

Critical AI literacy & ELT: teaching in an AI-rich world

by JOSHUA M. PAIZ

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The release of advanced large language model (LLM) AI tools in late 2022 marked a pivotal moment across various sectors. Throughout 2023, there were predictions of AI drastically changing professions from education to customer service and from data analysis to basic coding. Although it is premature to determine AI's full effects on jobs, initial reports indicate a shift in work patterns rather than a complete dissolution of entire job sectors (refer to McKinsey & Company, UNESCO, US Department of Education, 2023). In essence, roles like computer programming and teaching will still exist but will evolve. Programmers will pivot towards creative problem-solving, and systems design rather than mundane coding. Teachers will engage more deeply in creating meaningful educational experiences and relationships, rather than administrative tasks. Tools such as ChatGPT and Claude2 are examples of how AI can refocus our attention to the uniquely human aspects of work. As AI becomes more prevalent, critical AI literacy will be essential, not just in teacher training but also in classroom implementation for both ELT professionals and students.

Understanding critical AI literacy

Fortunately, an interdisciplinary framework for working with AI tools already exists in the form of critical AI literacy (e.g., Holmes and Tuomi 2022; Long and Magerko 2020). The work that remains to be done is to consider how this conceptual tool might migrate into ELT contexts in ways that respect disciplinary expertise and the unique needs of our practitioners and learners. In this short article, I will introduce the notion of critical AI literacy and its constituent parts—a knowledge of how AI works, the ability to identify and use AI tools, an understanding of ethical AI integration, and the ability to meaningfully engage with AI-driven content—before briefly discussing what this means for educators and students. It should be noted that this proposed framework is foundational to human/AI interaction in educational contexts, understanding the pedagogical uses for AI tools, and adequately preparing our students for a future that we ourselves could only have imagined—unless we have been regular attenders of technical conferences in computer sciences and engineering.

Knowing how AI works

Effective teaching requires harnessing multiple forms of knowledge, with AI literacy becoming increasingly essential. Teachers needn't master the intricacies of algorithms like gradient descent, but should understand various AI tools such as intelligent tutoring systems (like Duolingo), generative AI (such as ChatGPT), and AI planning tools (like Twee). It's important to grasp how these AIs learn, often through reinforcement learning—getting data, recognizing patterns, and making predictions, refining their capabilities with each iteration, much like learning to distinguish between a cat and a dog, or creating new text. This understanding relies on neural networks, inspired by the human brain, to gain functionality. Teachers should have sufficient grasp of AI to explain it to peers and students and use it in AI-relevant professional tasks. Students should start to understand AI, building knowledge through education, and later applying it professionally and socially.

The ability to identify and use AI tools

This part of our framework feels a little more straightforward. However, AI foundation models—the engine that gives tools like ChatGPT their power—are becoming more widely available to developers through services like AWS Bedrock new AI tools will continue to come online at an increasing clip. So, being able to identify the tool and its underlying foundation model will better allow students and teachers to identify the right tool for the right task and to consider the possible biases built into the tool by its developers. Said another way, just because you find a new tool from a developer claiming they are a more ethical company does not mean the foundation of that tool is new. They may well be using an established foundation model—much as automakers do when they engage in badge engineering (e.g., Ford, Jaguar, and Land Rover).

Understanding ethical AI integration

Incorporating ethical AI into the realm of English Language Teaching (ELT) necessitates a commitment to transparency and critical reflection by both educators and learners. ELT practitioners must be vigilant in disclosing the use and scope of AI tools within the classroom, ensuring that students are aware of when and how their language learning is being augmented by these systems. It's crucial to examine the implications of AI interactions on the learning process, from data privacy to the nuances of cultural sensitivity encoded within AI language models. By fostering an environment of open dialogue, educators empower students to critically assess the role of AI in their educational experiences. This critical reflection also involves questioning how AI may influence the authenticity and creativity in language use, thus nurturing a conscientious use of technology that upholds the humanistic values central to language education. Through such ethical integration, both ELT practitioners and students can navigate the evolving landscape of AI in education with informed consent and critical awareness, ensuring that these powerful tools serve to enhance, rather than undermine, the richness of language learning and teaching.

