigeria	West Africa	University of Lagos	University	Public	12
9	Peru	South America	Servicio Nacional de Adiestramiento en Trabajo Industrial	TVET	Public	13
10	Rwanda	East Africa	African Leadership University	University	Private	11

METHODS

The research team decided to use focus group discussions as the main method for data collection, as it is an adequate qualitative research method to capture perceptions of students. To guide the focus group discussions and capture students' perceptions, the research team developed a semi-structured questionnaire. This questionnaire aims to explore students' perceptions and experiences with AI in education. It begins with introductory questions about their overall thoughts on AI's impact. The main

themes covered include current access and use of AI tools, ethical concerns, how AI is changing the learning process, potential benefits and challenges of AI in education, anticipated impacts on university life, awareness of AI career paths, how educational institutions are preparing students for AI disruptions, and expectations for AI's future influence on learning and the job market.⁹

⁹ A description of the data analysis process and limitations of this study are provided in the Annex.

5. FINDINGS AND DISCUSSION:

HOW DO STUDENTS ACCESS AND USE AI?

Across the countries represented, students demonstrated widespread familiarity and utilization of AI tools for diverse academic purposes. In Cameroon, tools like Gemini were praised for “its efficiency in full AI data analysis, offering quick response times.” Colombian students highlighted ChatGPT’s utility in “comparing the results [they] get by solving problems [themselves] with the results of AI tools.” Nigerian students found ChatGPT and Quillbot accessible, with one noting they are “the easiest and fastest ways to get solutions.” Rwandan students even mentioned using AI detector tools like Undetectable.ai, underscoring awareness beyond conventional applications. However, accounting students in Cameroon expressed reservations about AI’s reliability in their field.

Regional differences emerged around perceptions of AI’s impact in education. Students in developing nations tended to view AI optimistically as “an opportunity” and “potential equalizer” for quality

Students in developing nations tended to view AI optimistically as “an opportunity” and “potential equalizer” for quality education access.

ty education access. As an Ethiopian student remarked, “AI in general [is] an opportunity because I’ve been able to make my work easier.” In contrast, European perspectives like those from Georgia revealed stronger reservations, citing concerns over AI perpetuating biases, providing inaccurate information from outdated training data, and potentially hindering human roles. A common thread, however, was recognizing AI’s power necessitated ethical guidelines as its academic presence grows.

Accessibility issues shaped experiences in some nations. While tools like ChatGPT were freely available, others required paid subscriptions, excluding financially-constrained students, unless university funds provided access. Unreliable internet connectivity also hampered adoption in parts of Cameroon and Rwanda. As a Georgian student highlighted some AI tools “required payment, potentially hindering access for students with financial constraints.” Such disparities underscore the importance of addressing digital divides.

Ethical concerns cut across regions, prompting calls for responsible AI utilization. Art students in Indonesia felt threatened by AI generating full creative works, with one stating: “I condemn people who use AI 100% and then claim it as their job.” Mexican students warned about AI fostering dependency, providing misinformation, and displacing human workers. However, many also recognized AI’s potential for streamlining work and empowering people, leading a Rwandan student to describe it as a “double-edged sword” whose impact “depends on how responsibly we choose to utilize it.” This nuanced perspective captures the delicate balance societies must strike in harnessing AI’s benefits while upholding ethical principles and human agency.

HOW AI IS CHANGING THE WAY STUDENTS LEARN?

Across the countries represented, students described AI enabling new modes of learning and skill development. Participants highlighted AI's value in overcoming accessibility barriers, with an Ethiopian economics student sharing: "I use AI to summarize and make articles more understandable from paywalled and complex resources like the Harvard Business Review." Nigerian history majors leveraged AI for diverse perspectives beyond traditional texts - "Different AI bots give you different perspectives on the same historical facts." For Indonesia STEM students, AI transformed coding with real-time debugging assistance: "AI has 100% changed how we learn compared to before advanced language models." Mexican programmers echoed using AI "as supplementary support when stuck on coding issues." Meanwhile, Rwandan students noted AI accelerating their learning curves, with one able to rapidly launch a website without "months to learn the necessary skills." However, this shift necessitated developing new prompt engineering abilities to harness AI effectively.

Students identified multiple potential benefits to further incorporating AI into education. Across nations like Cameroon and Colombia, many saw AI's efficiency providing more leisure time to improve mental well-being. Mexican participants appreciated how AI "drastically reduce[s] research time by consolidating information." Ethiopian engineers mentioned AI's value in "obtaining specific insights by ... processing large data sets." For Nigerian economics majors, AI simplified complex theories - they could prompt ChatGPT to "explain this concept to a 16-year-old." Peruvian video game designers cited AI aiding creativity in "creating characters." Looking ahead, Rwandan students foresaw AI enabling per-

sonalized guidance and "increasing productivity by streamlining access to data and resources." From saving time to sparking innovation, students across regions recognized AI's transformative potential in augmenting learning experiences.

However, ethical concerns surrounding AI integration also surfaced globally. Cameroonian students expressed "skepticism about relying solely on AI for answers," fearing impacts on critical thinking. An Indonesian architecture student found "AI large language models ... not always adequately knowledgeable" for specialized tools. Georgian participants worried about AI's limitations "in tasks like brainstorming, where it often yielded repetitive suggestions." In Nigeria, some worried about "the temptation to become overly dependent on AI for generating academic content rather than thinking critically." Peruvian TVET students cautioned about "accepting AI-generated responses unquestioningly" without cross-referencing other sources. However, the notion that students exclusively use AI tools for cheating purposes is incomplete. As previously discussed, students are using AI for a range of academic tasks, including writing essays, coding, research, generating ideas, improving content quality, text recognition, reading assistance, and even creative projects like image generation and podcast editing. Across countries, students repeatedly emphasized the need for human diligence to fact-check AI and not over-rely on it.

Looking 5 years into the future, students envisioned AI significantly reshaping university life and learning paradigms. Participants' perspectives highlight AI's potential to democratize access to knowledge while also raising concerns about exacerbating socioeconomic inequalities. For instance, Ethiopian participants anticipated AI democratizing "accessibility to

information and knowledge resources that were previously difficult to obtain.” However, they also warned about risks of “exacerbating socioeconomic inequalities if digital disparities persist.” In Georgia, students saw AI streamlining administrative education tasks like “grading and data processing, freeing up time for educators.” Rwandan students expected AI to “disrupt the traditional school system by revolutionizing how education is accessed and delivered.” From equitable access to overhauling pedagogies, regional perspectives converged on AI poised to reshape academia - prompting calls for proactive, ethical implementation strategies to harness AI’s transformative potential while mitigating risks and disparities.

