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Prophets of progress: How do leading global agencies naturalize enchanted determinism surrounding artificial intelligence for education?

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Abstract

The hype surrounding AI for education continues with no sign of dying down in the near term. Given the influence of UNESCO and OECD on national educational policies worldwide, this study examined how they frame artificial intelligence (AI) and how their discourse may affect the wider educational landscape. Drawing upon the theory of Critical Discourse Analysis, this study adopted a two-stage analysis method: framework analysis followed by directed qualitative content analysis. Four themes were identified, including the necessity of AI-driven educational transformation, imagined educational futures enabled by AI, challenges brought about by AI for education, and solutions and walkthroughs. They were critiqued using the schema of practical argument proposed for political discourse analysis which is composed of a Value premise, a Goal premise, a Circumstantial premise, a Means–Goal premise and a Claim (or conclusion). Findings show that while admitting the existence of enormous uncertainties and challenges, UNESCO and OECD take for granted AI's disruptiveness, inevitability, and potential to change education, its effect on the whole society for the better and its encouragement of the acceleration of AI for education. Possible ramifications of this framing on the ecology of education and beyond were then discussed. The article concludes by calling for a vigilant and critical approach to the AI narratives promoted by influential global agencies, arguing that the future of education depends on our ability to question, adapt and thoughtfully integrate technology without succumbing to unexamined inevitabilities or unwarranted optimism.

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Introduction

The attempt to use artificial intelligence (AI) to transform education for the better can be traced back to 1970 when Jaime R. Carbonell published an article reporting on a tutor and authoring system for geography (du Boulay, 2023). AI has been increasingly popular ever since with many applications normalized in various aspects of education, in particular higher education.

This field has gained momentum since the turn of the century, but the release of ChatGPT by OpenAI in November 2022 has brought AI for education to the forefront, making it a hot topic in higher education academia (for example, see Rudolph et al., 2023a), media and policy discourse. Predictions of AI's destruction of higher education appeared almost immediately, with claims such as "the college essay is dead" (Marche, 2022) emerging just one week after the release of ChatGPT. However, many of the promises of AI, ChatGPT in particular, for higher education (Bond et al., 2024; Bozkurt et al., 2024; Zawacki-Richter et al., 2024), have been made repeatedly since the early days of AI (Popenici, 2023a). Despite its ambitious and well-intentioned goals of understanding, developing and disseminating best learning and teaching practices (Porayska-Pomsta, 2023) and its increasing integration into education, there is no decisive evidence proving AI's benefits in education (Holmes & Tuomi, 2022). Public concern about AI is growing (Yan et al., 2024), including aggravating an identity crisis in higher education (Popenici et al., 2023). AI is still not fully understood, requiring more rigorous, longitudinal, large-scale studies (Bozkurt et al., 2024). Many practical challenges remain, and a consensus on the mission of education has yet to be reached.

Surprisingly, even against this highly contested and controversial backdrop, there is widespread enchanted determinism surrounding AI for (higher) education not only in journals and books but also in policies and on social media (Williamson, 2024). Enchanted determinism refers to the perception of AI systems as both magical and superhuman, and reliable for life-changing decisions, albeit beyond understanding and regulation (Campolo & Crawford, 2020). This techno-optimism significantly influences the collective understanding of societies worldwide (Markelius et al., 2024), with discourses promoting the transformative capabilities of AI often overshadowing important debates about its potential negative impacts on education (Williamson et al., 2024). For example, "mainstream" discourses often downplay new challenges and massive disruption brought by AI to universities and even deliberately ignore how AI may lead to ethical consequences as well as have impact on teachers, students, and the future of learning (Popenici, 2023b). In this regard, the role of leading global agencies is critical as they have a strong influence on national policies and strategies and shape the development of AI for education, including the creation of imaginations, resource allocation and the enforcement of rules (Bareis & Katzenbach, 2022).

Both generic and generative AI are already reshaping not only education in general but also the way higher education institutions (HEIs) approach teaching, learning, and research, from automated assessment tools to novel forms

of scholarly communication (Bond et al., 2024; Bozkurt et al., 2023, 2024; Rudolph et al., 2023a, 2023b). However, given that not all HEIs are fully prepared (Bearman et al., 2023) to adopt such technologies (Popenici et al., 2023), what appears to be a beneficial global drive toward modernization can also accelerate a market-driven logic in higher education, with generative AI initiatives taking precedence over core academic values such as intellectual diversity, humanistic inquiry, and contextual responsiveness.

Based on aforementioned considerations, this study examines how the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Cooperation and Development (OECD) frame AI for education. It explores how these global institutions use rhetoric to define and legitimize the role of AI in the future of education. A critical analysis of their discourses can reveal why AI is framed in certain ways and how this framing affects the wider educational landscape, including the higher education sector.

The study focuses on UNESCO and OECD in that the former is "the leading UN agency for education" (UNESCO, 2024) and the latter, despite its focus on the economy, plays a significant role in shaping the ecology of national education across the globe at policy level (Hasa, 2023; Lingard et al., 2015; Teräs et al., 2023). Other agencies, for example, the World Bank are excluded in this study either because no document published by them is found to meet the inclusion criteria (Figure 1 below), or because they target specific countries rather than globally, for example, the European Union and the Commonwealth of Learning. Unlike Linderöth et al. (2024), this study distinguishes between global and international organizations.

