

**Teaching, Teacher Education, and Practical Wisdom in the Age of Generative AI**

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## **Abstract**

In this paper, we explore the role of practitioner knowledge, through the concept of “practical wisdom” for educators (Shulman & Wilson, 2004), in the age of generative artificial intelligence (GenAI). In this paper, we provide an overview of the concept of practical wisdom, noting the crucial role of experience, reflection, and ethical decision-making in cultivating such knowledge. We discuss the integration of these elements with AI technologies. Further, we seek to address the challenges and opportunities presented by AI, proposing a balanced approach to leveraging technology in enhancing educational practices and research, while preserving the invaluable insights of practical wisdom and knowledge of practice. Through informed awareness, we believe GenAI can augment human expertise without supplanting the nuanced understanding and ethical judgment abilities that are essential to professional excellence.

*Knowledge rooted in experience shapes what we value as a consequence how we know what we know as well as how we use what we know — bell hooks*

*In the past, jobs were about muscles. Now they're about brains, but in the future, they'll be about the heart— Minouche Shafik, President of Columbia University*

## **Introduction**

In this paper, we explore the role of practitioner knowledge, through the concept of “practical wisdom” for educators (Shulman & Wilson, 2004), in the age of generative artificial intelligence (GenAI). Often, educational technology in teacher education is discussed as a set of tools or objects that support different teaching purposes and learning effects (Henriksen et al., 2022). Even nuanced understandings of educational technology that account for cognitive and learning affordances, still tend to be somewhat tool focused (Oliverira et al., 2019). This is understandable, as technology is not a monolith but a diverse array—and indeed different kinds of tools allow us to engage in different tasks or modes of thinking and learning.

However, a key piece that is often missed in conversations about educational technology are the ways that new technological paradigms (e.g., AI) often shift the nature of knowledge itself. These kinds of shifts in the nature of knowledge, or epistemic shifts, happen both broadly in society and within fields, such as education (Koschmann, 2012). Understanding these changes, and how they may be altering general assumptions about knowledge, is essential for teachers and teacher educators to navigate them thoughtfully and ensure that disciplinary knowledge keeps pace with societal and technological change. The rapid dissemination of GenAI may signal one of these epistemic shifts (Dunnigan et al., 2023).

Experienced teachers and teacher educators possess a unique kind of professional knowledge of teaching—what Shulman and others have referred to as a *practical wisdom* of their profession and context (Shulman & Wilson, 2004; Shulman et al., 2006). As GenAI changes the landscape of knowledge, we must consider how it is creating an epistemic shift and how it can interplay with the practical wisdom of teaching. This awareness may help us to mitigate challenges and risks while maximizing the potential and power of such tools.

In this paper, we provide an overview of the concept of practical wisdom, noting the crucial role of experience, reflection, and ethical decision-making in cultivating such knowledge. We discuss the integration of these elements with AI technologies. Further, we seek to address the challenges and opportunities presented by AI, proposing a balanced approach to leveraging technology in enhancing educational practices and research, while preserving the invaluable insights of practical wisdom and knowledge of practice. Through informed awareness, we believe GenAI can augment human expertise without supplanting the nuanced understanding and ethical judgment abilities that are essential to professional excellence.

## **Practical Wisdom in Education**

Practical wisdom, rooted in Aristotle's concept of *phronesis*, is the ability to make judicious decisions in complex, variable situations, balancing ethical values with practical knowledge (Goodman, 2003). In educational and professional contexts, it points to the integration of theoretical knowledge with nuanced understandings derived from firsthand experience (Shulman & Wilson, 2004). It encompasses both the technical skills and knowledge

required in a profession and the judgment, intuition, and ethical considerations that inform decision-making in complex, real-world situations (Stenberg & Maaranen, 2022).

These principles guide professionals in navigating the challenges and tensions inherent in their fields, for a holistic, adaptable approach to their roles. For teachers and teacher educators, practical wisdom involves the ability to make sound judgments and decisions in their schools and classrooms, balancing pedagogical theories with the complex, dynamic realities of teaching diverse learners (Lunenberg & Korthagen, 2009). This includes reflective practice, where educators continuously evaluate and adapt their teaching strategies based on student feedback and outcomes (Schon & DeSanctis, 1986). Ethical decision-making is also crucial here, as teachers must navigate moral and ethical dilemmas in education, considering the best interests of their students. Practical wisdom in teaching is embedded in the nuanced context of each educational setting based on applying their knowledge and experience to foster effective, inclusive, and ethical learning environments.