HOW AI IS SHAPING STUDENTS’ CAREER PROSPECTS?

Across the countries represented, students demonstrated varying levels of awareness regarding AI career pathways. Many students demonstrated an awareness of emerging AI roles, such as prompt engineering, AI data analysis, and AI entrepreneurship. For instance, in Colombia, while some exhibited limited knowledge, others expressed curiosity about roles like “training AI tools to describe images.” Georgian participants cited startups searching for AI for roles like junior AI developer. Indonesian, Ethiopian, and Nigerian students mentioned emerging fields like prompt engineering that allows harnessing the power of AI for crafting effective prompts. An Indonesian journalism student highlighted “the potential for utilizing AI to efficiently generate text from news reports.” Entrepreneurial prospects offered by AI tools were also recognized, with a law student in Colombia citing a professor’s creation of an AI tool to streamline legal processes and in Georgia students mentioned startup accelerators and hackathons fostering the development of AI skills and entrepreneur-

ship in this field. Despite regional exposure differences, common threads emerged - not all students were familiar with AI’s proliferation across diverse career domains and there was a shared aspiration to equip themselves for the evolving landscape of AI-driven professions.

When it came to readiness for pursuing AI careers, students voiced a mix of enthusiasm and concern.

On the one hand, participants exhibited keen interest and motivation to develop the skills needed to thrive in an AI-driven workforce. On the other hand, they acknowledged gaps in their current preparation and curricula that left them feeling ill-equipped for such roles. Many Ethiopian participants were eager about “prompt engineering” roles but admitted “not feeling fully prepared” yet. Rwandan students struggled with “high barriers to entry such as extensive experience and advanced degrees” for AI jobs. An Indonesian art student was open to AI-driven creative careers “given market demand,” though concerned about “imperfect nature of current AI image outputs.” In Cameroon, some felt ill-equipped due to “lack of focused curricula covering computational thinking [and] algorithm design.” Across countries like Mexico and Nigeria, the prevailing view was that additional specialized training would be required to confidently transition into cutting-edge AI professions. However, students displayed an overarching willingness to upskill and be “lifelong learners to thrive in AI-driven economies”, signaling their aspiration to bridge the preparedness gap through continuous learning.

The potential threat of AI disrupting traditional career paths emerged as a significant concern for students across regions.

Across countries, students expressed concern about the potential of AI to disrupt their career paths. Students in IT fields such as software development, data science, and robotics worried about losing job oppor-

tunities to AI as advanced models increasingly automate computing and robotic tasks. In Ethiopia, software developers worried about “losing job opportunities to AI” as advanced models increasingly automate coding tasks. Georgian data science students similarly feared AI swiftly processing datasets could “displace” analysts. Peruvian students raised worries regarding “robotics and AI integration displacing human workers” as AI augments efficiency across sectors like manufacturing. However, some Indonesians in human-centric fields like psychology believed AI currently lacks the emotional intelligence required - “AI has no feelings...but in my field we use emotions for counseling.” An Ethiopian junior developer mentioned that if AI is integrated thoughtfully in different fields, markets could avoid human displacement. These concerns raised by students regarding job displacement due to AI automation underscore the need for thoughtful integration and proactive strategies to mitigate potential impacts while harnessing the transformative potential of AI technologies across diverse professional domains.

Students’ experiences with university efforts to prepare them for AI-driven professions varied significantly by institution and discipline. In Colombia, participants reported institutional workshops promoting “responsible AI use” while others faced limited access. In Ethiopia, students lamented their universities providing “inadequate” AI career guidance - “I think it’s not enough and they’re not providing us with enough knowledge.” Indonesian computer science departments offered substantial AI career exposure through “seminars and industry events,” contrasting psychology where information was lacking. While ALU in Rwanda introduced targeted AI courses, other nations saw only pockets of AI integration by forward-thinking faculty, creating inconsistencies. Overall, students advocated universities

take a more systematic approach to robustly equip graduates with AI literacy for emerging opportunities.

DO STUDENTS THINK EDUCATION SYSTEMS AND INSTITUTIONS ARE READY?

Institutions across the represented countries exhibit varying levels of readiness to address AI disruptions within education.

Concerns raised by students highlight disparities between technical and non-technical faculties in integrating AI concepts into curricula. Engineering and IT faculties are often more proactive, incorporating AI-related courses and practical skills training. However, non-technical fields lag behind, indicating a need for comprehensive AI education across all disciplines. Ethiopia, students lamented the lack of AI education in universities, with one student stating, “We don’t have a single department offering AI courses; our curriculum needs a major update.” The importance of faculty training emerges as a critical factor, with calls for institutions to invest in programs that familiarize educators with AI tools and methodologies. Additionally, students stress the necessity of updating curricula to include foundational AI courses and ethical frameworks

Concerns raised by students highlight disparities between technical and non-technical faculties in integrating AI concepts into curricula

that guide responsible AI adoption within academia. Policies and protocols governing AI use in education are deemed essential to navigate the transformative impact of AI on traditional teaching methods effectively.

The preparedness of professors and lecturers to integrate AI technologies into teaching methodologies varies notably, often reflecting generational differences.

Younger professors tend to be more open to adopting AI tools compared to their older counterparts, who may exhibit resistance or limited knowledge of AI capabilities. In Georgia, a student mentioned, “Younger professors are experimenting with AI assistants, while older ones prefer traditional methods.” Teaching methods also differ, with progressive educators leveraging AI for assignments and projects while others maintain conventional approaches. The challenge lies in bridging this divide and ensuring consistent guidance on responsible AI deployment across all academic programs. In Mexico, students emphasized the need for consistent guidance on responsible AI deployment, with one student stating, “Some instructors embrace AI, but others lack knowledge; we need

uniform training for all faculty members.” Training initiatives tailored to instructors’ needs are recommended to enhance their proficiency in AI technologies and foster a culture of innovation within academic environments.

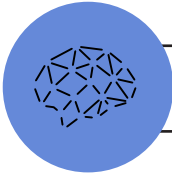
Students offer insightful reflections for institutions to enhance readiness for AI disruptions.

They advocate for comprehensive AI education, emphasizing the need for foundational AI courses and practical skills training across disciplines. In Indonesia, students advocated for increased AI course offerings and workshops, emphasizing practical skills development. A student mentioned, “We need more AI experts ... and frequent seminars to keep pace with AI advancements.” Additionally, students stress the importance of fostering a culture of openness to innovation, encouraging collaboration between faculty and AI experts, and establishing clear policies on AI use in education. In Rwanda, students stressed the importance of developing AI policies and guidelines, as one student suggested, “Institutions should collaborate with ministries to establish ethical AI frameworks and educate students about responsible AI usage.” Students also highlight the importance of experiential learning opportunities and partnerships with industry stakeholders to prepare students for AI-driven career paths. Moreover, students from Georgia called for universities to promote responsible AI usage among students, emphasizing the need for human oversight to correct imperfect or “hallucinated” outputs generated by AI tools. Overall, proactive measures such as comprehensive AI education and policy development are recommended to ensure institutions are equipped to navigate the challenges and opportunities presented by AI disruptions in education.