It should be also noted that we distinguish "AI for education" from "AI in Education (AIED)". AIED refers to using AI to improve pedagogical and administrative processes in educational institutions while AI for education as used in this article is intended to cover both AIED and AI itself as the teaching and learning content.

This study aims to address the following research questions:

1. How is AI for education framed by UNESCO and OECD?
2. Why is AI for education framed the way it is by UNESCO and OECD?
3. What possible impacts does this framing have on the ecology of education and even beyond?

Theoretical framework

This study is underpinned by Fairclough's (2013) theory of Critical Discourse Analysis (CDA), which emphasizes the importance of language in social analysis and research as it is intertwined with political, economic, and social elements. Fairclough (1989; 1992) posits that language and social variables shape and are shaped by each other.

CDA, in this study, aims to uncover how publications like policy documents and reports create problems and solutions (Clark, 2024). The UNESCO and OECD publications critiqued in this study are considered political discourse. Therefore, it is essential to examine how “political actors advance practical arguments for or against particular courses of action which include as reasons descriptions and evaluations of existing states of affairs ... and problematizations that posit ‘difficulties’ as effects or consequences of ‘problems’” (Fairclough, 2013, p. 194). This includes how they critically question practical arguments by evaluating the advocated courses of action and their possible or likely consequences (Fairclough, 2013). Lakoff and Johnson (1980) also assert that our concepts influence our perceptions and interactions.

Therefore, it is crucial to challenge AI assumptions in these publications to prevent them from becoming common sense, which would shape our use of AI in education and redefine its purpose (Fairclough, 1992). Texts influence “people (beliefs, attitudes, etc.), actions, social relations, and the material world” (Fairclough, 2003, p. 8), and CDA explores how texts impact ideologies and social power dynamics (Fairclough, 2003). Accordingly, Eynon and Young (2021) describe AI as a complex sociotechnical artifact shaped by social processes. CDA can reveal how AI-driven educational futures envisioned by UNESCO and OECD establish social visions and values, serving as models for desirable social orders (Marone & Heinsfeld, 2023).

Methodology

In order to answer the research questions, a systematic literature review was conducted in the context of this study (Gough et al., 2012). Content analysis can be described as a methodical and reproducible methodology for distilling extensive textual data into concise content categories, adhering to clearly defined coding principles (Berelson, 1952). In this regard, the documents included in the research corpus were coded and prominent research themes were identified. Direct quotations from the documents were frequently included to support the emerging themes and to allow readers to make their own interpretations.

Sample selection

In January 2024, a sample search was conducted on the websites of UNESCO Digital Library (<https://unesdoc.unesco.org/home>) and OECD iLibrary (<https://www.oecd-ilibrary.org/>), with the search terms “AI and education” and “artificial intelligence and education”. The publication year was limited to 2000-2023. Search results were then scrutinized using the inclusion and exclusion criteria (Figure 1).

The OECD search returned 14 results for “AI and education” and 4 for “artificial intelligence and education,” with two duplicates, resulting in 16 documents, all in English. The UNESCO search, limited to “programme and meeting documents” and “books” in English, excluding irrelevant content (e.g., forms, directories, biographies, and the like), returned 1963 records for “AI and education” and 1045 for “artificial intelligence and education.” After merging and

Inclusion	Exclusion
1. The document is prepared by UNESCO or OECD or by individuals affiliated to or commissioned by UNESCO or OECD.	1. The document is not prepared by UNESCO or OECD or by individuals affiliated to or commissioned by UNESCO or OECD.
2. Authorship belongs to UNESCO or OECD.	2. Authorship belongs to individuals instead of the organization.
3. The document is published by UNESCO or OECD.	3. The document is not published by UNESCO or OECD.
4. The target audience of the document is global.	4. The target audience of the document is not global.
5. AI is the theme or one of the key themes of the document.	5. AI is not the theme or one of the key themes of the document.
6. Education is the theme or one of the key themes of the document.	6. Education is not the theme or one of the key themes of the document.
7. The document is written in English.	7. The document is written in languages other than English.

Figure 1. Inclusion and exclusion criteria.

removing 501 duplicates, 2507 records remained.

Concerning authorship, we included OECD documents stating, “this work is published under the responsibility of the Secretary-General of the OECD” and excluded those stating, “the opinions expressed and arguments employed herein are those of the author(s).” As for UNESCO documents, only those without individual authors listed on the copyright page were included due to the disclaimer on the copyright page that “the ideas and opinions expressed in this publication are those of the authors; they are not necessarily those of UNESCO and do not commit the Organization”. It is because of this understanding that two of the five documents included in Glais (2023) are excluded from this study. The only exception is “Reflections on generative AI and the future of education” by Stefania Giannini, which reflects the official views of UNESCO. The final sample includes 4 OECD documents (OECD, 2021, 2023a, b; OECD-Education International, 2023) and 14 UNESCO documents (Giannini, 2023; UNESCO, 2019a, b, c, d, e, f, 2020, 2022a, b, c, d, 2023; UNESCO IITE & SOU, 2022) (see Figure 2).