### **Impact of AI on Educational Practice and Knowledge**

When technological capacity takes a big societal leap, it leads to fundamental changes in how people think and learn—changing aspects of the nature of knowledge (Postman, 1998). Consider the advent of the printing press—where books could suddenly be placed in the hands of the masses. This led to knowledge and literacy dissemination at scales never seen before. Such moments often take time to become visible. But we live in exponential technology times (Azhar, 2021), where one might argue that such shifts are happening faster (e.g., the internet and social media have brought an era of change to the immediacy, availability, and trustworthiness of knowledge). GenAI is likely to be one more landmark shift in the nature of human ability and knowledge generation.

Other media theorists, such as Ong (1982), Postman (1992), McLuhan (1964), have argued that new media have an even more fundamental effect on humans. Consider for instance, an oral culture. In such a culture, traditions are highly dependent on memory, improvisation, and rhetorical skills, building deep personal connections through face-to-face interactions. Knowledge in this context would be transient, communal and shaped by storytelling, limiting truth to shared perspectives. This would form the backbone of cultural identity and social hierarchies built around skilled orators. However, oral traditions also facilitate the development of rich linguistic expressions, preserving folklore that influences generations.

As we noted previously, the advent of the printing press changed all of these elements, as society shifted away from a strictly oral culture of knowledge. The printing press may be one of the most significant technological advances of human cultural evolution. It could be argued that our educational system is built around the “book.” The “book” and the ability it provided to inscribe and share ideas in a concrete form is what led to the renaissance, the reformation, the scientific revolution. By democratizing access to information and knowledge, the book, challenged authority, and popularized ideas such as “all men [*sic*] are created equal,” or “man [*sic*] is born free, but he is everywhere in chains” leading to transformative social change, the impact of which we feel even today.

Most of the significant effects of the invention and spread of print can be traced to certain specific properties of print media: in particular, print created objects that were *mobile, immutable, presentable, and readable*; and these properties led to fundamental changes in how we think, both individually and collectively. These properties ensured (or seemed to ensure) that discussions could be carried beyond the conversational arena, that ideas could be transported without change in their essential nature, and that they could be universally and consistently understood (at least by those who knew the conventions) in a way that more mutable, “unreliable” oral retellings could not.

A few of the consequences of this transference of properties from the medium to the message were that it solidified the notion of ownership of ideas and the convention that arguments could be settled by invoking the appropriate text, that ideas could be “owned” and more. This is of course in sharp contrast to an oral culture, where meanings were

deeply connected to speech, with no external arbitrator or authority. Thus, print, by its very nature, prefigured the manner in which discourse could be, and was, structured (Mishra, Spiro & Feltovich, 1996).

The question then becomes, what is the nature of this new medium of generative AI? What kinds of knowing and being does it support, and where does it leave us short? What does it mean to have a conversational, linguistically proficient, psychological “other” sharing the same intellectual space with us? In this case, a psychological ‘other’ that is trained on almost everything that humans have inscribed in books, films and visual art. While this technology has deep and wide expertise on many topics, it has no understanding of what its linguistic moves mean, lacking, as it does, any knowledge or connection with the real world. It is fundamentally a “language model.”

AI, and GenAI in particular, might change the nature of knowledge in society by democratizing access to information, enabling personalized learning, and fostering new forms of creation and innovation. It might shift our focus from memorization to critical thinking and problem-solving skills, as AI has more capacity to handle data retrieval and analysis. However, it also raises a question about where the human element fits in all this—in addition to concerns about potential overreliance on AI to do the thinking, or about quality and bias of information, potential for misinformation, and the need for digital literacy. All of this affects teachers and teacher educators, as AI's influence could redefine how knowledge is created, shared, and valued, emphasizing the importance of ethical considerations and human oversight.

What does all this mean for educators’ and the practical wisdom they bring to the table?

There are always advantages and disadvantages based on the way shifts occur. As Neil Postman (1998) once noted “technology giveth and technology taketh away.”

### **Possibilities and Pitfalls**

While the dissemination of AI in education is still nascent and will continue to reshape the landscape of practice by multitudes, it is already demonstrating how it may effect change. There are certainly benefits—for instance, in areas like personalization, which have long been a challenge for individual educators, AI can create personalized learning paths based on individual student data (Chen & Perez, 2023). AI enables predictive analytics for educational outcomes, and can streamline many teachers’ daily or administrative tasks (Doleck et al., 2020). These capabilities are just the tip of the iceberg in the ways that it may support the ongoing knowledge of teachers by broadening their exposure to diverse educational strategies and enhancing their reflective practice.