The challenge lies in bridging this divide and ensuring consistent guidance on responsible AI deployment across all academic programs.

The results from this cross-country study provide valuable insights into how AI is shaping the HE landscape and preparing students for future careers. Here is a compendium of 10 main remarks:

1. **Widespread AI adoption:** Students across regions demonstrated familiarity and utilization of AI tools for various academic purposes, including writing, research, analysis, and creative projects.
2. **Accessibility challenges:** While some AI tools were freely available, others required paid subscriptions or reliable internet connectivity, creating accessibility barriers for students in developing nations and those with financial constraints.
3. **AI as an educational equalizer:** Students viewed AI optimistically as an opportunity for democratizing access to quality education and resources, but some students also expressed concerns about potential biases and inaccuracies.
4. **Transforming learning experiences:** AI enabled new modes of learning, from real-time coding assistance, personalized guidance, and accelerated skill development. However, ethical concerns about over-reliance and critical thinking erosion were also raised.
5. **Need for human oversight and fact-checking:** While recognizing AI's capabilities, students across regions emphasized the importance of not blindly accepting AI-generated outputs as fact. They stressed the necessity of human diligence in fact-checking AI responses and not over-relying on AI at the expense of critical thinking skills.
6. **Career prospects and readiness:** Students exhibited varying levels of awareness about emerging AI careers like prompt engineering and AI entrepreneurship. While eager to develop relevant skills, many felt ill-equipped due to limited curricula and high barriers to entry.
7. **Job displacement concerns:** Students across IT, data science, and manufacturing fields feared AI automation could displace human workers, underscoring the need for thoughtful integration strategies.
8. **Institutional readiness disparities:** Engineering and IT faculties were more proactive in integrating AI education, while non-technical fields lagged behind. Consistent guidance, faculty training, comprehensive AI education across disciplines, industry partnerships, and clear frameworks on responsible AI usage were deemed necessary.
9. **Faculty adoption divide:** Younger professors were more open to adopting AI tools in teaching, while older faculty members exhibited resistance or limited knowledge, highlighting the need for comprehensive training initiatives.
10. **Envisioning AI's future impact:** Looking ahead five years, students anticipated AI reshaping university life. Proactive implementation strategies were seen as crucial to harness AI's transformative potential while mitigating risks and disparities.



SECTION C: REFLECTIONS

Governments, policy makers, HEIs, and faculty have a central role in shaping how AI is integrated into education systems, ensuring this process is done responsibly and fairly for everyone involved.

6. REFLECTIONS ON AI FLUENCY

NAVIGATING THE INTEGRATION OF GENERATIVE AI IN HE

The rapid advancement of new technologies, especially generative AI, often outpaces the development of frameworks and institutional guidance. Education institutions, regulators, and multilateral organizations¹⁰ are progressing at different rates in their endeavors to adopt and adapt to new AI frameworks that define the necessary skills and capabilities for HE students and educators. It is likely that these frameworks and guidance will evolve over time.¹¹

As artificial intelligence (AI) proliferates across sectors, its profound implications for education necessitate a concerted effort to foster “AI fluency” among learners, workers, and communities at large. AI fluency encompasses the robust competencies required to critically comprehend, ethically assess, and judiciously apply AI sys-

tems. Developing this multidimensional skill set is pivotal to harness generative AI’s potential in augmenting learning while mitigating associated risks of bias, privacy violations, and intellectual property infringement.¹²

AI fluency entails the knowledge and skills needed for individuals to critically comprehend, utilize, and assess AI systems within an increasingly digital environment.

It comprises three core competency areas: (a). **Understanding:** This area involves technical comprehension of AI systems, including skills such as data utilization, automation, algorithmic comprehension, and pattern recognition. (b). **Use:** This competency area focuses on effectively utilizing AI to enhance or execute diverse tasks and workflows. Competency to create digital content might become less relevant in times of readily available digital content developed by GenAI tools. (c). **Contributions and Evaluation:** This area entails assessing and contributing to improving AI systems across various dimensions, such as data privacy, ethics, bias, credibility, accessibility, and societal impacts. Competence in this area enables the scrutiny of AI inputs, methodologies, outcomes, and identification of potential risks or limitations. See table 3 for AI fluency competencies.

¹⁰ Mills, K., Ruiz, P., & Lee, K.-w. (February 21, 2024). Revealing an AI Literacy Framework for Learners and Educators. Digital Promise logo. [Blog post].

¹¹ Bekiaridis, G., & Attwell, G. (2024). Supplement to the DigCompEDU Framework: Introduction to AI in Education1. Active Citizens Partnership & Pontydysgu.

¹² Gimpel, H., Gutheil, N., Mayer, V., Bandtel, M., Büttgen, M., Decker, S., & Urbach, N. (2024). (Generative) AI Competencies for Future-Proof Graduates: Inspiration for Higher Education Institutions. *Hohenheim Discussion Papers in Business, Economics and Social Sciences*.

Table 3: AI fluency competencies

DIMENSION	COMPETENCIES		
	UNDERSTAND	USE	EVALUATE AND CONTRIBUTE
AI tools and systems	Foundational understanding of AI	Apply AI tools and systems to problem-solve	Create, analyze or evaluate AI systems
AI ethics and society	Understand of AI risks and societal impacts, including human agency	Incorporate AI ethics in daily work and life	Support responsible and safe AI, including safety by design
AI, careers, and learning	Understand AI's impact on careers and lifelong learning	Use AI for professional growth	Research AI trends and shape education and work with AI

Note: Partially Adapted from UNESCO's Draft AI Competency Framework and Digicom 2.2

Creating the conditions for the effective development and promotion of AI fluency will necessitate several institutional changes,

such as revisiting and expanding career plans, upskilling HE staff, adopting governance frameworks, ensuring access to critical infrastructure, and allocating resources. Stakeholders, ranging from policymakers to educators, must implement measures to foster beneficial deployments while mitigating risks. Failure to do so could exacerbate existing disparities, creating a dichotomy between those benefiting from generative AI's augmentative capabilities and those further marginalized by the disruption¹³. At the same time, achieving AI readiness at HEIs encompasses more than just equipping students with AI skills and fluency; it also involves ensuring that the institution is prepared to leverage AI effectively. Faculty training plays a pivotal role in this readiness, as educators need to grasp the technical aspects of AI and its im-

plications across disciplines. Guidelines must be developed to address ethical considerations, data privacy, and the responsible use of AI technologies within academic settings. Moreover, fostering a culture of innovation is crucial to harness the potential of AI in research, teaching, and administration. An AI-ready institution is proactive in integrating AI into its curriculum, research initiatives, and administrative processes, ultimately preparing students and faculty to thrive.