Understanding ethical AI integration

For ELT teachers, integrating critical media literacy into their practice involves equipping themselves and their students with the ability to scrutinize AI-mediated content critically. This includes identifying and evaluating AI-generated materials like deepfakes or algorithmically curated newsfeeds, which are increasingly prevalent. Teachers should foster skills that enable a discerning approach to such content, questioning its origin, purpose, and impact. By doing so, they empower students to navigate digital media landscapes safely and responsibly, fostering a classroom culture that values critical thinking and informed analysis in the age of AI.

In this AI-augmented era, ELT practitioners must evolve with the technology, teaching students to navigate AI with a critical lens, discern its biases, and use it ethically. By merging critical AI literacy with language education, they can foster a future where technology and humanity enhance each other, preparing students for a world where AI is not just a tool but a ubiquitous collaborator in learning and everyday life.

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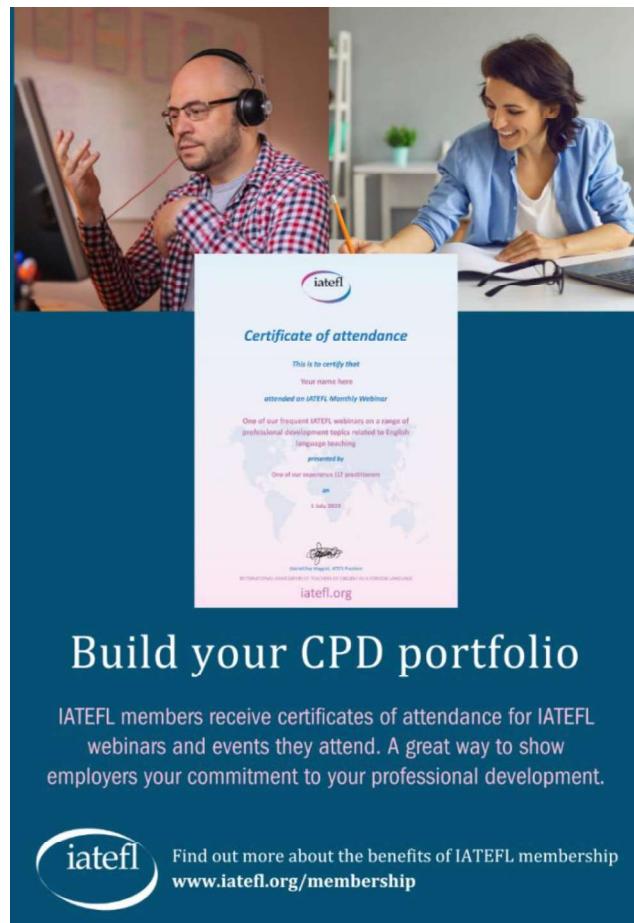
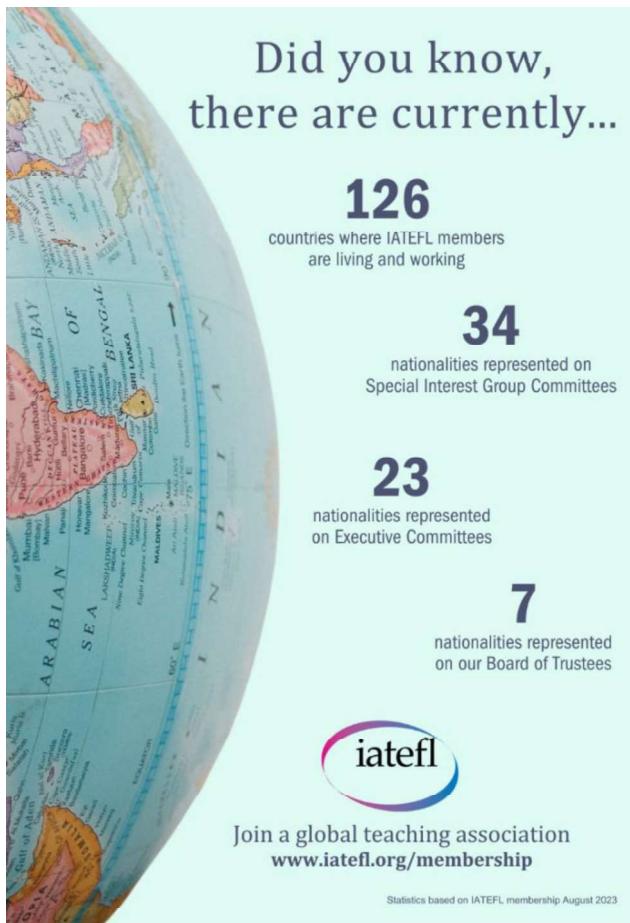
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Droids Don't Teach, We Do: Addressing AI Anxiety in Language Teaching and Learning