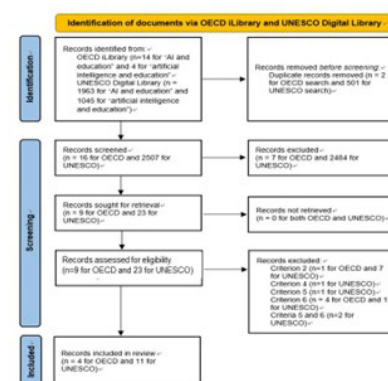


Figure 2. PRISMA flow diagram.

Sample analysis

Sample analysis was conducted in two stages. The first stage followed the method of framework analysis (Srivastava & Thomson, 2009). Two UNESCO and one OECD documents were randomly selected for this purpose. The first author and his associate each read these documents and hand searched for contents concerning AI for education, with the first research question in mind. They noted down emerging themes independently, compared their checklists, and resolved differences through negotiation. Consequently,

following the coding process, a thematic framework was developed, consisting of four themes (see Figure 3). The second stage adopted the method of directed qualitative content analysis (Hsieh & Shannon, 2005), using the developed thematic framework. Both coders hand-searched for and appraised the contents of the remaining 15 documents critically, as many times as necessary. Specific extracts pertaining to particular themes were collated in Excel spreadsheets for their respective themes. The formal coding results were then compared, and each theme was divided into subthemes (see Figure 3). In the case of disagreement, the two coders re-read and discussed contentious extracts and even longer texts in order to reach consensus.

To minimize potential researcher bias and enhance coding reliability and validity, the second author conducted another independent content analysis of all the 18 documents using the same thematic framework. His coding results were compared with the first two coders' results. Disagreements were then resolved through discussion with the first author.



Figure 3. Themes and subthemes.

Findings: Thematic narratives of AI for education

Theme 1: Necessity of AI-driven educational transformation

As can be seen in Figure 4, skills development for job and life and affordances of AI for education are two main reasons for AI-driven educational transformation. Given the growing impact of AI on work and life and consequently on the future of humanity, AI has the “potential for reshaping the core foundations of education, teaching and learning” (UNESCO, 2019a, p. 3). Therefore, there is a need to reframe “what it means to be human and its implications for learning” and to redefine “what we understand by learning to be, learning to know, learning to do and learning to live together” (UNESCO, 2022b, p. 5). Education systems will need to be reshaped in ways that prepare graduates for the future job

market and foster an AI-literate citizenry. Skills development for job and life is a goal not only for initial education but also for continuous upskilling and reskilling. An internationally competitive AI-capable workforce is essential to a nation’s competitiveness, productivity, and innovation.

Then, what are the affordances of AI for transforming education? AI can contribute to “the reform of education governance systems, the upgrading of schools, the iteration of teaching methods, and the improvement of talent cultivation methods through new technologies” (UNESCO, 2022b, 38). “In its most advanced form, AI itself becomes the mechanism that delivers learning” (UNESCO, 2019f, p. 7).

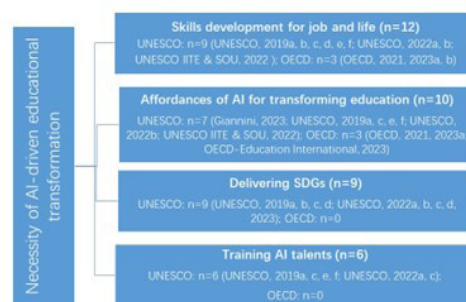


Figure 4. An overview of Theme 1: Necessity of AI-driven educational transformation.

Another two subthemes are delivering the United Nations Sustainable Development Goals (SDGs), in particular SDG4 and training AI talents. AI-enabled education can facilitate the achievement of the SDGs. When it comes to SDG4, digital AI can tide the world over “an education crisis, with more than 200 million children globally out of school” (UNESCO, 2019b, p. 46) by offering new ways to overcome barriers to the achievement of the Education 2030 Agenda. As for cultivating AI talents due to the need for skills development for job and life, AI courses and research programs need to be developed or enhanced to “create a massive pool of local AI professionals who have the expertise to design, programme and develop AI systems” (UNESCO, 2019a, p. 6).

Theme 2: Imagined educational futures enabled by AI

Personalized and adaptive learning, automated educational processes, and open, flexible, and inclusive education constitute three major elements of the imagined educational futures enabled by AI (see Figure 5). AI enables intelligent tutoring and turns large-scale personalized and adaptive learning into a reality. AI systems can “monitor learning processes, predict failure and attrition, enhance education management, assess lifelong learning outcomes, and diagnose major problems in learning systems” (UNESCO, 2022b, p. 26), and even analyze “government priorities, funding opportunities and employment advertisements” (UNESCO, 2019b, p. 9) so that educational systems can cater for market needs. AI-enabled automation also covers such areas as grading and recordkeeping, admissions and school allocations, proctoring, credentialing, customer relationship

management, and resource allocation and planning. In addition to personalization and automation, AI can promote open and flexible education and provide quality education, especially for the disadvantaged learners, “making education management and provision more equitable, inclusive, open and personalized” (UNESCO, 2019a, p. 5).

