

The Right to Inclusive Education in the Artificial Intelligence Era: Opportunities and Challenges

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Abstract

Several students-learners face persisting difficulties concerning the effective enjoyment of their right to education in several countries across the world. This disturbing situation calls for greater inclusion in education and particularly for the implementation of a process that considers and responds to the diversity of needs of all students-learners through increasing participation in learning, cultures and communities along with removing barriers to learning and eliminating exclusion within and from education. At the same time, the use of AI systems in crucial areas of our lives, including in the education sector, raises several opportunities as well as challenges, if it is managed poorly. Although AI technologies provide several opportunities for inclusive education, including the development of interactive learning materials, adaptive and personalized-individualised learning, these developments are often accompanied by increasing human rights concerns due to biased and discriminatory algorithms involved in machine learning techniques. Thereto, this paper argues that the operationalisation of AI in education informed by diversity and inclusion considerations constitutes a human rights imperative and the achievement of optimum education accessibility and inclusivity for all students- learners should become a tangible goal when using AI in education. To this end, aligning AI with a human rights-based approach to inclusive education can promote vigilance and continuous oversight to ensure that AI systems in education are optimally designed and reinforce the enjoyment of the right to inclusive education by all students-learners without discrimination. This paper aims to raise awareness and further understanding of the opportunities and challenges that AI brings to the realization of the right to education and to propose a framework for action to ensure the responsible deployment of AI in education that promotes inclusion and diversity rather than exacerbates existing inequalities and reinforces stereotypes within education. The findings from this paper can contribute to the integration of diversity and inclusion considerations in the development and application of AI in education.

Keywords: Artificial Intelligence, Disability, Human Rights, Inclusive Education, Non-discrimination

Introduction

Nowadays a considerable number of students-learners, including students- learners with disabilities, are still being confronted with an increased level of vulnerability concerning their prospects for the effective enjoyment of their right to education (Council of Europe Commissioner for Human Rights, 2017; United Nations Educational, Scientific and Cultural Organization, 2021a). Critically, students- learners with disabilities encounter significant

vulnerabilities and disability-based discrimination when it comes to access education at every level of the education system, involving segregation, harassment and bullying, resulting in their exclusion from mainstream education opportunities with adverse implications on their life course, such as, reduced employment opportunities etc. (World Health Organization and World Bank, 2011; Broderick and Ferri, 2019; United Nations Educational, Scientific and Cultural Organization, 2021a). Evidence indicates that half of children living with some form of disability (temporary or permanent impairment) are out of school and one billion children and adults with disabilities require distinct assistive technology but do not have access to it (World Economic Forum 2024, 15). This disturbing situation calls for greater inclusion in education and particularly for the implementation of a process that considers and responds to the diversity of needs of all students-learners through increasing participation in learning, cultures and communities, along with removing barriers to learning and eliminating exclusion within and from education. At the same time, the deployment of Artificial Intelligence (AI) systems in crucial areas of our lives, including in the education sector, raises several opportunities as well as challenges on this matter. Although AI provides several opportunities for inclusive education, these technologies, if improperly designed and poorly regulated, are often accompanied by increasing human rights concerns and harmful impacts on the realization of the right to education.

Within this context, this paper argues that AI in education should be developed and operationalised in ways that take into account the right to inclusive education so as the achievement of optimum education accessibility and inclusivity for all students- learners could become a tangible goal when using AI in the education sector. Hence, aligning AI with a human rights-based approach to inclusive education can promote vigilance and continuous oversight to ensure that AI systems in education are optimally designed and reinforce the enjoyment of the right to education by all students-learners without discrimination. This paper aims to raise awareness and further understanding of the real opportunities and challenges that AI brings to the realization of the right to education and to propose a framework for action to ensure the use of AI in education in ways that benefit inclusion and promote diversity rather than exacerbating existing inequalities and reinforcing stereotypes within education. The findings from this paper can contribute to the integration of diversity and inclusion considerations in the development and application of AI in education.

1. Inclusive education in the AI era

Before embarking upon addressing inclusive education in the AI era it is essential to first elucidate its meaning. Significantly, in its policy guidelines, the United Nations Educational, Scientific and Cultural Organization (UNESCO) acknowledges inclusion in education as a process of addressing the diverse needs of all children ‘through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures and strategies, with a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the regular system to educate all children’ (United Nations Educational, Scientific and Cultural Organization, 2009, 8-9). Equally important, within the disability context, in the General Comment No. 4 (2016) the United Nations Committee on the Rights of Persons with Disabilities, the oversight body for the implementation of the United Nations Convention on the Rights of Persons with Disabilities, has underlined that inclusive education must be understood as: “ a) a fundamental human right of all learners.