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In late 2023, I was invited to offer AI literacy workshops to K-12 English language teachers and teacher educators by the Bahrain Teachers' College and the Ministry of Education of Bahrain as part of a specialist exchange program under the auspices of the U.S. Department of State. I

assumed my audience would share my enthusiasm for AI integration, given my experience as a power user and scholar. However, after my first session, it was clear that skepticism about AI and its educational implications was far greater than I had anticipated, especially considering the Ministry of Education and College leadership had asked me to come all this way to provide the training. This skepticism hindered their willingness to consider my pedagogical strategies. That evening, I reflected on their skepticism and noted their repeated expressions of worry and fear, such as, 'I'm worried about...', 'It's troubling that...', and 'I'm afraid that...'. The common thread to all of these was fear and worry. The atmosphere of the first session was rife with, in a word, anxiety. For me, this led to a night of intensive research into AI anxiety and resistance to new technology in educational technology, engineering education, and the CALL literature.

What I found was a tool-for-thought, developed at an interdisciplinary crossroads, that could be applied to a very real-world problem. This theoretical construct offered insights into the range of emotions associated with the emergence and proliferation of intelligent systems in educational settings. Emerging first in the late 2010s, the idea of "AI anxiety" describes the nervousness or fear related to adopting and integrating AI tools into daily life. This anxiety can arise from worries about the accuracy and fairness of AI algorithms; the impact AI may have on traditional professional practice, decision-making, and expertise; the impact AI may have on job satisfaction and security; the role of planetary-scale computing on the climate crisis; and, even, the influence of AI on interpersonal relationships and willingness to engage in productive struggle. This last one is key to understanding the worries about AI voiced by many in education—namely that there is value in productive struggle, as it is often a key part of the learning process (see Crawford, 2020; Johnson & Verdicchio, 2017; Li & Huang, 2020).

Traditional Western news media, which operates 24/7 and often uses sensationalist reporting, increases AI anxiety by keeping audiences constantly uneasy. We've all seen many articles and blog posts claiming that things like college essays, part-time retail jobs, and even teaching are "doomed". For those who want a more critical, but balanced view of AI, Crawford's (2020) *The Atlas of AI: Power, Politics, and the Planetary Cost of Artificial Intelligence* and Buolamwini's (2023) *Unmasking AI: My Mission to Protect What is Human in a World of Machines* are required reading – and actually do offer a critical voice in good faith.

Scholarship about AI anxiety also highlights the key role that users of new technologies play in facilitating their (eventual) adoption by a larger group. For example, the [Mid-Atlantic Association for Language Learning Technology \(MAALLT\)](#) regularly holds "Tech Slams." During their recent "M.AI the Tech Slam be with You" event, many AI-friendly presentations took place—covering everything from using AI to support translanguaging in language courses more generally to using AI to help students navigate Spanish for specific purposes (SSP). It was clear that the presenters, myself included, were comprised primarily of early adopters and power users. Early adopters are those

included, were comprised primarily of early adopters and power users. Early adopters are those individuals who are among the first to embrace and experiment with a new technology or process—think of your friend who was contract grading *before* contract grading was cool. Power users, on the other hand, are tech-savvy individuals who extensively use and push the limits of a new technology or process to maximize its potential—think of your one colleague who does not just know how to *use* generative AI, but who has fine-tuned a local model using a platform like GPT4ALL or Ollamma and PyTorch. These groups represent key demographics in facilitating the eventual adoption of a new technology or process because they tend to take a proactive approach to addressing change and have a high tolerance for uncertainty, which they then leverage to influence their professional networks' opinions and actions (see Bennett, 2014; Gillard, et al., 2008).