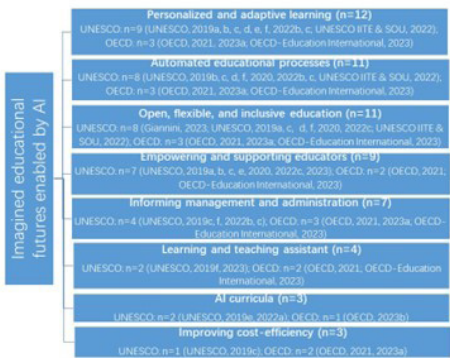


Figure 5. An overview of Theme 2: Imagined educational futures enabled by AI.

Empowering and supporting educators is another major aspect of Theme 2. Automating routine and administrative tasks such as grading and recordkeeping “could free up a teacher’s time, allowing them to focus on the more creative, empathetic and inspirational aspects of their profession” (UNESCO, 2019b, p. 8). Furthermore, AI tools can be designed to enhance teachers’ subject knowledge and understanding of teaching methodologies. For example, using AI to monitor asynchronous online discussion enables teachers to keep abreast of learners’ performance and orchestrate learning activities accordingly. With AI, teachers can evaluate the multiple dimensions of students’ competencies and implement large-scale and remote assessment. Classroom analytics gives teachers feedback about their teaching in real time or after class, supporting “a shift in pedagogical models” (OECD-Education International, 2023, p. 4) by enabling the design and delivery of instruction in ways that were not possible in the past.

Another element of the imagined educational futures is using AI technology to access information which can then be used to inform management and administration, for example, “developing feasible and cost-effective plans, formulating responsive policies, and monitoring and evaluating educational outcomes” (UNESCO, 2019c, p. 15). Such information can also contribute to the development and sharing of best practices in curriculum design, policy, and pedagogy and the development of curricula aligning with job market demand as well as improve course management, facilitate learning material redesign, and assist in administrative work such as budgeting, procurement and facilities management.

Chatbot, virtual facilitator, simulator, and social robot can serve as student’s learning and teaching assistant, for example, as a one-on-one coach for self-paced learning, a partner in Socratic dialogues, an instructor or tutor for individuals or small groups, or “peer learners allowing students to ‘teach’ them” (OECD, 2021, p. 15). And given the pervasiveness of AI in all aspects of society, teaching

students to make effective use of AI technologies becomes a focus of education, hence the need for AI curricula. Five types of AI curricula (i.e. discrete, embedded, interdisciplinary, multiple-modality, and flexible) are spelt out in UNESCO (2022a). Finally, it is proclaimed that AI can improve the cost-efficiency of educational systems, especially through automation.

Theme 3: Challenges brought about by AI for education

Challenges co-exist with opportunities/affordances. Challenges related to ethics and investment are two major elements of Theme 3 (see Figure 6). Ethical challenges cover a wide range of issues. First, AI may exacerbate inequalities because the disadvantaged are less likely to benefit from AI-enabled education or due to “the widening divide in training and controlling GenAI models” (UNESCO, 2023, p. 14). Weakening human connection is another challenge, resulting in social isolation. A third challenge is concerning human intellectual development. AI tools may jeopardize learners’ autonomy and agency by predetermining solutions or limiting the range of learning options, hence privileging particular worldviews and reflecting particular ways of cognition. This homogenization tendency is detrimental to pluralistic and creative thinking. Psychological impact is a fourth challenge. Psychologically speaking, the impact of human-like AI tools on learners’ cognitive development and emotional well-being remains unknown, not to mention the potential for manipulation. Another challenge relates to hidden bias and discrimination. Bias exists in training data, input and algorithms which, in turn, may produce new forms of bias and discrimination. Bias can even lead to violence, hate speech and exclusion. In addition, data collection, use, ownership, and privacy may pose challenges, too. Dehumanization or the loss of human agency is also a challenge. AI tools can deprofessionalize education by dehumanizing learning and undervaluing teachers although education is a human enterprise. Finally, added to the above challenges are those caused by private governance which tends to amplify risks of information security, human rights, privacy, and public accountability and further complicates issues related to data ownership and exploitation. Challenges in all the above-mentioned areas have ethical consequences if inadequately addressed.

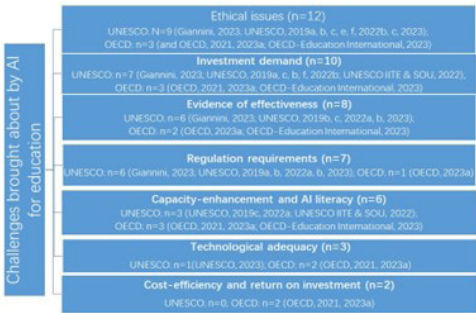


Figure 6. An overview of Theme 3: Challenges brought about by AI for education.