REFLECTION QUESTIONS ON STUDENT AND TEACHER AI FLUENCY

- How will the ability to learn programming or writing evolve or change with the advent of AI?
- How should we expand and rethink the definition of data literacy skills in an era where AI can quickly process and analyze large datasets? Will the focus shift from basic data manipulation to advanced interpretation of AI-generated insights?
- How can we refine our understanding and recognition of content and outputs to discern

¹³ Southworth, J., et al. (2023). Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy. *Computers and Education: Artificial Intelligence*, 4, 100127.

human versus machine knowledge production?

- How can we effectively distinguish between tasks and roles that can be easily automated or displaced and those that require intensive human involvement?
- As AI systems become more proficient at information retrieval and synthesis, how will research skills be taught? Will the focus shift from finding information to critically evaluating AI-generated content and crafting precise queries?

7. REFLECTIONS FOR GOVERNMENTS AND POLICY MAKERS

AI is a pressing issue for governments' skills agendas. As indicated in the UN AI Act, member states should encourage safe, secure, and trustworthy AI systems in an “inclusive and equitable manner, and for the benefit of all.”¹⁴ Governments play a particularly important role at the nexus of AI education, including policy making, developing pub-

¹⁴ United Nations (2024). Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development.

lic goods on AI, and implementing other system-level actions within the education sector.

The safe, responsible, and equitable use of AI hinges upon clear and fit-for-purpose policies, regulation, and guidance by governments. Countries have opted for different approaches to regulating AI, with risk-based and principles-based being the two most common approaches (See illustration 3). Risk-based approaches focus on categorizing AI systems and their uses based on possible risks to individuals, institutions, and communities. For instance, the EU’s AI Act, considered the foremost legislation on AI, categorizes AI risks based on four levels: unacceptable risk, high risk, limited risk, and minimal risk.¹⁵ On the other hand, principles-based approaches such as the UK’s AI framework, set core principles that should guide the development, deployment, and use of AI.¹⁶

¹⁵ European Parliament (2024). Artificial Intelligence Act

¹⁶ UK Department for Science, Innovation & Technology (2024). A pro-innovation approach to AI regulation: government response.

Common approaches to regulating AI

Risk-Based Approach
Regulating AI applications based on the level of risk they pose.
Example: EU AI Act.

Principles-Based Approach
Focusing on broad ethical principles such as fairness and equity. Example: UK AI Framework.

Illustration 3: Common approaches to regulating AI

While there are different approaches to AI policymaking for education, human centeredness should be a common thread. Policies should integrate and prioritize the views, opinions, interests, and safety of teachers, students, and the public. Importantly, beyond AI-specific policies, governments should ensure that other related policies are reviewed or revised to consider new technologies. For instance, existing policies on disability inclusion, gender equality, and even national curricula frameworks should all be reviewed in light of AI and its implications for education and society.

Beyond setting regulations, government programs, projects, and other-directed interventions can support the ethical mainstreaming of AI in education. These can include the following:

- **Public goods, such as information websites, to generate awareness on AI:** For instance, the government of Singapore has set up 'Learn with AI', a public awareness program to raise awareness of AI among teachers, students, and even parents.
- **Government education institutions and organizations:** Public HEIs enroll about two thirds of tertiary students globally. In these public in-

stitutions, governments can issue directives to underpin safe AI adoption and use. Additionally, government quality assurance mechanisms such as accreditation bodies, can also integrate AI-related metrics in their monitoring process and procedures.

The rapid advancement of AI disruption requires thorough discussions between governments and HEIs to understand and take action on AI's potential and implications. The table below provides AI government actions around five key areas: teaching and assessment, learning, equity and inclusion, data and governance, and labor market linkages. The table proposes quick wins, as well as long-term actions that may take more time. While recommendations are presented as distinct actions, it is important to note that AI in education requires a systemic and holistic approach. They must be driven by strong vision to support the responsible use of AI with humans at the core. This, in turn, will require dedicated resources: budget, clear roles for teams at national and regional levels, dedicated time for existing teams, performance targets (KPIs), and constant monitoring and evaluation.

Table 4: Government

actions on AI

DIMENSION	QUICK WINS	LONG-TERM ACTIONS
Teaching and assessment	<p>Conduct a consultation of teachers to assess AI use and awareness</p> <p>Develop cross-curricular capacities beyond specific disciplines</p>	<p>Offer national and regional training on AI and education for educators</p> <p>Allocate funding and resources to AI research and development (R&D)</p>
Learning	Organize a national essay or video contest on AI and education for students and teachers	Implement national program on AI for learning
Equity and inclusion	Consult key groups, (including persons with disabilities, women, etc.), on use, access and perceptions of AI in education	Ensure that AI policy emphasizes data privacy and security
Governance and data	Set AI KPIs in governance and management	<p>Integrate AI tools in governance and management (e.g. early warning systems)</p> <p>Allocate funds to open research institutes and observatories for evidence-based decision-making</p>
Skills and labor market linkages	Leverage AI tools for skills mapping and to update skills frameworks	Conduct analysis of AI's impact on jobs nationally, and reflect major changes in education curricula and policy

5 COMMON MISTAKES TO AVOID WHEN TACKLING AI IN EDUCATION

- Not investing in a culture of agility:** The right culture is essential to support both safe access and safe use of AI in education systems. Hence, equipping students to thrive in an AI-enabled world requires governments and ministries of education to promote experimentation, speed up processes, and take calculated and reasonable risks. Education systems are not always the most agile – but the speed of evolution of AI requires rapid actions.
- Ignoring incentives:** To support the safe and responsible adoption and use of AI, governments must provide the right incentives to education systems. For instance, ministry or public university officials can be rewarded or recognized for implementing AI guidelines or addressing the ethical challenges of AI within their institutions or departments. Likewise, innovation and technology related KPIs could be included in performance management mechanisms within ministries.
- Not connecting AI to other education priorities and initiatives:** Within education systems, the use of AI doesn't happen in a vacuum. To galvanize momentum, it is critical to connect AI policy and actions to broader issues in HE. For instance, governments may explore how AI can contribute to reducing dropout rates through early warning systems; or connect AI access to existing digitalization or internet access programs/projects.
- Outsourcing all AI interventions to Information Technology (IT) departments:** While AI is certainly a computer science topic, AI in education is not

just an IT issue. Therefore, the AI agenda should not be the sole responsibility of IT or computer departments within ministries of education. A whole-of-ministry approach is needed to truly address the risks and reap the benefits of AI in education.

