Editorial: Reasserting Epistemic Agency in the Age of AI

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I recently attended the American Education Research Associations (AERA) annual conference in Los Angeles, California. While there, I was able to reconnect with old colleagues and students who I have known for many years but have only interacted with via zoom (always a bit strange). I was also able to discuss our ongoing collaboration with the AERA Online Teaching and Learning SIG to publish papers presented within the SIG. Finally, I was also invited to present on a panel at the OTL Business Meeting.

The SIG is quite well organized, and organizers even sent out questions for the panel in advance of the session. As do all discussions these days the panel veered into questions on AI, and one of the questions was about the future of "good" online learning in the age of AI. More, specifically we were asked to provide a positive view of online learning five years from now considering ongoing developments in AI. I might have missed it, but this was not a question I had prepared to answer, and the time horizon stymied me. Five years in normal technology times is not the same as five years in AI time.

At the time, I made a joke about predictions being hard, especially about the future (Berra, 1959*). If we are to take such a question seriously though, there is much to consider. How do people learn in the presence of AI? How does AI potentially undermine learning?

In response to the question, I followed up with the observation that humans have been making use of linguistic tools for exceptionally long time. It may be that the extensive use of verbal symbolic interaction is the defining trait of the human species. Large language models associated with generative AI seem to be the latest advance in such tool use. However, language itself may go hand-in-hand with the origins of homo sapiens (Bickerton, 2012), the niche we occupied may have been founded on our initial advances in oral language use and the competitive advantages it provided to an animal that was able to collaborate flexibly and at scale (Harari, 2024).

Some scholars suggest that we have been using oral language for 250,000 years or more. Written symbol systems go back only 10,000 to 12,000 years and chirographic (handwriting) culture was dominant until the printing press in about 1453 and for decades after. Between 1453 and 1969 only 516 years passed before the moon landing (an achievement that required flexible collaboration at tremendous scale). The use of language tools appears to be accelerating cultural change in dramatic fashion.

To summarize we have had perhaps a quarter million years of oral language, 12,000 years of written language, 500 years of printed language, 60 years of digital language, 18 years of smart phones and social media**, and about 3 years of large-language-model based generative AI in wide use. Again, acceleration seems a defining trait. How can we responsibly predict where this

latest development in linguistic tool use will take us? Especially in the field of education, which is perhaps another species-defining feature.

So back to the original question, where is "good" online education headed in the age of AI? Extraordinarily complex questions require that we use all the tools at our disposal. We need a theory. Fortunately, my colleague, Jianwei Zhang has such a theory, which he calls "Intellectual Stewardship" and which is presented in a pre-publication here: Intellectual Stewardship: Re-adapting Human Minds for Creative Knowledge work in the Age of AI.

Jianwei argues that in the age of AI we will need to cultivate new dispositions now and for coming generations. He indicates that these new attitudes can be thought of as aspects of human wisdom. We will need to teach people who use AI in education to be knowledge-wise, context-wise, intelligence-wise, and ethics-wise in the service of individual and collective intellectual growth.

Being *knowledge-wise* means attending to what you know individually and to the knowledge that that we share with others (language, theories, books, mathematics, scientific ideas, culture, institutions, collective knowledge). We train students to be critical consumers and (especially PhD students) to become contributors to such new collective knowledge. However, we can train all students to participate in the epistemic processes that result in more widely recognized artifacts of say, authentic disciplinary investigations. Advocates of Knowledge Building (including Jianwei) see learners at all levels as capable of participating in the production of new knowledge, not only new to the individual, but also new to the community.

The article warns that overreliance on AI can encourage superficial understanding and "cognitive offloading." We can head this off by cultivating an *intelligence-wise* orientation including "meta-intelligence", the capacity to decide when AI should assist thinking and when deeper human reasoning is required. Through this lens, humans must remain responsible for framing problems, judging quality, and directing inquiry.

Learners must also understand the social, cultural, and situational context in which knowledge work occurs. AI systems lack embodied, lived experience, and cannot fully interpret the meaning or significance of human situations. It is therefore necessary to cultivate *context-wise* dispositions among students. In a context-wise setting, students and teachers must identify (interest-driven) authentic problems, recognize emerging opportunities, and adapt inquiry to changing conditions.

Because AI can rapidly generate persuasive but inaccurate or biased content, ethical discernment becomes essential. *Ethics-wise* stewardship, foregrounds moral judgment, responsibility, and care. Learners must learn and value not only whether AI can perform a task, but also whether it should. Jianwei's article emphasizes that ethics cannot be treated as an external rule system; ethical thinking must be embedded within everyday knowledge practices.

Finally, AI should not simply help students complete tasks more efficiently; it should support personal growth, deeper understanding, and contributions to collective well-being. The final and overarching form of wisdom is *self- and community-growing* stewardship. This principle gives

purpose to all others. The article repeatedly stresses that education should orient AI use toward long-term human flourishing rather than short-term productivity gains.

Back to the question of what "good" online learning in the age of AI will look like in five years. Innovative work in this area recognizes the need to change the culture of schooling as discussed above. Furthermore, the narrative around the uses of AI to improve efficiency need to give way to a recognition that the threat of AI to undermine productive cognitive struggle requires a new emphasis on human-focused epistemic agency. In the words of one of our doctoral students "What is missing is a close examination of the micro-level teacher-AI interaction processes through which teachers cultivate critical AI literacy regarding how they prompt, reflect, regulate, and iterate in authentic instructional contexts. (Zhao, p. 28)."

In other words, for online learning (or any learning really) to survive AI we will need to better understand how educators negotiate the moment-by-moment decision making processes that constitute a new form of AI literacy in AI-mediated design, teaching, and assessment environments. As it stands, we are insufficiently focused on who is in control when AI is used (and when it needs to be humans). The stewardship model is the first framework that articulates specific forms of human wisdom that identify explicit points at which we may need to reassert our epistemic agency. This kind of re-adaptation involves the whole culture of education. While unlikely to see broad scale uptake in five years, I think online learning would be better positioned for success if scholars, educators, and learners were engaged in a discussion of a stewardship model for AI in education. Culture change is difficult, but the primacy of human needs, growth, and flourishing demands this re-orientation. The risk of ceding human agency to AI in education spaces is not an option.

*The line is widely attributed to Yogi Berra (Lawrence Peter "Yogi" Berra; 1925–2015) but its precise origin is unclear — he popularized it, but evidence shows the joke existed earlier (attributed to Danish sources and Niels Bohr). There is no reliable record of the exact date or place Yogi Berra first said it. This approximation is courtesy of Duck Duck Go's built in AI abilities (I didn't know they had one till I tried to look up the origin story). However, the idea that Berra, a professional baseball player, manager and author of many paradoxical expressions, stole a line from a Danish physicist does make sense, I guess.

** As a species, increasingly, some observers note successive generations are being "rewired" by digital tool use (Haidt, 2024) with catastrophic results.

References

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