Similarly, it is obvious that the necessary infrastructure and financial resources required to install relevant facilities and provide relevant services are not equally available everywhere. Costs are rocketing and may turn out to be unaffordable especially for less developed countries and regions, with an increase in the power of technology. On the other hand, we should tackle the dilemma of investment choices. Investment in AI technologies could be spent on teacher development and improving schools and other physical and social infrastructure that can better benefit learners. In a word, investment demand is a major challenge. Another significant challenge is lack of evidence of effectiveness. More research is needed to find out to what extent AI applications have delivered their promises to serve the common good effectively. To date, solid evidence of their effectiveness remains scarce.

AI for education poses a variety of challenges. AI tools may trigger legal issues, for example, copyright and intellectual property, data collection, ownership and privacy, information security, human rights, and accountability, among other things. AI technologies are being integrated into education without being screened or regulated, a situation which may lead to more potential harms than benefits. AI curricula also need regulating to balance competing interests. Another type of challenges relates to educators' capacity-enhancement and AI literacy. This is a prerequisite to the effectiveness of AI for education. Educators must be properly prepared for the use of AI for education so that AI curricula can be effectively implemented. Furthermore, they must be equipped with the digital competences necessary for AI-enabled education and the pedagogical competences to use AI tools and resources in their teaching.

The remaining two challenges are less emphasized. One is technological adequacy. AI technology for education has yet to be perfected. For instance, the foundation models require refining to ensure that they can support student-centered pedagogy. Further, AI tools do not perform their tasks with accuracy all the time. The other is cost-efficiency and return on investment. AI for education has not delivered on its promise of cost-efficiency as argued in two OECD documents. For example, there are situations when AI technologies, though available, are not (effectively or adequately) used by education stakeholders, hence no cost-efficiency to speak of. Lack of interoperability of the AI ecosystem may lead to cost-inefficiencies too. Last but not least, AI deployment is not a one-off investment; AI systems need to be regularly updated and maintained, which has significant implications for costs.

Theme 4: Solutions and walkthroughs

Regulation and governance top the solutions to the challenges of AI for education (see Figure 7). Measures proposed include formulating data protection laws and regulatory frameworks, adjusting existing ones, setting international standards, and developing policies and strategies to ensure that the ethical, equitable, transparent and auditable use of learners' data and the responsible development and application of AI for education. In addition, AI curricula need to be developed under the supervision of

government and public procurement must be effectively leveraged so that commercial AI businesses have to follow designated guidelines. Regulation and governance should also extend to issues concerning "transparency, openness and replicability of algorithms, as well as funding and support for the verification of the design and the final results of algorithms by independent parties" (OECD, 2021, p. 36).

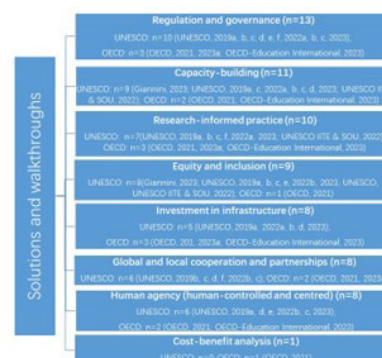


Figure 7. An overview of Theme 4: Solutions and walkthroughs.

Two other important solutions are related to capacity-building and research. Capacity-building is key to the success of AI for education and must be treated as a priority. Capacity-building programmes should be developed for educators, education policymakers and researchers as well as management of educational institutions, officials of ministries of education, and business representatives. As for research, more attention should be paid to such issues as AI ethics, data privacy and security, divide and disparities in AI development, human rights, and gender equality. School-wide pilot tests are called for to scale up research-informed, evidence-based practices. AI tools should not be put to large scale or high stakes use without first going through rigorous iterative tests and evaluations. Research evidence also informs resource development and teacher capacity-building. Last but not least, there should be more research about AI for real life education settings, focusing on pedagogy or administrative processes over the technology itself to build solid evidence bases.

Other major aspects of Theme 4 include equity and inclusion, investment in infrastructure, cooperation and partnerships, and human agency. Equity and inclusion should be "the guiding principles for the development and application of innovative AI technologies in education" (UNESCO, 2022b, p. 38) and core values for the design of AI policies to ensure equitable and inclusive use of AI for education. Equity and inclusion must be embodied throughout the life cycle of any AI application. Further, AI solutions must be "low cost and run on widely available platforms/devices" (OECD, 2021, p. 32). As for investment, measures proposed include identifying different sources of funding, building multi-stakeholder partnerships and mobilizing resources, adopting/revising and funding "whole-of-government strategies on AI" (UNESCO, 2023, p. 19), and making "a coordinated effort across all education levels and all policy areas" (OECD-Education International, 2023, p. 5). Digital learning infrastructures should be constructed and made available to all in and outside of educational institutions.

On the other hand, “issues such as ethics, fairness, accountability, privacy, security, inclusion, accessibility, equity, transparency, awareness, sustainability and human right” (UNESCO, 2019b, p. 46) require global and local cooperation. Of particular importance are public-private partnerships that can have significant impact on the progress of AI for education. Multi-stakeholder co-creation models should be encouraged too whereby educators are involved in defining and developing AI products so that AI solutions developed are based on actual teaching and learning needs and uses rather than on technological affordances.

