Beyond Reproach: Navigating Usage, Detection, and Future Pathways of AI in Education

Brock Education

A journal of educational research and practice

2024 Vol. 33 (3) 22–29

https://journals.library.brocku.ca/brocked

Rahul Kumar*

Faculty of Education, Brock University

Abstract

This essay critiques the emphasis on detecting artificial intelligence (AI) usage in student submissions and advocates for a shift towards the meaningful integration of AI in education. Citing data from Turnitin, it highlights the significant yet understated prevalence of AI in academic work. The discussion underscores the ideological, detection, and moral challenges associated with AI in education, arguing for a reconceptualization of assessment and pedagogy to accommodate AI tools ethically and effectively. It calls for collaborative efforts to redesign curricula and assessments, ensuring educators and students are equipped to navigate the evolving educational landscape. The essay concludes by emphasizing the necessity of preparing graduates for a future in which AI plays a central role in learning and professional practice.

Keywords: AI usage detection, ethical AI integration, academic integrity, future of AI in education

* rkumar@brocku.ca

On the first anniversary of artificial intelligence (AI) integration into the Turnitin similarity-detection service, the company issued a press release reporting that 11% (22 million) of the 200 million student papers submitted for inspection had 20% AI usage, and about 3% (6 million papers) had 80% AI usage (Turnitin, 2024). This data demonstrates the burgeoning use of AI in education. This essay argues that efforts expended on detection are misplaced and that instead we should invest our resources into the meaningful adoption of AI in education.

Higher Usage Rates

At first glance, AI usage among students, as reported by Turnitin, might seem high, but in actuality, the numbers are likely even higher than the company's data suggests, primarily because not every university, program, or course instructor uses Turnitin. For instance, Brock University (Canada) is licensed for Turnitin, which all instructors in their respective classes can use. When setting up assignments, instructors can enable Turnitin parsing so that student papers are analyzed after being submitted through learning management systems (LMS), and a similarity score is generated. The instructor can also choose to have the system share the score with the student. In short, the integration and availability of the service are straightforward and require no special technical skills. Yet, despite its availability and ease of use, not all instructors employ Turnitin for varied reasons, which together may downplay the prevalence of AI usage in the academy. It is worthwhile here to briefly list these reasons.

First, some educators and students alike have a philosophical objection to using a third-party tool like Turnitin (Vanacker, 2011), expressing concerns about originality and ownership (i.e., archiving students' work without permission) despite the U.S. court's ruling in A.V. v. iParadigms (2009) that such a tool essentially constitutes fair usage. Recent objections also cite students' intellectual property rights as a rationale for not using services like Turnitin without students' explicit consent to do so (Arnoldy, 2007; Longfield, 2022). Finally, we must not discount techno-averse faculty members. I prefer this label over terms like technophobe or techno-reluctant, which some students have used on various social media sites. These faculty members simply do not want to use digital tools. Some even require printed copies of assignments for assessment. Additionally, their use of LMS is minimal. All such cases have been omitted in the Turnitin data; thus, the corresponding use of AI remains unknown.

A second reason for claiming Turnitin's low AI reporting is the system's undetected false negative rates; that is, because the system does not flag AI-generated content, the latter is unreported (Dawson et al., 2020). A third important basis for claiming that AI usage is higher than estimated is the results of Kumar and McGray's (2024) recent study that found nearly 74% of survey respondents (n = 1024) claimed to have used AI for postsecondary academic work in the 2022–2023 academic term and, at the time of the survey, 65% had planned to use it in 2023–2024. This survey was conducted globally, and the responses represented 54 nationalities.

In sum, the use of Turnitin and other similarity-detection services in education is not universal due to various reasons—philosophical objections, concerns about originality and ownership, intellectual property rights, techno-aversion, potential false negative rates—and the use of AI for academic work in the form of student submissions is likely higher than what Turnitin's press release reported in April 2024.

Is AI Usage Desirable?