Extreme responses: Following the release of generative AI tools such as ChatGPT, several institutions took extreme decisions: some school systems outrightly banned the tool, while others fully integrated the tool with limited guardrails.¹⁷ Governments and ministries of education should engage in a balanced approach that encourages experimentation but also establishes clear standards and guidelines to mitigate adverse consequences of AI on students, teachers, and school systems.

Governments and ministries of education should engage in a balanced approach that encourages experimentation but also establishes clear standards

¹⁷ Castillo, E. (2023). These Schools and Colleges Have Banned Chat GPT and Similar AI Tools.

Table 5: Reflection questions for governments and policymakers

DIMENSION	REFLECTION QUESTIONS FOR GOVERNMENTS AND POLICYMAKERS
Teaching and assessment	<p>How can the government integrate AI-related competencies into teacher training programs and professional development initiatives?</p> <p>How can the government involve educators in developing policies and guidelines for the appropriate use of AI in teaching and assessment?</p>
Learning	<p>What government initiatives can be undertaken to promote the responsible use of AI in learning among students?</p>
Equity and inclusion	<p>How can the government ensure that the integration of AI in education does not exacerbate existing inequalities?</p> <p>Are key education stakeholders aware of AI use and its risks and potential? Do they integrate AI in education planning, delivery, and assessment?</p>
Governance and data	<p>While waiting to develop or update an AI policy, what quick actions can our government take to raise awareness and provide guidelines for safe AI use?</p>
Skills and labor market linkages	<p>How can we engage the private sector, including startups and firms, to co-develop, iterate or customize AI for our local realities?</p> <p>What strategies can be implemented to align HE curricula with the skills and competencies required for AI-driven professions?</p>

8. REFLECTIONS FOR HEIS AND FACULTY

HEIs and faculty can play a vital role in preparing for an AI-enabled world, but for that, they too will have to evolve. The risks linked to inaction are significant. Universities and TVET institutions that adapt to AI will be more likely to attract students, stay relevant, and grow. Those who fail to change may become less relevant and potentially face disruption. As the findings above have demonstrated, there is great heterogeneity in uni-

versities' AI-readiness and actions. While many universities provided support and guidance on AI use, others were mute on the subject, creating a void that left professors to themselves, deciding often arbitrarily on whether to use AI. HEIs should define clear guidelines and priority actions to support the safe and responsible use of AI in education. The most appropriate AI actions for universities should depend on the current level of AI maturity, as demonstrated in the decision tree below.

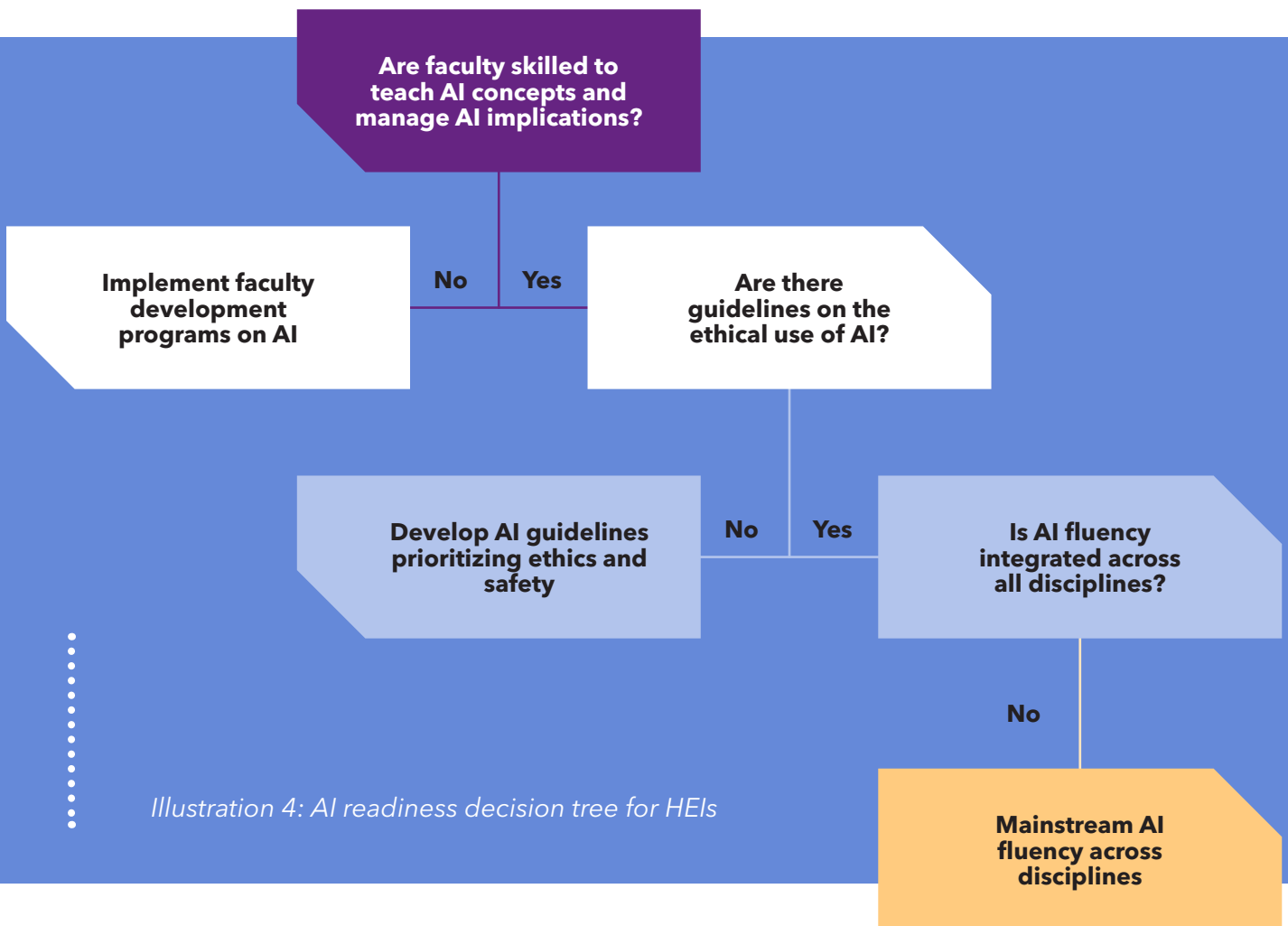


Illustration 4: AI readiness decision tree for HEIs

HEIs should rethink teaching and assessment in the light of AI. HEIs should consider the use of AI tools for teaching and provide faculty development opportunities in all dimensions of teaching, from lesson planning to assessment. Additionally, protocols should be implemented to identify and prevent bias in automated assessment tools. Different faculties may have varying levels of AI aptitudes and use - it is critical to conduct consultations/audits to identify current levels of AI use and aptitude, identify concerns, and create appropriate strategies. HEI's can leverage peer learning as a powerful tool to encourage the safe adoption of AI. Through collaborative sessions among faculty, early adopters can share concerns, views, and ideas based on their own experience. Faculty are the backbone of university systems. Faculty training can encompass several dimensions including: teaching with AI, teaching for an AI world, and contributing to AI research.