Furthermore, “the development of AI should be human-controlled and centered on people” (UNESCO, 2019a, p. 4) instead of displacing human teachers. In other words, investment in human intelligence should remain preferable to the pursuit of automation with machine intelligence while “learners’ and teachers’ wellbeing and mental health” should continue to be prioritized (OECD-Education International, 2023, p. 9). Important decision-making should be in the hands of humans rather than automated by AI, especially in high-stakes events.

Finally, OECD (2021) proposes cost-benefit analysis. Cost-benefit analysis should become a fundamental departure point for the design and adoption of AI solutions for education. Unless the benefits far outweigh the costs, there is no guarantee of equitable and inclusive accessibility. It is noteworthy that benefits and costs should not be evaluated only in pecuniary terms.

Discussion: A political discourse analysis

The schema of practical argument proposed for political discourse analysis by Fairclough and Fairclough (2012) is identified in the above thematic narratives. This schema is composed of a Value premise, a Goal premise, a Circumstantial premise, a Means–Goal premise and a Claim (or conclusion). The Circumstantial premise refers to the status quo of education and AI for education together with existing problems to be addressed (Themes 1 and 3). The Goal premise construes the imagined educational futures (Theme 2) in response to the Circumstantial premise and in accordance with the Value premise, namely the agent’s (UNESCO and OECD) values and concerns. The Means–Goal premise is conditional in nature, meaning that certain actions (Theme 4), if taken, will or may presumably take us from the current imperfect state of affairs (Themes 1 and 3) to the desirable one (Theme 2). The Claim therefore justifies the use of AI for education (see Figure 8).

To put it specifically, the necessity of AI-driven educational transformation is composed of two threads of argument: skills development need requires training AI talents while affordances for transforming education accelerate the delivery of SDGs, in particular SGD4. The first thread makes sense in that the demand for AI-related skills development is a reality and we must train AI professionals to meet the need. The second thread implies that AI can fix the outmoded or dysfunctional education system itself, namely its mechanism of operation and means of delivery so that it can resolve barriers to achieving SGD4. This begs the

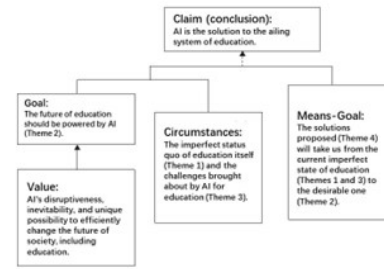


Figure 8: The schema of practical argument for political discourse analysis.

questions: what problems does the existing education system have? Which existing problems can AI fix? Is there any other solution to these problems which is as effective as AI, if not better, in terms of both quality and cost? What are the barriers to delivering SGD4? Can they be overcome by non-AI-mediated education or is AI-mediated education the best option?

The problems of education are unspoken but taken for granted and the necessity of an AI fix is naturalized through the discourse of UNESCO and OECD. This is a process which paves the “royal road to common sense” (Fairclough, 1989, p. 92), that is, turning into common sense “AI’s disruptiveness, inevitability, and unique possibility to efficiently change the future of education and work, as well as society as a whole” (Linderoth et al., 2024, p.7; also see Uleanya & Prinsloo, 2024) by ruling out the imperative of scrutiny and consequently legitimizing the implementation of AI for education. This “common sense” is also identified in the propagation of Tech Giants (Marone & Heinsfeld, 2023) and national AI strategies of key players in the field (Bareis & Katzenbach, 2022).

Similar to Theme 1, Theme 2, which depicts the imagined educational futures enabled by AI, also has two threads. The first thread, AI curricula, responds to Theme 1 by arguing that AI knowledge and skills should be introduced into the school curriculum to prepare students for an AI-enabled society, which, in our eyes, is the most effective solution. The second thread comprises seven subthemes addressing assumed problems. However, these AI affordances have adverse implications. Therefore, Theme 3 details the risks, dangers, and issues associated with these affordances, which echo or are echoed by relevant research (Bond et al., 2024; Williamson et al., 2024; Yan et al., 2024). Compared to the claimed benefits, the challenges are more numerous and detailed, posing significant threats to the feasibility, effectiveness, and sustainability of AI-mediated education. Unless these challenges are adequately addressed, AI-mediated education is not justified (Xiao, 2023, 2024).

Theme 4 delineates solutions to the challenges identified. Some issues from Theme 3, like equity and inclusion and human agency, are elevated as subthemes of their own in Theme 4. Capacity-building is expanded to include all stakeholders and a new theme of global and local cooperation and partnerships is added. These changes in

focus and orientation reflect the values of UNESCO and OECD (Bacchi, 2009; Luo, 2024). However, many challenges remain unresolvable in the short term, and some solutions may be theoretical rather than practical. For example, the private sector's prioritization of self-interest over public good conflicts with proposed solutions (Teräs et al., 2020). Investment demand is another issue; even in the U.S., many still lack access to reliable technology (U.S. Department of Education, Office of Educational Technology, 2024), making it unrealistic for poorer countries to prioritize AI investment despite the need for accessible, stable infrastructure (Hintz et al., 2019). Finally, cost-efficiency, a key factor affecting the feasibility and sustainability of AI solutions (Xiao, 2024), is understated and inadequately addressed, with recommendations limited to cost-benefit analyses.