If the purpose of education is to prepare graduates for a future in which they will adopt available tools to become more competitive, productive, and relevant, then preparing them to use AI properly can be seen as a positive and necessary adaptation. Our collective responsibility is to "prepare students for their future, not for our past" (Dawson, 2023, 15:11). Understood in those terms, it is not bad that students are exploring and using new AI tools in education. What is problematic is that educational practices are hindering students' exploration and not teaching them how to use AI tools to improve upon the results they produce, nor teaching with these tools ethically and responsibly. For AI usage in education to be beneficial, educational practices need to evolve and teach students how to effectively and ethically incorporate these tools in their academic work (Mello et al., 2023).

Still, the integration of AI is not going to be an easy task and requires a thoughtful, intentional approach to designing new curricula and assessments. After all, conventional education (rightly) assumed that the production of an artifact (an essay or a project) was a demonstration of student learning. But that assumption can no longer be relied upon as AI can generate text, images, and code that can be used to misrepresent students' work and hence undermine the previously held assumption that the artifact proves learning has occurred. The recourse is to change assessment, whereby artifacts and learning are decoupled. This task seems herculean after the dizzying and exhaustive adaptations the faculty made when the COVID-19 pandemic struck (Marmolejo & Groccia, 2022). And yet, as difficult as that adjustment was, the one needed to integrate AI is still harder. It will require a collaborative approach that would/should involve cross-disciplinary faculty, administrators, students, tech companies, faculty unions, and other relevant stakeholders. As a discipline, education has the responsibility to take the lead in ensuring that this transition is as smooth as possible, pedagogically sound, and adheres to the principles of equity, inclusivity, fairness, and respect that education espouses and shares with the values of academic integrity (Holmes et al., 2021). However, such a paradigm shift necessitates that educators receive adequate and meaningful training and support to develop their own competence to effectively integrate AI into educational practices (Zhai et al., 2021).

What Is the Problem?

In its current configuration, there are at least three central problems concerning the use of AI: ideological problems, detection problems, and moral obligations. This section briefly discusses these elements.

Ideological Problems

The ideological problems surrounding the use of AI in education revolve around differing perspectives on the role of technology in learning. One of the primary concerns is the ethical dimension of using AI in educational settings. Ethical issues such as the misuse of private data, surveillance, responsible implementation of AI, and leadership to ensure its principled use are critical (Firat, 2023; Klimova et al., 2023; Zuboff, 2019). The political implications of AI in education involve power distribution, privilege, and resource allocation, underscoring the necessity for a profound understanding of the ethico-political arrangements during AI implementation (Henry & Oliver, 2021). These apprehensions, coupled with the perception of education as a human-centred endeavour—designed by and for humans—diminish enthusiasm for AI integration. In such a doubtful climate, the resistance to change toward the adoption of AI in education prevails. In this context, the problem lies in reconciling differing ideologies and addressing ethical concerns to ensure responsible and equitable integration of AI in education (Ma & Jiang, 2023).

Detection Problems

When the status quo persists, restrictions on the use of AI tools for academic work dominate the discourse, resources, and efforts. Notwithstanding false negatives (and false positives), what gets detected is the basic bland text that current versions of LLM tools generate when poor prompts are provided to them. These bland compositions account for the fraction of cases that Turnitin reports. How does one account for the difference between the extended use of AI and a fraction of that reported as AI-generated output? Indeed, ever-evolving tools humanize AI-generated text, and one merely needs to search Google and select from a slew of options (at various price points), making it difficult for tools like Turnitin to detect AI-generated texts.

Sometimes, educators have confidence in their ability to detect AI-generated text from human-written text. In an empirical study, Kumar and Mindzak (2024) showed that human beings' self-confidence in detecting human- and AI-generated text is misplaced, and any such claim is highly dubious (or doubtful)—or at the very least there is no empirical basis to make a claim. Such claims smack of confirmation bias or, more specifically, the toupee fallacy (Hamilton, 2016): Some people may believe they can always tell when someone is wearing a toupee because of a single instance when their detection was confirmed. However, they are not accounting for the fact that they do not notice when they do not recognize a toupee—that data

is completely missing from their dataset. Likewise, when educators claim they can identify AI-generated text, they may be overlooking instances in which they cannot differentiate between human-written and AI-generated content, and that data similarly does not exist in their analysis.