AI requires novel approaches to learning. As the FGD findings demonstrated, AI is already reshaping students' approaches to self-directed learning. In this context, HEIs should explore the use of AI to support personalized, adaptive, and interactive learning for students. HEIs can acquire, develop, or tailor AI tutors to guide students through concepts. Beyond using AI to learn, universities have a critical role to play in instilling the notion of life-long learning in students.

HEIs and faculty should urgently revisit labor market linkages in the light of AI. Universities should monitor employment trends and reflect these in program development, curricula, and assessments. This process requires investing in key transferable skills and socio-

emotional skills such as critical thinking, communication, collaboration, and problem-solving. Importantly, universities should provide courses on AI-related fields and support students to join these emerging areas. Additionally, universities can also generate revenues by supporting workforce development efforts of firms and industry.

HEIs should rethink governance and data for the age of AI. HEIs should urgently establish clear guidelines for staff, students, and the university community on the use of AI in education. While guidelines would depend on a specific context of HEIs, the following key components should be considered: (i) Ethics and responsible use; (ii) Data privacy and security; (iii) Academic integrity; (iv) Inclusion; (v) AI and curriculum development. In addition to policy, universities should explore the use of AI to support or automate administrative tasks. For example, AI solutions can automate early warning systems and identify students at risk of dropping out.

HEIs should consider the use of AI tools for teaching and provide faculty development opportunities in all dimensions of teaching

Infrastructure access for AI should be prioritized. There can be no responsible adoption of AI without robust infrastructure. Universities should prioritize equitable access to internet and devices for both staff and students. Universities should implement strong cybersecurity measures to protect sensitive data and prevent unauthorized access to AI systems. Furthermore, implementing a “Sovereign AI” policy, as defined by Nvidia’s CEO Jensen Huang, where each country owns and controls the production of its own AI infrastructure, would allow countries to protect their cultural values and ensure data sovereignty.¹⁸

Ethics and inclusion implications should be at the top of the AI agenda. Universities should ensure AI benefits all students equitably. Universities should also leverage AI to support inclusion and non-discrimination. For instance, AI-powered solutions can automate transcription and conversion of text to speech for learners with disabilities. Additionally, AI can empower diverse faculty, for instance, empowering lecturers with disabilities to create content, conduct instruction, and assess students’ work. AI can also conduct analyses to identify disparities in access and outcomes and inform remedial actions. Existing gaps in access to devices or internet necessary for AI use should be identified and addressed.

¹⁸ Edwards, B. (2024). Nvidia CEO calls for “Sovereign AI” as his firm overtakes Amazon in market value.

Table 4: AI interventions to consider for HEIs

DIMENSION	EXAMPLES OF INTERVENTIONS
Teaching	Equip faculty to teach with AI, teach for an AI world, contribute to AI education, and foster the lifelong learning. Experiment with various tools for instruction and assessment and implement guardrails for inclusive and non-discriminative use.
Learning	Experiment with the use of AI for personalized and interactive learning.
Inclusion and ethics	Implement measures to ensure fairness, non-discrimination, and inclusive use of AI in education. Ensure that AI solutions are explainable and transparent.
Governance and management	Develop AI guidelines for the safe and responsible use of AI. Explore the use of AI to automate administrative tasks.
Skills and labor market linkages	Strengthen linkages with industry to support AI skills, enhance teaching relevance, and develop new models of work-based learning Help upskill and reskill workers for an AI world. Re-imagine career services for the age of AI and ensure that students develop socio-emotional skills.



The integration of generative AI in HEIs offers a unique opportunity to bridge disciplines and foster innovation. Rather than homogenizing academic fields, this integration requires a balanced approach that leverages the strengths of diverse academic disciplines. Humanities and social sciences can provide critical perspectives on the ethical and societal implications of AI, while STEM fields can drive technical advancements. This interdisciplinary synergy not only enhances the academic landscape but also prepares students for an evolving job market where AI literacy and human-centric skills are increasingly valued. As institutions adapt to this technological shift, maintaining disciplinary diversity will be key to developing well-rounded graduates capable of navigating and shaping the AI-augmented future of work and society.

REFLECTION QUESTIONS FOR HEIS

- How should HE approaches evolve in an age where machines think?
- How might faculty foster critical thinking and independence in the age of AI?
- What strategies can HEIs implement to ensure equitable access to AI tools for all students and faculty?
- How should HEIs redesign curricula and assessments to account for AI's impact on learning and skill development?
- How can institutions leverage AI to improve personalized and adaptive learning experiences without compromising human interaction?

9. FINAL REFLECTIONS

The report has highlighted key developments in artificial intelligence that necessitate immediate action and response. Given the rapid development of digital technologies, it is vital for HE systems to monitor AI emerging themes and trends frontiers closely.

The integration of AI in HE presents a complex landscape of opportunities and challenges that demand thoughtful consideration and proactive strategies. As AI tools become increasingly prevalent in academic settings, students are already experiencing their impact. As a Colombian student noted, they use AI for “comparing the results [they] get by solving problems [themselves] with the results of AI tools.” This highlights the potential for AI to enhance learning experiences. However, concerns about over-reliance persist, with a Cameroonian student expressing “skepticism about relying solely on AI for answers,” fearing impacts on critical thinking. Thus, HEIs face the delicate task of leveraging these technologies to enhance learning experiences while addressing valid concerns about over-reliance and the potential erosion of critical thinking skills. The development of comprehensive AI fluency among both students and faculty has emerged as a crucial imperative, encompassing not just technical proficiency but also ethical assessment and critical evaluation of AI’s societal impacts. HEIs must foster an environment where AI is seen not as a replacement for human intellect, but as a powerful tool to augment learning, research, and innovation. This requires a shift in pedagogical approaches, curriculum design, and institutional pol-

icies to ensure that AI integration aligns with educational goals and ethical standards.

