Navigating the Promises and Challenges of AI in Education: Reflections on Equity, Ethics, and Sustainability

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Abstract: This panel session examined the revolutionary potential of artificial intelligence (AI) in education, focusing on its implications for diversity, accessibility and prompting, ethical use, and sustainability. The discourse highlighted the duality of AI as both a source for significant positive possibilities and apprehension, especially around ethical frameworks, data biases, and equal access. Panelists underscored the significance of AI in promoting diversity, equity, and inclusion while acknowledging the intrinsic biases present in AI datasets and the necessity for frameworks to address them. The discussion also explored AI's function in writing and prompting, igniting a debate on ethical standards and appropriate citation of Algenerated material. Accessibility has become a significant issue, as AI access discrepancies may intensify pupils' imbalances. The panel advocated for sustainable approaches in AI deployment to reduce environmental effects. The findings emphasize educators' need to spearhead AI integration initiatives via transparent communication, ethical awareness, and tactics centered on inclusivity.

Introduction

The advent of artificial intelligence (AI) was marked by a mixture of optimistic and skeptical perceptions and sentiments, which are shaping its evolution and acceptance into society, especially in education. Initially, it was celebrated as a technological breakthrough capable of solving complex issues, automating tasks, revolutionizing our world, and competing with human intelligence. Early achievements were seen in the ability of generative AI tools like ChatGPT to carry human-sounding conversations, draft emails, and essays, and respond to complex search queries with succinct outputs. Still, along with this hope were major questions and worries (Kasneci et al., 2023). There were skeptics concerned about the ethical ramifications of AI, including possible employment displacement, privacy concerns, and loss of human control over artificial solid intelligence systems (Kasneci et al., 2023). While the potential benefits are great, ethical questions about accessibility, teacher preparation to apply new technologies, and other areas of more extraordinary investigation remain unresolved. The mixed perceptions and concerns about the adoption of AI informed our preparation for a panel discussion at the 2024 AECT conference in Kansas City. The session saw a very large turnout and insightful engagement from the attendees, who were seasoned educators and instructional designers. The panel discussion was structured on the following five prompts depicted in Figure 1 below.

AI Panel Prompts



Ethical Consideration in AI adoption

Reflection

Guided by the five prompts mentioned above, several critical issues surrounding the adoption and use of Al in education were highlighted during the conversation. They include teachers' perspectives on how generative Al tools should be adopted and utilized by students, the accessibility of Al tools for both students and educators across socioeconomic and digital divides, and the role of Al in promoting diversity and inclusion within educational settings. In addition, faculty perspectives on the implications of student use of Al and other relevant issues were raised and addressed. The following section will share our insights from the panel discussion with the specific prompts.

Al and Diversity, Equity, and Inclusion

The panel discussion started with going broadly over students' perspectives and faculty's perspectives on the following two specific questions:

- How can AI be leveraged to promote diversity, equity, and inclusion in educational settings?
- What are some potential biases in AI algorithms, and how can they be mitigated to ensure fairness and inclusivity?

Some key points in this discussion were about the underrepresentation of certain demographics, reflecting the biases in the online datasets from which AI models pull their data. Specifically, it was established that AI tools can be biased based on the sources and information they learns from, the way they learns, and the developers may be biased. As such, a variety of information, with a diverse team of developers of AI who would also be transparent about how the tools work, ensuring their fairness.

Nazer et al. (2023) underline the widespread bias problem in artificial intelligence (AI) systems, stressing how these prejudices frequently result from the data used to train AI models. They clarify that historical injustices ingrained in data sets, a lack of diversity in data representation, and algorithmic design decisions that unintentionally favor some groups over others can all lead to biases. Lainjo (2023) also agrees with the need to review the potential effects of these prejudices, which might result in unjust treatment, continuation of stereotypes, and differences in crucial fields such as hiring policies, healthcare, and education. They highlight the need for increased knowledge and responsibility among artificial intelligence developers and supporters to handle these difficulties.