Moral Obligations

In situations involving extensive use of difficult-to-detect AI for academic work, with educators opposed to using AI to teach students how to use it and how to prepare graduates for the future, we face a moral dilemma: How do we deal with the AI problem in education? Perhaps there is an even more compelling issue; namely, how does the educational sector respond to the pervasive infiltration of AI? Not responding or sticking to the status quo is unacceptable to the public, students, and prospective employers and irresponsible if the educational sector is to honestly reflect on and take its chief mission of educating graduates for their respective futures seriously (Li & Yang, 2023). The educational sector must actively address the challenges and opportunities AI presents in education (Zhai et al., 2021). Without educators' considered response to the challenge, the use of AI will continue unabated; only the most unskilled students will be caught and punished. It is our collective moral responsibility to address the challenge so that opportunities are enhanced and problems are minimized. The ameliorative approach is the only responsible way forward.

Future Pathways

No prediction concerning the future of AI in education can be made with absolute certainty; however, it is clear that AI will continue to play an increasingly prominent role in all spheres of human endeavours, including education. The question is whether it will happen unchecked, unregulated, and undercover or if careful consideration, ethical standards, and transparent policies will guide its use. Will educators use AI to empower students, or will they become police officers trying to catch unauthorized AI users? What flows from this argument are two distinct pathways.

One is the path that we are currently on, where efforts, energy, and resources will be deployed to restrict, monitor, and detect the use of AI—a veritable game of cat-and-mouse. Sometimes, the detection tools will be good; other times, the AI tools will advance, and the cycle (and struggle) will continue ad infinitum (Cohen et al., 2024). This will continue depleting the education sector's already meagre resources, diverting them to tech companies that will create tools for AI-detection software and tools. I suspect that graduates will be ill-served and productivity will suffer.

The second path will involve revamping our teaching and assessment techniques. The previously privileged practices that assumed that producing artifacts (like essays) were demonstrations of learning and understanding will need to be reevaluated. Rather than relying

solely on traditional assessments, educators will need to embrace new ways of evaluating student learning that take into account the skills and competencies that AI cannot yet easily replicate (e.g., impersonate and speak on behalf of the student in front of the examiner(s)). There are no standard templates for this, so a collective and collaborative approach will be required to discover contextually suitable ways of integrating AI.

Conclusion

Although this essay has focused on postsecondary education, the reality is that students learn to discern the so-called good and bad approaches to academic activity before they arrive at colleges and universities. The work begins in high school, if not even earlier. I can attest to it as I see my daughter using various tools in her school and for her schoolwork. At this age and stage, the teachers have a wise, sage-like presence in children's lives, and the children are more pliable in the hands of teachers; they become brittle in their ways by the time they arrive in postsecondary institutions. In primary/secondary schools, ethical and responsible use of AI, imbued with academic integrity, would serve students and society well. The rewards will be immense: students will arrive at colleges and universities with a strong foundation in responsible AI usage, ready to engage with the technology thoughtfully and ethically. However, any such foundational achievements should not be squandered, so work needs to be done concurrently to integrate AI into education in colleges and universities. The faculties of education have to play a prominent role.

References

A.V. v. iParadigms, LLC, 562 F.3d 630 (4th Cir. 2009). https://casetext.com/case/av-ex-rel-vanderhye-v-iparadigms-llc

Arnoldy, B. (2007, April 10). Students sue antiplagiarism website for rights to their homework. *The Christian Science Monitor*. https://www.csmonitor.com/2007/0410/p01s04-legn.html

Cohen, M. K., Kolt, N., Bengio, Y., Hadfield, G. K., & Russell, S. (2024, April 5). Regulating advanced artificial agents. *Science, 384*(6691), 36–38. https://doi.org/10.1126/science.adl0625