Governments and policymakers stand at the forefront of shaping the responsible integration of AI in education. Their role is crucial in addressing the disparities in AI access and readiness observed across different regions. As a Georgian student remarked that some AI tools “required payment, potentially hindering access for students with financial constraints.” Policymakers must work to ensure equitable access to AI resources and align HE curricula with evolving labor market needs. This is particularly important given the concerns raised by students about job displacement, as exemplified by Ethiopian software developers worrying about “losing job opportunities to AI” as advanced models increasingly automate coding tasks. This alignment requires ongoing collaboration between academia, industry, and government to identify emerging skills gaps and develop responsive educational programs. Public initiatives such as Singapore’s ‘Learn with AI’ program can potentially generate awareness, demystify AI, address concerns about potential job displacement, and prepare society for AI’s impacts.

HEIs face an urgent imperative to adapt to the AI-enabled world. This adaptation requires a fundamental rethinking of core educational practices and structures. Students are already envisioning significant changes, with Rwandan students expecting AI to “disrupt the traditional school system by revolutionizing how education is accessed and delivered.” Institutions

must respond to students' needs for AI-relevant skills, addressing concerns like those expressed by Cameroonian students who felt ill-equipped due to "lack of focused curricula covering computational thinking [and] algorithm design." Faculty development programs are crucial, equipping educators not only to teach with AI tools but also to prepare students for an AI-dominated workforce. Clear institutional guidelines for AI use must be established, addressing issues of academic integrity, data privacy, and ethical considerations. Leveraging AI for administrative efficiency, such as automating early warning systems for at-risk students, can free up resources for more impactful educational initiatives. However, as institutions embrace these technologies, they must be vigilant in addressing infrastructure disparities. Ensuring equitable access to AI tools, high-speed internet, and necessary hardware is essential to prevent the exacerbation of existing educational inequalities. This may require targeted investments in digital infrastructure and support systems, particularly for students from disadvantaged backgrounds.

The ethical implications of AI in education are profound and multifaceted, demanding prioritization at every level of implementation. Students across regions have raised important ethical concerns. An Indonesian art student condemned "people who use AI 100% and then claim it as their job," highlighting issues of authenticity and attribution in creative fields. Nigerian students worried about "the temptation to become overly dependent on AI for generating academic content rather than thinking critically." Institutions must address

these concerns while leveraging AI's potential to support inclusivity. As an Ethiopian economics student shared, AI can help in "summarizing and making articles more understandable from paywalled and complex resources," potentially democratizing access to knowledge. Supporting inclusivity goes beyond surface-level considerations to address deep-seated biases that may be embedded in AI algorithms or training data. Robust data privacy and security measures are essential, particularly given the sensitive nature of student information. Fostering interdisciplinary collaboration is crucial in navigating these complex issues, ensuring that the integration of AI in education considers not just technical proficiency but also societal impacts and ethical considerations.

Looking to the future, the HE landscape will continue to evolve rapidly in response to AI advancements, requiring institutions to remain agile and forward-thinking. Students are already anticipating significant changes, with Ethiopian participants foreseeing AI

Ensuring equitable access to AI tools, high-speed internet, and necessary hardware is essential to prevent the exacerbation of existing educational inequalities.

democratizing “accessibility to information and knowledge resources that were previously difficult to obtain.” However, they also warned about risks of “exacerbating socioeconomic inequalities if digital disparities persist.” The intersection of AI with other emerging technologies promises to create new fields of study and career paths. As a Colombian student noted, there’s growing interest in roles like “training AI tools to describe images,” indicating the emergence of new AI-related careers. In fact, the intersection of AI with other emerging technologies, such as virtual and augmented reality, biotechnology, and quantum computing, promises to create entirely new fields of study and career paths. HEIs must be prepared to adapt quickly, develop-

ing new programs and pedagogical approaches to address these emerging areas. As an Indonesian journalism student highlighted, there’s “potential for utilizing AI to efficiently generate text from news reports,” suggesting the need for curricula that prepare students for AI-augmented professional practices. Cultivating transferable skills like critical thinking, creativity, emotional intelligence, and adaptability becomes even more crucial in this rapidly changing landscape. The concept of lifelong learning must be deeply embedded in educational philosophies, preparing students for careers that may require continuous reskilling and upskilling. As labor markets undergo AI-driven transformations, HEIs must forge stronger partnerships with industry, government, and civil society to anticipate future skills needs and develop responsive educational models. Ultimately, the successful integration of AI in education will depend on a collaborative, ethical, and human-centered approach that harnesses the technology’s potential while addressing the concerns and aspirations voiced by students across diverse global contexts.

**Ultimately,
the successful
integration of
AI in education
will depend on
a collaborative,
ethical, and human-
centered approach**

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ANNEX 1 :

AI BENEFITS AND RISKS

DIMENSION	AI BENEFITS	AI RISKS	POLICY RECOMMENDATIONS FOR AI IN EDUCATION
Curriculum development (knowledge/ skill)	AI-powered labor market-insights can improve course design. AI can help generate lesson plans and creative visual content	AI-generated curricular content may be biased, inaccurate or sexist (or low quality) Over-reliance on AI may inhibit curriculum experts' agency.	-Implement guidelines and standards for AI content quality assurance to mitigate biases and inaccuracies. -Encourage diversity and inclusion in AI development teams to ensure balanced perspectives. -Establish mechanisms for curriculum external experts to provide oversight and validation of AI-generated content.
Instruction and Assessment (pedagogy/applying knowledge)	AI-powered adaptive learning tools provide personalized learning. Automated grading and feedback relieves burden of instructors	Excessive use of AI may de-humanize teaching experience. AI-assessment tools may amplify biases	-Develop policies to ensure the responsible integration of AI in teaching and assessment practices, balancing automation with human interaction. -Implement bias detection and mitigation protocols in AI-assessment tools. -Provide training and support for educators to understand and address the implications of AI in pedagogy.
Learner Agency and Independence (formal/informal learning)	AI can support self-directed learning, e.g. AI personal tutors	Over-dependence on AI may limit students' critical thinking	-Foster policies that promote a balanced approach to AI integration, empowering learners while emphasizing the importance of critical thinking skills. -Establish guidelines for AI usage in education that encourage learner autonomy and independence. -Invest in initiatives to bridge the digital divide and ensure equitable access to AI-enabled resources for all learners.
Inclusion	AI-powered automatic captioning benefits learners with disabilities Creation (or adaptation) of contents into minority languages	AI may perpetuate bias Digital divide may become an AI divide Women and other underserved groups may be left behind	-Enact policies to address bias in AI algorithms and promote diversity in AI development teams. -Implement measures to mitigate the digital divide and ensure equitable access to AI technologies. -Support initiatives that promote inclusivity and diversity in AI research, development, and deployment.
Administration, Governance, and Policy	Automate early warning systems Speed up data processing and analysis for decision making Effective guidance and regulation on AI can better prepare the community	AI raises privacy concerns Bad actors may use AI to cause harm Lack of guidance and support may leave students in a weak position	-Establish comprehensive policies and regulations for AI governance, emphasizing data privacy and security. -Strengthen enforcement mechanisms to prevent misuse of AI technologies and address potential harms. -Provide guidance and support for educational institutions to navigate ethical and legal implications of AI adoption. -Ensure transparency and accountability in AI-related decision-making processes.