Adopting more inclusive and representative datasets, routinely auditing algorithms for bias, and embracing justice as a fundamental tenet in AI system design are among the various suggestions Lainjo (2023) and Nazer et al. (2023) offer to help reduce artificial intelligence biases. They support openness in artificial intelligence development techniques and propose that algorithmic decision-making should be understandable and easily accessible for inspection by several parties. To guarantee that artificial intelligence systems are fair and helpful for all, the writers also advocate multidisciplinary cooperation, including ethicists, domain specialists, and community representatives. These suggestions seek to create moral AI development policies, reducing damage and advancing social fairness.

Writing and Prompting with AI

The panel discussion got interesting in this specific strand as most scholars were from academia, and writing is a big part of their work. The panel discussed the following questions:

What are the benefits and challenges of using AI for writing assistance and generating prompts in educational contexts?
How can educators effectively integrate AI tools into writing instruction to enhance student learning outcomes?

We started by discussing the benefits and challenges from a student perspective. As a non-native speaker, AI is beneficial in brainstorming ideas and helping with grammar and vocabulary. Navaie et al. (2024) examined how ChatGPT can help second language (L2) and non-native scholar (NNS) learners with academic writing and articles for publications using a balanced strategy. The panel discussion steered towards how faculty feels about getting writing prompts from students using AI in their assignments. One of the attendees shared that she prefers to give a safe space to her students to talk about AI and how they want to use AI in their writing assignments or final papers. The faculty on the panel shared their insights on citing what is not yours, including whether we took ideas from generative AI or any scholarship. This led to a discussion on what we consider generative AI and what tools one should cite in academic writing. For example, do we have to cite Grammarly for using it to paraphrase our sentences? Such questions raise an essential role of ethics in writing and prompting AI, leading to our next discussion topic.

Ethical Consideration in AI Adoption

Following the discussion on integrating AI tools in writing, the conversation shifted to the important aspect of ethical consideration in AI adoption. The panel discussed the following questions:

- · What ethical frameworks should guide the development and deployment of AI technologies in education?
- What are the potential consequences of unethical AI use in education, and how can they be addressed?

Several studies have noted that the issues of ethics and biases abound in Al and should be of concern (Amugongo et al., 2023; Alawneh et al., 2024; Lainjo, 2023; Rodrigues, 2020; Safdar et al., 2020). Navaie et al. (2024) highlighted the challenges of using ChatGPT in higher education and faculty concerns regarding academic integrity and proper attribution of Al-generated content. The panel discussed the potential consequences of unethical use of Al in education, leading to mistrust between student and teacher, and strict measures on the instructor's part to assess student work.

To address such concerns, the group discussed available AI frameworks with input from diverse stakeholders. One of the teachers in the audience shared insights on developing their own AI framework for students to use AI in their assignments or papers ethically.

Accessibility and Al

During the panel, the discussion automatically shifted towards the accessibility aspect of AI, which helped us in discussing our specific questions on this prompt:

- What are some challenges and limitations in ensuring that Al-driven educational tools are accessible to all learners?
- How can educators ensure that AI applications enhance, rather than hinder, accessibility and accommodation efforts in education?

Accessibility can be defined differently depending on context. Morris (2020) views it as an issue of inclusivity, which refers to whether AI systems "are effective for diverse user populations" (p.35). Morris (2020) further argues that regarding AI, "Issues regarding a lack of gender and racial diversity in training data are increasingly discussed; however, inclusivity issues concerning disability are not yet a topic of discourse, though such issues are pervasive" (p.35). On a positive side, researchers such as Shuford (2023) examine the transformative role of AI in enhancing accessibility for people with disabilities and how AI technologies, such as speech recognition and computer vision systems, can significantly improve the quality of life for

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individuals with visual, auditory, and motor impairments. During the panel discussion, one participant raised concerns about educators' perceptions. As artificial intelligence technologies become increasingly embedded in learning environments, educators may erroneously assume that all students have equal access to Al tools for their work. Such presumptions can lead to exaggerated expectations, as educators might unconsciously anticipate a faster or more precise response from students. Consequently, educators risk creating a disparity between students with access to advanced Al tools and those without. It might also impact the performance evaluation of students, which further raises some pertinent questions presented in Figure 2.

Figure 2

Performance evaluation of students



Sustainability in AI Implementation

Our final prompt has discussed the following question

How can educational institutions promote sustainable AI adoption and usage to minimize environmental impact?