Notably, education is the right of the individual learner, and not, in the case of children, the right of a parent or caregiver. Parental responsibilities in this regard are subordinate to the rights of the child, b) a principle that values the well-being of all students, respects their inherent dignity and autonomy, acknowledges individual requirements and ability to effectively be included in and contribute to society, c) a means of realizing other human rights. It is the primary means by which persons with disabilities can lift themselves out of poverty, obtain the means to participate fully in their communities, and be safeguarded from exploitation. It is also the primary means through which to achieve inclusive societies, d) the result of a process of continuing and pro-active commitment to eliminate barriers impeding the right to education, together with changes to culture, policy and practice of regular schools to accommodate and effectively include all students” (United Nations Committee on the Rights of Persons with Disabilities, 2016, para. 10). Not coincidentally, the United Nations 2030 Agenda for Sustainable Development underlines the value of inclusive education in the Sustainable Development Goal 4 where places explicit emphasis on States’ obligation to ‘ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’ (United Nations General Assembly, 2015).

Against this backdrop, it is argued that AI has the capacity to develop inclusive environments and enhance access to all learners while removing (learning) barriers for students with different capabilities (Gottschalk et al. 2023). Speaking practically, given the multifaceted nature of AI systems (e.g., machine learning techniques, involving natural language processing, image recognition and processing, speech recognition), the integration of AI into education processes has the potential to: (i) support teachers’ role through the automation of their administrative tasks, allowing them to engage more with their students-learners and their diverse learning needs, (ii) assist teachers in assessing students-learners more rapidly and providing more immediate feedback based on the individual needs of each student-learner, (iii) enable collaborative learning through the development of interactive learning materials, while helping students-learners to develop digital literacy, critical thinking, problem-solving and creativity skills, (iv) personalize the learning experience, supported by teachers, leading to enhanced academic performance, better adaptation to diverse individual learning needs of each student-learner and flexible learning to help each student-learner to progress at their own pace, (v) promote accessible, high quality and inclusive education, where everyone has access in reliable learning resources, including those students-learners who are not physically present in school/universities or live in remote areas or in disadvantaged or vulnerable situations. Within this context, it is argued that AI constitutes a complementary tool that tends to improve the educational experience for all, while preserving the necessary human elements embedded in teaching and learning (World Economic Forum 2024, 9; Toyokawa et al. 2023; United Nations Educational, Scientific and Cultural Organization 2021b).

However, AI technologies have the potential not only to meaningfully enhance inclusive education, but also to equally undermine it. The deployment of AI systems in the education sector raises several challenges for educators and policy makers and human rights risks related to AI regulatory issues. Importantly, if improperly designed and poorly deployed, AI systems in education may become especially intrusive and thus violate the right to education as well as the right not to be discriminated against, perpetuating historical patterns of discrimination, for instance against certain age groups, persons with disabilities, or persons of certain racial or ethnic origins or sexual orientation (Regulation (EU)

2024/1689, recital 56). To put simply, when AI algorithms, used in education processes, are trained on non-inclusive or biased data, such practice can lead to discrimination and adversely affect education opportunities for learners in vulnerable situations, such as learners with intellectual and other forms of disabilities (United Nations Educational, Scientific and Cultural Organization 2021b, 25). Another worrying issue relates to the treatment of data and particularly to data protection and security given that AI systems depend on the collection, storage and analysis of large amounts of data to produce answers and make predictions (Raso et al. 2018). As United Nations Educational, Scientific and Cultural Organization's Global Education Monitoring Report 2023 underscores, AI technology can constitute a valuable tool for the promotion of inclusive education, but at the same time raises questions in relation to the digital divide that still exists, the need to respect data confidentiality of students, teachers and administrators who use AI technology (United Nations Educational, Scientific and Cultural Organization, 2023).