Dawson, P. (2023, June 8). *Don't fear the robot* [Video]. YouTube. https://youtu.be/ZEhRFVO6rr0

Dawson, P., Sutherland-Smith, W., & Ricksen, M. (2020). Can software improve marker accuracy at detecting contract cheating? A pilot study of the Turnitin authorship investigate alpha. *Assessment & Evaluation in Higher Education*, *45*(4), 473–482. https://doi.org/10.1080/02602938.2019.1662884

Firat, M. (2023). What ChatGPT means for universities: Perceptions of scholars and students. *Journal of Applied Learning & Teaching*, *6*(1), 57–63. https://doi.org/10.37074/jalt.2023.6.1.22

Hamilton, R. (2016). *How you decide: The science of human decision making.* The Great Courses. https://www.thegreatcourses.com/courses/how-you-decide-the-science-of-human-decision-making

Henry, J., & Oliver, M. (2021). Who will watch the watchmen? The ethico-political arrangements of algorithmic proctoring for academic integrity. *Postdigital Science and Education*, *4*(2), 330–353. https://doi.org/10.1007/s42438-021-00273-1

Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T. T., Shum, S. B., Santos, O. C., Rodrigo, M. M. T., Cukurova, M., Bittencourt, I. I., & Koedinger, K. R. (2021, April 9). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, *32*(3), 504–526. https://doi.org/10.1007/s40593-021-00239-1

Klimova, B., Pikhart, M., & Kacetl, J. (2023). Ethical issues of the use of AI-driven mobile apps for education. *Frontiers in Public Health*, *10*. https://doi.org/10.3389/fpubh.2022.1118116

Kumar, R., & McGray, R. (2024). *Global trends in generative AI adoption: A quantitative survey of postsecondary students*. Research Square. https://doi.org/10.21203/rs.3.rs-4449928/v1

Kumar, R., & Mindzak, M. (2024). Who wrote this? Detecting artificial intelligence-generated text from human-written text. *Canadian Perspectives on Academic Integrity*, *7*(1), 1–9. https://doi.org/10.55016/ojs/cpai.v7i1.77675

Li, Y., & Yang, P. (2023). Higher education worries and response in the era of artificial intelligence. *SCIREA Journal of Education*, *8*(1), 24–44. https://doi.org/10.54647/education880398

Longfield, V. (2022). What copyright? Whose intellectual property? College student intellectual property rights and anti-plagiarism software. *Journal of Information Policy*, *12*, 73–87. https://doi.org/10.5325/jinfopoli.12.2022.0002

Ma, X., & Jiang, C. (2023). On the ethical risks of artificial intelligence applications in education and its avoidance strategies. *Journal of Education, Humanities and Social Sciences*, *14*, 354–359. https://doi.org/10.54097/ehss.v14i.8868

Marmolejo, F., & Groccia, J. E. (2022). Reimagining and redesigning teaching and learning in the post-pandemic world. *New Directions for Teaching and Learning*, *2022*(169), 21–37. https://doi.org/10.1002/tl.20480

Mello, R. F., Freitas, E., Pereira, F. D., Cabral, L., Tedesco, P., & Ramalho, G. (2023, August 17). Education in the age of generative AI: Context and recent developments. *arXiv*. https://doi.org/10.48550/arxiv.2309.12332

Turnitin. (2024, April 9). *Turnitin marks one year anniversary of its AI writing detector with millions of papers reviewed globally* [Press release]. https://www.turnitin.com/press/press-detail_17793

Vanacker, B. (2011). Returning students' right to access, choice and notice: A proposed code of ethics for instructors using Turnitin. *Ethics and Information Technology*, *13*(4), 327–338. https://doi.org/10.1007/s10676-011-9277-3

Zhai, X., Chu, X., Chai, C. S., Jong, M. S., Starčič, A. I., Spector, M., Liu, J., Jing, Y., & Li, Y. (2021, April 20). A review of artificial intelligence (AI) in education from 2010 to 2020. *Complexity, 2021*, Article 8812542. https://doi.org/10.1155/2021/8812542

Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power.* PublicAffairs.