Why AI Anxiety Matters in Language Teaching and Learning

Understanding AI anxiety is crucial because, to integrate AI or help resistant teachers see its value successfully, we need to acknowledge and address their concerns, legitimate or otherwise. By creating space to discuss these anxieties, we can facilitate better engagement. Returning to the work that I did in Bahrain with the U.S. Department of State's English Language Specialists Program provides some additional insights. By recognizing AI anxiety as a legitimate phenomenon, I could better contextualize the hesitation and skepticism I encountered in my workshops. It became clear that to introduce AI integration strategies effectively, I first needed to acknowledge and address these underlying anxieties. This realization shifted my approach from simply presenting the potential benefits of AI to creating a space for open dialogue about concerns and fears. By coming to consider the role of AI anxiety, I came to understand the need for a holistic approach that considers not just the technological aspects of AI integration, but also its psychological and social implications for both teachers and learners.

The causes of AI anxiety in education are multifaceted and interrelated. At its core, many educators express a fear of obsolescence – a worry that AI might eventually replace human teachers altogether. This fear is not entirely unfounded, given the rapid advancements in AI technology. However, it often stems from a misunderstanding of AI's capabilities and limitations. Perhaps related are anxieties caused by the perceived loss of control over the learning process. Many language educators pride themselves on their ability to tailor instruction to individual student needs, and there is a concern that AI-driven systems might standardize this process, removing the human touch that many consider essential to effective language teaching.

We also cannot discuss *any* educational technology tool without also acknowledging the twin issues of data privacy and ethics, as both concerns also contribute significantly to AI anxiety. In an era

where data breaches and misuse of personal information are frequently in the news, educators worry about the implications of collecting and analyzing vast amounts of student data. Questions arise about who has access to this data, how it is used, and what long-term consequences it might have for students.

There is also a more subtle yet pervasive cause: the fear of the unknown. AI, especially in its more advanced forms, can seem like a “black box” to many educators. The need for more transparency in how AI systems make decisions can lead to distrust and reluctance to incorporate these tools into teaching practices. This opacity is particularly concerning in education, where understanding the reasoning behind pedagogical decisions is crucial. Educators often feel a sense of powerlessness when faced with AI systems they cannot fully comprehend or control. Moreover, this fear of the unknown extends beyond just the technology itself to its potential long-term impacts on learning processes and outcomes. Many teachers worry about unintended consequences that might arise from widespread AI adoption in education, fearing that we might be opening a Pandora’s box of educational and ethical challenges that we are not yet equipped to handle. Here is where collective action and voice become important, as individually, there is relatively little that any single actor can achieve when pushing for more ethical and professionally sound ed tech development. Indeed, tech leaders in the fields of ed tech and CALL need to join their voices together to demand greater transparency and alignment to professional best practices from both our institutional technical leaders and ed tech developers in industry who create the products that we then potentially adopt in our own classes and institutions.

Spotting AI Anxiety

How these anxieties manifest can vary widely depending on the teaching and learning context. Some researchers have found a more pronounced resistance to AI integration in K-12 settings, partly due to stricter curriculum standards and concerns about age-appropriate technology use (see Nazaretsky, et al. 2022; Oh & Ahn, 2024; Rinelli, 2013). Here, AI anxiety might manifest as outright rejection of AI tools or a reluctance to engage in professional development related to AI in education. Sometimes, the manifestations can be more nuanced. Some instructors might grudgingly accept basic AI tools while resisting more advanced applications. Others might enthusiastically embrace AI for administrative tasks but draw a hard line at its use in actual language instruction or assessment. It is also worth noting that AI anxiety does not just affect teachers; it extends to students and even administrative staff. Students might need help with the fairness of AI-driven assessments or the potential loss of personalized attention from human instructors. Administrators, on the other hand, might grapple with concerns about the cost-effectiveness of AI implementation versus potential job losses among teaching staff.

I understand these varied manifestations is crucial because it allows us to tailor our approaches

Understanding these varied manifestations is crucial because it allows us to tailor our approaches to addressing AI anxiety. A one-size-fits-all solution is unlikely to be effective across all these different contexts and stakeholder groups. Instead, we need to develop nuanced, context-specific strategies to address these concerns and foster a more balanced and informed perspective on AI in language education.