2. AI and inclusive education: a human rights matter

In light of the aforementioned considerations it is necessary for States to establish a comprehensive framework to regulate the use of AI systems in the education sector in a rights respecting way. In this regard, human rights law has the potential to acknowledge the benefits and potent threats of AI to human rights including the right to education, while placing respective obligations on AI actors so as to be held accountable in case of AI-related human rights violations in education settings. At this point, it is important to mention that State actors are primary responsible for the effective realization of human rights and thus, directly accountable for upholding human rights, like the right to education (see generally Beitz, 2009). Under human rights law States are required to establish and operationalize a legal framework, within which States are obliged to respect, protect (especially from abuses by third parties – non-state actors, such as private AI actors) and fulfil human rights, involving: (i) the establishment of monitoring and assessment mechanisms to serve as a check on the exercise of power of responsible actors, like AI actors; (ii) the identification and prevention of human rights violations caused by actions or inactions of responsible actors; (iii) the development of mechanisms to hold responsible (state and/or non-state) actors accountable for harm caused for instance, by an AI system used in the education sector; and (iv) the provision of effective remedies for individuals and groups in the event of harmful and unethical AI practices (Alexiadou 2024, 287; McGregor et al., 2019, 311; United Nations Human Rights Committee, 2004, paras 3–8; United Nations Committee on Economic, Social and Cultural Rights, 1990, paras 1–8; and in relation to the right to education, UN Committee on Economic, Social and Cultural Rights, 1999, paras 46–50).

Most notably, the challenges and risks raised by the unregulated or improper design and deployment of AI systems in education processes are contrary to the nature of human rights law according to which each individual has inherent dignity and an entitlement to all human rights. As the Universal Declaration of Human Rights (1948) declares in Article 1, '[A]ll human beings are born free and equal in dignity and rights', while in its Article 26 on the right to education acknowledges everyone's right to education, which involves the right to free and compulsory elementary education and to equal access to higher education. Significantly, the International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966) further clarified the content of the right to education by way of standard-setting. Particularly, ICESCR provides in Article 13, read in conjunction with Article 14, the right of

everyone to education and lays down a number of specific state obligations to develop affirmative action concerning primary, secondary and higher education, while underlying at the same time the principle of equal access to education. Within this context the United Nations Committee on Economic, Social and Cultural Rights, the body responsible for overseeing states' compliance with the ICESCR, has underscored that education must be, inter alia, accessible to all without discrimination, acceptable and responsive to the needs of students within their diverse cultural and social settings (United Nations Committee on Economic, Social and Cultural Rights 1999, para. 6).

Equally important, the United Nations Convention on the Rights of the Child (CRC, 1989) under Article 28 recognizes the right to education of every child on the basis of equal opportunity, while in Article 29 it stresses the aims and objectives of education in terms of promoting the fullest possible development of the child's personality. These CRC provisions constitute an important legal basis for promoting inclusive education in the AI era given their interrelation to other substantive principles and rights enshrined in CRC, including the non-discrimination principle (Article 2), the child's best-interests principle (Article 3). Notably, the United Nations Committee on the Rights of the Child, the body responsible for overseeing states' compliance with the CRC, in a General Comment on the aims of education acknowledges education that promotes respect for differences while at the same time challenging all aspects of discrimination and prejudice as a reliable and enduring antidote to ignorance, unfounded fears of racial, ethnic or other forms of difference, the exploitation of prejudices and the teaching of distorted values (United Nations Committee on the Rights of the Child 2001, para. 11).

Meanwhile, Article 24 of the United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006) represents the most detailed provision in international law in terms of elaborating the aims and objectives of the right to inclusive education. In particular, the CRPD recognizes in Article 24(1) the right of persons with disabilities to education without discrimination and on the basis of equal opportunity to be realized through an inclusive education system at all levels. Most notably, CRPD constitutes the first legally binding instrument that stipulates the notion of quality inclusive education (United Nations Committee on the Rights of Persons with Disabilities, 2016). In fact, Article 24(1) CRPD addresses the aims and objectives of inclusive education by mandating States parties to ensure an inclusive education system at all levels and lifelong learning directed to: (i) the full development of human potential and sense of dignity and self-worth, and the strengthening of respect for human rights, fundamental freedoms and human diversity; (ii) the development by persons with disabilities of their personality, talents and creativity, as well as their mental and physical abilities, to their fullest potential; and (iii) enabling persons with disabilities to participate effectively in a free society. Additionally, Article 24(2) (b) CRPD mandates States to ensure that persons with disabilities can access an inclusive, quality, and free primary education and secondary education on an equal basis with others in the communities in which they live. Of note, the right to inclusive education under Article 24 CRPD aligned with other substantive rights and principles stipulated in the Convention, involving accessibility (Article 9 CRPD) and equality and non-discrimination (Article 5 CRPD) lays down a set of prohibitions and entitlements that are applicable for the regulation of the use of AI systems in the education sector. In fact, the state obligation under Article 24(2) (b) CRPD should be read in conjunction with Article 9(1) (a) CRPD which requires States, inter alia, to take appropriate measures to make schools accessible to persons with disabilities. Furthermore, the United Nations

Educational, Scientific and Cultural Organization Convention against Discrimination in Education (1960) recognizes everyone's right to education without discrimination and on the basis of equality of opportunity.