GenAI in particular may help teachers to create personalized learning materials, simulate complex problem-solving scenarios, and provide adaptive feedback to students. Given its generative power, it can assist in curriculum development, creating diverse and thoughtfully-targeted assessment items, with insights into student learning patterns. In all of these ways, it represents a powerful tool for enhancing educational experiences by automating and personalizing aspects of teaching and learning.

But consider how GenAI works. It functions quite literally by being generative with language, ideas, concepts and other creations of linguistics and imagery, areas which have long been considered to be uniquely human, as the fabric of human thought. In that sense, we see again how it might shift the balance of knowledge. For instance, generative actions that require significant effort and creativity for humans (e.g., writing a poem, an essay, or perhaps, developing a unique lesson plan) can be done with speed and ease in the context of GenAI. For many humans, writing a poem (even a mediocre one) is a complex thinking process—while ChatGPT can generate 100 poems of varying quality, some indistinguishable from human creation, within the space of a single conversation. In that sense, it has taken up certain cognitive or linguistic powers and skills that humans have lauded themselves for

through history—use of language, logic, knowledge, combinatorial powers, technical skill, etc.—and maximized them.

As Yuval Harari recently wrote, it is as if “AI has hacked the operating system of human civilization” (Harari, 2023). He goes on to write:

Language is the stuff almost all human culture is made of... What would happen once a non-human intelligence becomes better than the average human at telling stories, composing melodies, drawing images, and writing laws and scriptures?

This suggests that with this new and growing technological capability for traditionally human areas of “thinking” and content or idea generation—what will become most valuable for humans are qualities that are irreplaceably our own. Qualities like our emotional understanding, sensitivity to context, real-world knowledge, embodied awareness, social skills, judgment, and other more inimitable understandings, will become paramount. This is true for everyone, but especially for those in human-centered fields, like teaching, which require us to develop and support the skills, knowledge and understandings of other people.

Thus, this shift raises important questions about the balance between technology and the human elements of teaching, like empathy, ethical judgment, intuitive contextual knowledge, the development of social skills, and more. As such, we need to blend AI's capabilities with the irreplaceable value of practical wisdom and human-centered knowledge of practice in education.

Of course, there are also many other significant concerns and cautions related to GenAI in education, which require additional and specific sensitivities in our practical wisdom. For instance, much has been discussed of the inherent bias in many AI models leading to unfair or inaccurate content generation, reflecting the data they were trained on (Cheuk, 2021; Warr et al., 2023). Such elements add an additional facet to teachers' awareness about equity and implicit bias. Privacy concerns also emerge from collecting and processing student data, signaling a need for heightened ethical sensitivity to others' information, privacy, and identities (Nguyen, 2023)—particularly in a world already awash in privacy challenges and breaches.

More generally speaking, there is the danger of overreliance on such technologies (Karthikeyan, 2023), with concerns of how it might diminish students' and teachers' critical thinking, creativity and problem-solving skills—emphasizing the importance of giving attention to a mindset of thoughtful criticality in our work. Without wise and humanistic practice, AI technologies may fail to address the nuanced, interpersonal aspects of learning and teaching, making the future of practical wisdom increasingly important.

### **The Future: Supporting Teachers in an AI World**

In education, we find ourselves at a crossroads where the promises of AI offer transformative potential, while the cautions remind us of the importance of maintaining our most humanistic elements. This requires a balanced approach from teacher education, integrating AI to enhance educational practices while ensuring that it supports rather than undermines teachers' critical thinking, creativity, compassion, and equity.

This epistemic shift also presents an opportunity for teacher educators to deepen and broaden the application of practical wisdom—by leveraging technology in ways that enhance teachers' skills with a focus on things like personal judgment/decision-making, reflective practice, ethical awareness, empathy, social-emotional awareness, and sensitivity to context and nuance. While there is a call for teacher education to develop new competencies in

digital literacy and AI integration, there is an increased need to keep a focus on maintaining the core humanistic values (the things AI cannot do). The challenge for teacher educators lies in balancing technological advancements with the timeless principles of practical wisdom—to ensure that educators remain at the heart of the teaching and learning process, guiding and interpreting the AI-augmented educational landscape.

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