Addressing AI Anxiety

During my time working with the teacher-educators at Bahrain Teachers College and the language teachers in the Bahraini Ministry of Education, a rather clear starting point for addressing AI anxiety emerged—one with clear roots in my earlier work on inclusive instructional practices in language education. We must create, for want of a better term, a safe space for language teachers to express a variety of feelings and attitudes towards AI in the language classroom and to process those feelings in a respectful and welcoming environment. I say this because teachers may often feel that they are either being told how to teach, that certain ed tech is being mandated to them, or that ed tech developers are attempting to sell them (or their institutions) on a solution that does not help drive language learning and acquisition. So, creating a safe space for engagement can create an environment where teachers feel less resistant or defensive and, hopefully, more open to the ideas being presented in the training session. This is important not only to facilitate potential AI integration, but also to empower educators with the language and knowledge necessary to better advocate for themselves and their learners when faced with institutional or market pressures to adopt new technologies for the sake of staying “current”, “modern”, or “relevant.”

The first step toward doing so is to give name to the sense of unease that may be sitting just below the surface for some teachers by introducing them to the idea of AI anxiety. Through this, we accomplish two things. First, we give the teachers present the language with which to engage in sustained future discussions about AI in the classroom with an array of stakeholders. Second, and perhaps most importantly, we legitimize the feeling. We show them that they are not going to be viewed as contrarian, or luddite, or out-of-touch just because they are experiencing feelings of AI anxiety. Instead, we show them that what they are feeling is a legitimate thing to feel during times of transformative/disruptive change.

So, beginning a session on AI, especially training and workshop sessions, with a guided reflection can be a profoundly powerful moment for all involved. While I varied the questions to fit the group of teachers I was working with (e.g., teacher educators, vocational educators, English teachers, etc.), their core themes were consistent. They typically involved questions like:

- What aspects of AI in education make me most uncomfortable or anxious?

- How do I fear AI might impact the teacher-student relationship?
- What concerns do I have about AI's influence on language learning and communication skills?
- In what ways do I worry AI might affect job security in education?
- How do I think AI could change societal values related to language and cultural exchange?

From here, it can be helpful to use a familiar interactional framework to guide some discussion about AI anxiety to give teachers space to make their voices heard. Personally, I am a fan of the think-pair-share framework. I would have teachers talk with their table/row-mates about their responses to these questions after taking a few minutes to think/write about them on their own. One could even take a more purposeful approach and make sure that each group had one AI early adopter or power user and one AI skeptic to help create space for perspective-taking. Then, as a whole group, I would guide us in a pulse taking activity where we tried to establish the overall mood in the room. So, here we have the second step in addressing AI anxiety: give teachers space to reflect and engage with it.

We have only just begun to address AI anxiety. The real work involves moving from initial reflections to a deeper, practical understanding of AI's role in education. To truly confront AI anxiety, we need to provide hands-on experiences and foster critical discussions for teachers to explore and demystify the technology. This involves providing educators with chances to interact directly with AI tools relevant to their professional practice. By gaining first hand experience, teachers can better understand the capabilities and limitations of these technologies, which often helps to dispel unfounded fears and highlight genuine areas of concern. For example, a hands-on lesson planning challenge can be a fruitful space in which teachers can explore AI tools and how they intersect with their disciplinary expertise. It allows them to "try on" AI to see how/if it will work for them. In this activity, pairs of teachers create lesson plans on the same topic, with one using AI assistance and the other using traditional methods. After comparing their results, teachers discuss the differences, surprises, and potential pitfalls they encountered. This practical exercise allows educators to directly experience AI's capabilities and limitations in a familiar context and with trusted colleagues, fostering critical thinking about its role in lesson planning. By engaging with the technology firsthand, teachers can begin to see AI as a potential tool rather than a threat, addressing their anxieties through tangible experience and collaborative reflection.

Alongside practical exploration, we should engage teachers in discussions about realistic scenarios where AI might be integrated into their classrooms. One could begin by providing teachers with a set of scenarios to discuss, such as:

- An AI-powered writing assistant for student essays

- An automated translation tool for multilingual classrooms
- A personalized AI tutor for grammar and vocabulary practice
- AI-generated quizzes and assessments
- A virtual AI teaching assistant for answering student questions outside class hours

To help guide teachers thinking as they work either alone or in pairs, a set of guiding questions can help facilitate discussion and engagement. These questions can be a starting point:

- How might [AI tool] enhance or potentially hinder student learning?
- What ethical considerations arise from implementing this technology?
- How could this AI application change your role as a teacher?
- What potential challenges or unintended consequences should we anticipate?
- What are our core values and non-negotiable principles regarding EdTech/AI adoption?