In parallel, in the context of the Council of Europe, the European Convention on Human Rights (ECHR) (1950) contains several provisions of relevance for the protection of students-learners from AI-related abuses in education processes and ultimately for the promotion of inclusive education, including the right to education (Protocol 1 to the ECHR, 1952, Article 2), an obligation to respect human rights (ECHR, 1950, Article 1), the right to respect for private and family life that involves a right to personal (sensitive) data protection (ECHR, 1950, Article 8; see e.g., European Court of Human Rights, 2008), the right to freedom of expression (ECHR, 1950, Article 10), the right to an effective remedy (ECHR, 1950, Article 13), the prohibition of discrimination (ECHR 1950, Article 14; Protocol 12 to the ECHR, 2000, Article 1), and the prohibition of abuse of rights (Article 17 ECHR). Meanwhile, at the European Union (EU) level, the Charter of Fundamental Rights of the EU (CFREU) includes several important provisions for addressing the risks stemming from the uses of AI in the education sector, involving the general requirements of human dignity (Article 1), equality (Article 20) and non-discrimination (Article 21) in the enjoyment of the rights protected, involving the right of everyone to education under Article 14(1).

In addition to the above mentioned general legal standards, the Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence ("EU AI Act") constitutes the first binding worldwide horizontal regulation on AI, setting a common framework for the deployment of AI systems in the European Union. Notably, as regards to the education sector, the regulation identifies certain AI systems in education processes as high-risk systems, given that such systems have the potential to determine the educational and professional course of a person's life and therefore substantially affect a person's ability to secure a livelihood (Regulation (EU) 2024/1689, recital 56). In particular, the regulation classifies as high-risk AI systems in education those intended to be used: (i) to determine access or admission or to assign natural persons to educational and vocational training institutions at all levels; (ii) to assess learning outcomes, involving when those outcomes are used to steer the learning process of natural persons in educational and vocational training institutions at all levels; (iii) for the purpose of evaluating the appropriate level of education that an individual will receive or will be able to access, in the context of or within educational and vocational training institutions at all levels; (iv) for monitoring and detecting prohibited behaviour of students during tests in the context of or within educational and vocational training institutions at all levels (Regulation (EU) 2024/1689, Annex III). Moreover, it is noteworthy that the regulation contains several provisions of significant relevance to the regulation of AI systems in education, such as obligations for risk management (Regulation (EU) 2024/1689, Article 9) and human oversight (Regulation (EU) 2024/1689, Article 14), transparency obligations (Regulation (EU) 2024/1689, Article 13), obligations of providers and deployers of high-risk AI systems, like AI systems in education (Regulation (EU) 2024/1689, Articles 16-27). Such promising provisions tend to ensure human rights respect by minimizing risks stemming from the use of AI systems in education. However this will take time given that a significant parameter constitutes the promotion of AI literacy dealing with the operation and use of AI systems and considering the context the AI systems are to be used in and the persons or groups of persons on whom the AI systems are to be used (Regulation (EU) 2024/1689, Article 4).

3. Concluding remarks

Crucially, on the basis of the preceding analysis it must be conceded that without a human rights approach to AI in education, students-learners in vulnerable situations, especially students-learners with disabilities, will remain at risk of exclusion and marginalization in education settings by facing considerable obstacles in accessing quality education on an equal basis with others. Essentially, while facilitating the enjoyment of benefits that AI can provide, core human rights principles, such as equality and non-discrimination, and respect for differences should be applied in the use of AI systems in education, towards preventing or/and minimizing human rights harmful AI outcomes in the education sector. This also requires the active participation of the intended beneficiaries in the decision-making processes so as the specific needs and concerns of students-learners in vulnerable situations become an integral part of the design, development and implementation of AI systems in the education sector combined with continuous monitoring on the part of the States.

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