The panel discussed the substantial consumption of energy used to design AI models and the challenges associated with the environmental impacts of AI technologies in the long run. However, some studies support that AI-driven models are instrumental in optimizing energy consumption, reducing waste, ecological monitoring, and enabling efficient distribution of resources (Kar et al., 2022; Nishant et al., 2020). While AI offers numerous benefits, it also has hidden costs that must be critically examined. During the panel discussion, experts highlighted several environmental concerns associated with AI, including the generation of electronic waste and the increasing carbon footprint through AI-powered models. Nishant et al. (2020) emphasized the importance of establishing a comprehensive research agenda focusing on developing AI technologies with sustainable development goals through partnership with diverse stakeholders.

The panel suggested establishing institutional policies and guidelines for sustainable AI adoption and usage. In other words, educational institutions can increase the understanding and awareness of AI's environmental impacts via training and curriculum development. Sustainability themes may be included in AI and technology curricula in schools to prepare future educators and professionals to make informed decisions in their AI-related activities. There may be investment in collaborations with organizations focusing on research in green technology to get their knowledge and help establish and promote comprehensive industry standards for sustainable AI practices. These measures reduce environmental effects and help establish an institution as a leader in resolving the ethical dilemmas that come with the growing prevalence of AI.

Lessons Learned and Looking Forward

Our conversation suggests four ideas culminating in the lessons learned about effectively integrating artificial intelligence into education.

- Education practitioners must proactively lead the conversation about integrating artificial intelligence into classrooms to
 enhance an all-inclusive education. Teachers are well-suited to close the distance between theoretical knowledge and
 actual classroom application using technology. As the main drivers of knowledge, educators must be updated on the
 possibilities of Al tools and actively help shape their introduction and application. Teachers who practice proactive
 leadership must push for artificial intelligence integration that meets the various requirements of their pupils so that the
 technology functions as a tool for inclusion rather than exclusion. This means helping students with the ethical use of Al
 and supporting policy development.
- It is essential to encourage open dialogue about adopting AI to create a safe and inclusive space. Academic members, students, and faculty contributions help build a cooperative approach that lets stakeholders express their worries, share

knowledge, and co-create plans for ethical and efficient AI applications. Beyond successful integration, such stakeholder collaboration ensures that diverse perspectives are incorporated into decision-making processes.

- Transparency and trust that open communication promotes help to solve issues and reduce resistance to Al adoption.
 Moreover, such dialogues can help demystify artificial intelligence, lowering anxieties and misunderstandings and supporting an innovative culture.
- Since accessibility remains a critical issue and has huge implications for AI adoption, practitioners must be alert to note any differences that may arise, ensuring that strategies and technologies are designed and implemented to bridge rather than exacerbate the divide. Depending on its application, artificial intelligence could either exacerbate or shrink the current disparities in education. Students from underserved areas, for example, might lack the infrastructure—such as modern devices or dependable internet—needed to use AI-driven learning tools effectively. Likewise, if artificial intelligence systems are not built with inclusivity, students with impairments might run to obstacles. By pushing for fair access to resources and training, practitioners can deliberately help to find and close these disparities. Designing AI systems that are user-friendly, giving teachers professional development chances to improve their digital skills, and putting regulations that give accessibility top priority could all help here.

Our panel discussion revealed that the successful implementation of AI in education requires careful consideration of several critical factors, such as developing comprehensive ethical frameworks, providing robust professional development for educators, and establishing a safe space to have conversations about using AI in academic writing ethically. Continuous evaluation of the AI tools is crucial in creating an inclusive, ethical, and sustainable AI-enhanced learning environment. Our panel engagement also highlighted the transforming power of artificial intelligence (AI) in education. It highlighted the importance of intentional, inclusive, and ethical methods of application of this tool. Important lessons learned from the session reinforced the need to address biases in AI algorithms, promote accessibility across social and digital divides, and include sustainability in AI techniques. Open communication among teachers, students, and stakeholders was emphasized as key and fundamental to guarantee that AI applications are ethically and successfully included in learning environments. Conclusively, the point was made that leveraging AI to promote diversity, equity, and creativity while minimizing its problems will depend critically on continuous review, multidisciplinary collaboration, and the creation of thorough frameworks going forward.

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