Note that many of these questions should feel familiar, as they mirror those we asked teachers to consider when discussing AI anxiety in the first place. This approach encourages educators to consider both the potential benefits and challenges of AI implementation, grounding their reflections in concrete situations rather than abstract fears.

Moreover, offering training sessions that focus on developing skills that complement AI can be incredibly empowering. These include honing critical thinking, creative problem-solving, and effective technology integration in pedagogy. By focusing on these areas, we show teachers that their role remains crucial and adaptable in an AI-enhanced educational landscape. Additionally, focusing on these skills can model for teachers the ways in which they can either engage with AI tools with their students or that they can choose to craft assignments that move students away from being able to use AI supports. For example, teachers can be given an activity where they engage with AI tools to design personalized learning pathways for neurodiverse language learners. Participants use AI language models to generate initial suggestions for learning strategies and resources based on profiles of hypothetical students with various neurodiversities. The core of the activity involves critically evaluating and refining these AI-generated suggestions, and combining them with teachers' professional expertise to create comprehensive, flexible learning plans. Through this process, educators explore how AI can be leveraged to support individualized instruction while recognizing the essential role of human insight in addressing the complex needs

of neurodiverse learners.

It is also vital to facilitate discussions on the ethical implications of AI in education. Here, friendly debate can be a helpful tool. In one activity that my Bahraini participants responded to quite well, teachers are presented with a series of ethical dilemmas involving AI use in language education. For instance, they might debate the use of AI-powered writing assistants in essay composition. Working in small groups, they analyze this scenario, considering various stakeholder perspectives and potential consequences. Some groups argued that these tools can help students improve their writing skills and boost confidence, while others contended that overreliance on AI could hinder genuine language acquisition and raise concerns about academic integrity. Groups then engage in a structured debate, presenting arguments for different ethical stances on AI implementation in this context. The exercise concluded with a collaborative effort to draft guidelines for responsible AI use in their classrooms. This activity encourages deep reflection on the ethical implications of AI in education, equipping teachers to make informed decisions and guide students in responsible AI utilization. This not only empowers teachers to make informed decisions about AI use but also equips them to guide students in responsible AI utilization – a critical skill for the future.

Lastly, establishing regular forums or channels for teachers to share their ongoing experiences, concerns, and insights about AI as they continue to engage with it can be immensely valuable. It can be particularly beneficial to create platforms for both early adopters and power users to take on leadership roles in these conversations, sharing their hardwon knowledge and contextualized experiences with their peers. Likewise, AI skeptics should be part of this dialogue as well and in equal measure, as their voices often underscore critical areas of concern that need to be addressed when it comes to AI integration into education. This fosters a supportive community of practice where educators can learn from each other, voice concerns, and collectively navigate the evolving landscape of AI in education.

By actively engaging with AI in these ways, we can help teachers move beyond initial anxiety towards a more nuanced understanding of the role of technology in education. This approach transforms vague fears into specific, addressable concerns and enables teachers to become active participants in shaping how AI is implemented in their classrooms and broader educational contexts. In doing so, we not only address AI anxiety but also empower educators to lead the way in thoughtfully integrating AI into the future of education.

Addressing AI Anxiety with Our Students

Given the nature of our work, it's equally important to consider how we can help our students navigate their own concerns about AI in education. In many ways, students' anxieties may mirror those of their teachers – fears about job prospects, worries about the authenticity of their work,

and uncertainties about the future of learning. However, students also bring unique perspectives and concerns to the table, often shaped by their supposed digital nativity and the looming specter of an AI-integrated workforce they may enter.

As with teachers, creating a safe space for students to express their feelings about AI is paramount. In my work with students at George Washington University and Montgomery College, I've found that open forums or "AI town halls" can be particularly effective. These sessions allow students to voice their concerns, ask questions, and share their experiences with AI tools in a non-judgmental environment. It's important to validate their feelings, much as we do with teachers, showing them that their anxieties are legitimate and worth exploring. These town halls also proved useful in generating ideas for activities that can meet students where they are when it comes to AI integration and being purposeful, ethical learners.