ANNEX 2:

DATA ANALYSIS PROCESS FOLLOWED FOR FOCUS GROUP DISCUSSIONS

The data collection and analysis process involved several steps leveraging both human expertise and AI tools. During the focus groups, facilitators took notes organized around the predetermined research themes, while also allowing for an open-ended approach. After completing the discussions, the full notes were structured into the main themes of access/use of AI, new skills/ways of learning, career opportunities, and education readiness. The voice recordings were transcribed using the AI speech-to-text tool Rev.ai to enrich the facilitator notes. For focus groups conducted in other languages, the notes were translated into English using ChatGPT. The translated notes were then input into Claude.ai to systematically structure the information and generate draft country reports following the research themes. This AI-assisted process allowed the team to efficiently analyze the qualitative data across multiple countries. Finally, the researchers conducted a transversal analysis synthesizing the key findings that cut across the individual country reports.

The data obtained from focus group discussions provided rich information for further analysis, but, at the same time, generated an enormous amount of information, as generally happens with qualitative research, especially with methods such as focus groups. The research team selected the information considered more relevant to this study, avoiding being “over-selective, unrepresentative, and unfair to the situation in hand in the choice of data and the interpreta-

tion placed on them”.¹⁹ In general, the research team used data reduction techniques at an early stage of data gathering and continued with this approach until this research was finalized to avoid making data analysis an endless process.

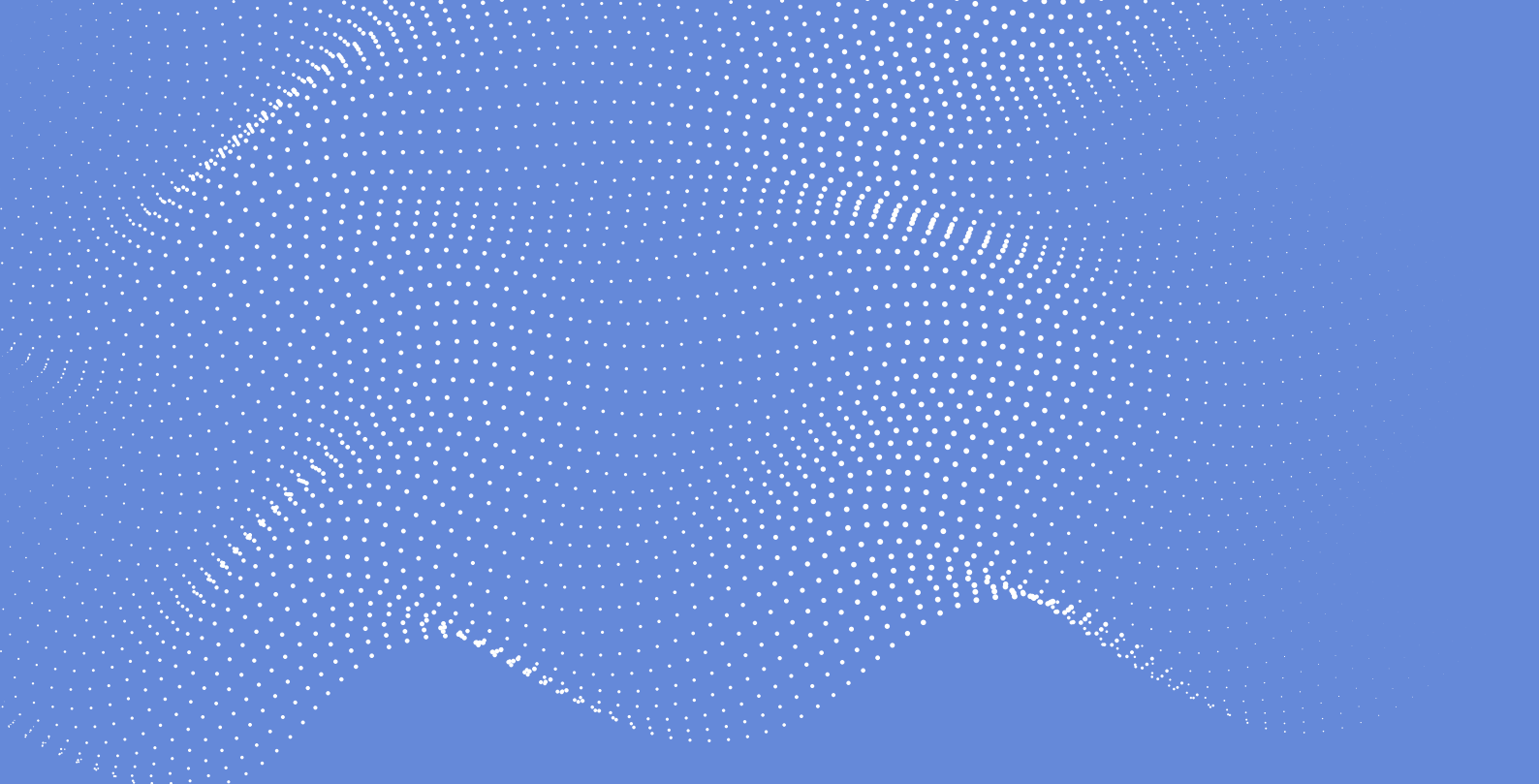
LIMITATIONS OF STUDY

This research initiative aims to provide rich descriptions of students’ experiences with AI in higher education to have a broader understanding of the impact of these technologies. This study does not take the prescriptive role of offering solutions that can be later ‘generalized’ to a larger population. This is not to say that the results will only apply to the initial study context; in fact, findings from the context in which this research is based can be ‘transferrable’ to other contexts that are congruent with the context of the present case study.²⁰

¹⁹ Cohen, L., Manion, L., & Morrison, K. (2011a). *Approaches to qualitative data analysis. In Research methods in education* (7th ed., pp. 559-573). London, England: Routledge.

²⁰ Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. London: SAGE Publications.





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