No one would question the need for AI curricula because students need to learn AI knowledge and skills. However, AIED, that is, using AI to improve pedagogical and administrative processes seems to be problematic.

The AI-enabled educational futures imagined by UNESCO and OECD are in a sense Harold Garfinkel's common sense world of everyday life "which is built entirely upon assumptions and expectations" which "are implicit, backgrounded, taken for granted, not things that people are consciously aware of, rarely explicitly formulated or examined or questioned" (Fairclough, 1989, p. 77). This imagined prospect is uncertain, unstable, and unreliable in that the benefits of AIED are mostly assumptions and expectations rather than facts or evidence-based possibilities.

To do justice to UNESCO and OECD, they do not promote AI's "alleged ability to positively transform teaching and learning" to the extent that "AI's potentially negative impacts on education" are understated or even ignored, as is commonly found in other types of discourses according to Williamson et al. (2024, p. 3). Instead, they spell out the challenges, both already existing and lying ahead, rather than in sweeping statements as they do to benefits. Furthermore, the majority of challenges seem unresolvable in the near term, not to mention that they outnumber the benefits. Just as Stefania Giannini (2023), Assistant Director-General for Education UNESCO, aptly observes, although we have yet "to come to terms with the sweeping social and educational implications" (p. 1) of the revolutions triggered by earlier educational technologies, we have to face a bigger one called "the AI revolution", "which may make the others look minor by comparison" (p. 2).

Nevertheless, even against this backdrop, the keynote of their narratives is that AI-enabled education is our desirable future. The seemingly "objective" narration is embedded with technological optimism (Selwyn, 2011). The naturalization of this narration will lead to what Bourdieu (1977) described as "recognition of legitimacy through misrecognition of arbitrariness" (p. 168) and "control both the actions of members of a society and their interpretation of the actions of others" (Fairclough, 1989, p. 77).

Implications: Ramifications on the ecology of education and beyond

Suffice to say, it is too early to come to the conclusion that AI is the best solution to fixing the "outmoded" or "dysfunctional" pedagogical and administrative practices. Nevertheless, even if AI-mediated education does not become the norm, the assumptions and expectations embedded in the discourse of UNESCO and OECD, once naturalized, will have adverse impacts on the ecology of education and beyond according to CDA theory (Fairclough, 2013).

First, AI-mediated education will redefine humanity. It will escalate the learnification of education and at best fulfil only one of the three functions of education, namely qualification (Biesta, 2009) but ignore the other two - socialization and subjectification (Blikstein & Blikstein, 2023). Education is about teaching students how to be a human being rather than merely about facts and skills. It "should not mold the mind according to a prefabricated architectural plan; it should rather liberate the mind" (UCLACommStudies, 2014) so that it will be "an unpredictable and exciting adventure in human enlightenment" (Ellul, 1964, p. 349, cited in Watters, 2021; Rudolph et al., 2023a). However, AI-mediated education is likely "to reduce learning to a set of canned and standardized procedures that reduce the student agency" rather than "to enhance human thinking and augment the learning process" (Seo et al., 2021, p. 17), hence fundamentally redefining humanity.

Second, AI-mediated education tends to be "a hollow, simulated, unnatural, and artificial education" (Popenici, 2023a, p. 133), dehumanizing an enterprise which should be nourished by humanity. The rhetoric of empowerment is in essence to disempower educators and students who may finally be "unable to exercise judgment or even to recognize a problem beyond the purview of the automated system" (Perrotta, 2023, p. 190) despite the call for adopting a human-centered approach and exercising human agency (Marone & Heinsfeld, 2023). Emotionally charged, education is more like an art and craft; inherently rational, AI is a science. Therefore, even the most trivial routine administrative work and classroom activities such as roll call are social and relational interactions rather than purely procedural in nature (Popenici, 2023a; Selwyn, 2021; Wagener-Böck et al., 2023).

Third, AI-mediated education may contribute to the de-professionalization of education (Holmes & Tuomi, 2022; Selwyn et al., 2023), which is definitely not a future of education the human society aspires to. The whole process of education, from design and delivery/implementation to assessment, should be led by professionals with specialist expertise in education. Take personalization. The way human educators personalize their teaching is fundamentally different from the way AI personalizes learning. A human educator's personalization varies according to the students' idiosyncrasies while AI cannot because its personalization techniques such as pattern recognition and correlational analysis embody a mechanical, inductivist epistemology, hence identifying patterns in the same and standardized ways and ignoring students' cultures and contexts (Williamson et

al., 2023). Patterns of typicality cannot cater for idiosyncrasies, not to mention that human educators can take the initiative to adapt their teaching for individual students and even cater for students' emotional, psychological and social needs while AI personalization needs to be activated and cannot extend beyond content learning (Xiao, 2024).