One such activity that came from discussions with my TESOL certificate students at Montgomery College was the "day in the life" planning exercise. This activity has resonated well with students in pilot sessions in my college composition and English for academic purposes (EAP) courses. In this activity, students are asked to imagine and map out a typical day in their future professional lives, considering how AI might be integrated into various aspects of their work. They then share these scenarios in small groups, discussing both the exciting possibilities and potential challenges they envision. This exercise not only helps students concretize their thoughts about AI but also encourages them to think critically about its implications for their future careers.

Hands-on experience with AI tools, tailored to the student context, is also vital, just as it is for educators. For instance, in language classes, I've had students experiment with AI writing assistants to compose essays in their target language while better understanding the nuance of how language is used with a target audience in that language. For example, how does our linguistic toolkit flex when communicating complex technical information to a general, youth audience in North America vs. a specialist audience at a Sino-American joint-venture university? They then engage in a reflection and discussion session, considering questions such as:

- How did using the AI tool affect your learning process?
- What aspects of language production did the AI assist with, and what aspects required your own knowledge and skills?
- How might reliance on such tools impact your language acquisition in the long term?

This practical engagement helps demystify AI tools and allows students to form more nuanced opinions about their use in education.

Perhaps most importantly, we need to empower students to be active participants in shaping how AI is used in their education. This could involve creating student-led committees to provide input on AI policies in schools, or encouraging students to propose innovative ways to integrate AI into their learning experiences. By giving students agency in this process, we not only address their anxieties but also prepare them to be informed and engaged citizens in an AI-augmented world.

Ultimately, addressing AI anxiety with our students is not just about alleviating fears; it's about equipping them with the tools, knowledge, and critical thinking skills to navigate an AI-integrated future confidently. By fostering open dialogue, providing hands-on experiences, and encouraging ethical reflection, we can help our students move from anxiety to empowerment, ready to harness AI as a tool for their learning and future success.

Closing Thoughts

Addressing AI anxiety will be an important skill not just for language teacher educators and ed tech trainers, but also for classroom teachers as they engage with their own learners and, in primary/secondary settings, with parents and other stakeholders. The approach outlined above creates space for language teachers to engage with their own AI anxiety, while also modeling how to help others (read: students, parents, admin) to confront their own AI anxiety in ways that support lifelong learning and student success. Most importantly, however, in a well-structured workshop or training session, the approach above can also help teachers as they acquire their own critical AI literacy, which is a vital skill not just for work and professional development, but also for being an engaged citizen.

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Artificial Intelligence, Real Teaching

A GUIDE TO AI IN ELT

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Chapter 2

Enhancing Critical AI Literacy in ELT

“I really appreciate having a space where I can learn more about what AI *really* is and to think about what it can and cannot help me do. I really wish more professors updated their classes to make space for this kind of work.”

—an undergraduate multilingual student in the United States

In our modern world, technology increasingly shapes our personal and professional spheres, from the rise in online relationships to the use of tablets in parenting, as noted in the popular press. This shift also extends to education, where mastering new learning management systems like Blackboard or Sakai has become essential. Reflecting on the past, skepticism around computers in classrooms, as discussed by Cuban (1993) and Papert (1987), has transformed over three decades into an acceptance and necessity of these technologies. This parallels the current emergence of AI in education, which was initially met with skepticism but now is increasingly recognized for its potential, much like the journey from writing to tech literacy.

The rise of generative AI in classrooms, which necessitates AI literacy, is a shift that is now being acknowledged, as evidenced by a bipartisan AI literacy bill in the United States (Donnelly, 2023). Unlike past transitions, we now have the advantage of rich research and perspectives to navigate this evolution from orality to literacy and now to AI literacy, provided that we remain open to embracing these changes. This chapter will explore the concept of tech literacy as an increasingly essential skill; provide a framework for critical AI literacy in English language teaching, drawing parallels from engineering and computer science education; and predict the future of AI integration in education.