Fourth, AI-mediated education will amplify neoliberal values such as efficiency, performance culture, instrumentality, standardization, consumer/student choice, and ease in achieving outcomes which can be quantified and "objectively" measured. However, only some aspects of the qualification function of education can be measured in quantitative terms. On the other hand, it tends to do more harm than good if we attempt to measure and standardize the functions of socialization and subjectification which are the result of the interplay between "cultural, psychological, physical, environmental, developmental, and sociological variables", among other things (Popenici, 2023a, p. 37). Neoliberalism has already shaped national strategies for technology-enhanced education (Munro, 2018) and consequently the landscape of higher education (Andrew, 2024). AI-mediated education will reinforce this tendency.

Fifth, technology-driven or technology-led reform in education which is already becoming a trend will finally be further entrenched. Nowadays, educational reform has become a race for new technologies. Each new generation of technology ignites a new craze for educational reform. It seems that all educational problems have a technological fix. Following this logic, what people are doing is to reform education to ensure a particular new technology will be used. This is using technology in education for technology's sake. However, if we want to transform education for the better, we must first of all find out what problems need fixing in education in a particular sociocultural context and whether these problems cannot be fixed through human intervention. If these problems cannot be solved by human educators, which technology has the affordances to fix them? If there is more than one technology which can be used to fix these problems, which one is more effective, more affordable and more accessible? If these problems can be fixed both by human educators and technology, which intervention, human or technological, is more effective, more affordable and more accessible? In other words, any reform should center around education itself rather than fitting education around technology.

Sixth, under the influence of global agencies such as UNESCO and OECD, HEIs may feel increasing pressure to align themselves with policy frameworks that deem AI both inevitable and beneficial. Adopting these agendas can redefine institutional priorities, steering research, curricula, and resource allocation toward AI-mediated solutions. While such alignment might attract funding and global recognition, it risks overshadowing broader academic objectives and local educational needs. Over time, this focus can commodify knowledge production—privileging market-driven outputs and standardized AI metrics—while marginalizing intellectual diversity, eroding academic autonomy, and weakening the capacity of higher education to address complex social, cultural, and ethical concerns outside the narrow scope of AI-validated practices.

Concluding remarks

UNESCO and OECD advocate the promotion of AI for education. The logic behind this discourse is the taken-for-granted "AI's disruptiveness, inevitability, and unique possibility to efficiently change the future of education and work, as well as society as a whole" (Linderoth et al., 2024, p. 7). These affordances of AI may apply to education when it comes to implementing AI curricula, training AI professionals, and preparing students for skills essential to jobs and life in an AI-enabled world.

Nevertheless, we have yet to see conclusive evidence that these affordances equally apply to pedagogical and administrative processes, namely AIED. Even UNESCO and OECD admit that there are enormous uncertainties and challenges to be addressed before their imagined AI-enabled educational futures can come true. AI may disrupt educational processes but not necessarily always for the better or the common good. Hence, its inevitability is open to question. Instead of challenging the justification of the wholesale adoption of AIED, the seemingly balanced discourse of UNESCO and OECD accepts and indoctrinates this inevitability, encourages the acceleration of AIED, and naturalizes AIED. This is not the scientific stance that we expect from leading global agencies, especially UN's specialized agency for education – UNESCO.

Given the powerful influence of UNESCO and OECD on shaping the global ecology of education, that is, as "futurecraft" (Uleanya & Prinsloo, 2024, p. 2), they should take a relatively "conservative" or cautious approach to new technology for education. Put specifically, they should not push educators and educational institutions to accommodate AI applications with so many risks and challenges unsolved and add fuel to the rampant hype surrounding AI (Campolo & Crawford, 2020). Of course, they are not supposed to call for a pause either, as Williamson et al. (2024) do. Their biggest contribution is to present the pros and cons of AI for education, maintaining their neutrality rather than favoring the pros over the cons or vice versa. As educators, we should guard against what Teräs et al. (2023) call "a discursive closure" emerging as a result of the naturalization of AI discourse by either global agencies or national governments so that "the ways in which we can think, discuss, imagine and impact digital futures" are not limited (p. 183).

Consequently, to ensure that the discourse around AI in education remains balanced and open-ended, we must remain vigilant and critical of the narratives promoted by influential global agencies. The future of education depends on our ability to question, adapt and thoughtfully integrate technology without succumbing to unexamined inevitabilities or unwarranted optimism. By adopting this cautious approach, we can better navigate the complexities of AI in education. Such an approach will also encourage a more thoughtful and inclusive discourse that prioritizes the common good over the lure of rapid technological progress. As we move forward, perhaps we should ask ourselves this question: How can we harness the potential of AI for education while preserving the human values and ethical principles that underpin our educational practices?

Finally, it should be pointed out that the UNESCO and OECD publications critiqued in this study aim at education in general rather than with an exclusive focus on higher education. Nevertheless, given our affiliation background as higher education researchers and practitioners and the scale of AI adoption in colleges and universities, the implications of the discourse of UNESCO and OECD discussed above, though also intended mostly for education in general, tend to be, all in all, more relevant to higher education.

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