New Literacies, Teaching, and Learning

If you are a language educator, you are already familiar with the concept of literacy and multiliteracies, especially as it relates to students who are navigating literate abilities in multiple languages (New London Group, 1996; Castro & Gottlieb, 2021; Watts-Taffe & Truscott, 2000), come from a background where

oral traditions remain dominant, or have limited literate ability in one's first language. Thus, acquiring literacy in another language represents a particular challenge (Windle & Miller, 2012). Many of us have come to accept a more expansive approach to literacy/-ies, akin to that advanced by Brandt (1998), which sees specialized knowledge as a form of literacy such that knowledge of how to "read" a football field and understand the importance of the rituals and symbols of that community of practice represents a form of literacy.

For these reasons, a natural extension of this is the idea of *technology literacy*. Tech literacy emerged in the early 1990s in technology and engineering education before moving out into education and public life more generally (Bybee, 2000; Davies, 2011). Many earlier engineering education and teacher education scholars had varied definitions of tech literacy, ranging from the simple (i.e., knowing about technology) to the nuanced (i.e., knowing how to use technology and when and *why* to use or not use it). Because of its alignment with notions of AI literacy, we use a more nuanced definition of tech literacy, drawing heavily from the work of Davies (2011). It can be helpful to understand tech literacy as a highly emergent and evolutionary form of literacy, one that is not acquired once and then taken off the proverbial shelf when needed but one that instead continues to grow and evolve as new technologies emerge. In this sense, tech literacy represents a dynamic skill set and critical habits of mind with a shared set of end goals.



Tech Literacy

At its most foundational level, technology literacy requires one to know about technology. While not necessarily requiring deep technical knowledge of how a central processing unit (CPU) works, it instead requires the basic knowledge that modern computing devices have a CPU that handles the instruction processing and acts like the "brain" of the machine. Knowing that a computer consists of a CPU, random access memory (RAM) (like short-term/working memory), and input/output (I/O) devices (e.g., keyboard, mouse, monitor) is sufficient. However, with only basic knowledge, there is relatively little that one can do as one must understand how to use the computer to complete real-world tasks. This requires one to move beyond a simple understanding of *what* something is to a deeper understanding of *how* to use a thing. For example, this is the difference between knowing that a keyboard is needed to provide input to a computer (basic), being able to type at speed by touch with minimal error (extended), knowing how to use only a keyboard and keyboard

shortcuts to completed advanced systems tasks (e.g., system administration through the command line interface) (advanced).

This knowledge also requires us to understand the *why* of implementation so that we can choose to either implement technology to support learning or remove it from the equation (Davies, 2011). Being literate to this level requires one to have enough knowledge about technology and how to use it to envision its purposeful deployment for specific purposes. Thus, knowing what a computer is does not automatically allow one to imagine possibilities for supporting learning. Applying this knowledge requires advanced tech literacy, disciplinary knowledge, and experience working in tandem to address the question of *why/why not*. Being able to do so enables one to more critically engage with technology and a tech-mediated society to make meaningful assessments of new technologies and how best to deploy them in daily life.

Despite initial misgivings, tech literacy has come to be seen as a vital part of being an engaged citizen in a modern society. For instance, community colleges, local governments, and nonprofit organizations have all taken steps to help individuals acquire basic tech literacy so that they can survive and thrive in tech-mediated workplaces as a means of moving beyond basic, lower-wage labor toward more skilled labor with better wages. However, basic tech literacy is no longer enough because of the proliferation of one key technology that is arguably an essential resource and utility in modern life: the internet.

Digital Literacy

With the proliferation of internet technologies and easy access to massive stores of information that they brought with them, a new form of literacy was needed. It was no longer enough to know what the internet was; one now needed to be able to assess, consume, and create information for a web-mediated world. This development gave rise to the notion of digital literacy, sometimes called information literacy, and it has come to be seen as an essential skill set in the modern classroom. The International Society for Technology in Education describes *digital literacy*, situated in the framework of computational thinking, as the ability to use technology to find, evaluate, create, and communicate information (Brooks-Young, 2016). As education becomes increasingly blended with web-powered technology, teachers must consider how to effectively integrate digital tools to promote student digital literacy.

Effective use of technology in the classroom requires both teacher and student digital literacy (Gretter & Yadav, 2018). Teachers must understand how to vet online resources, use digital platforms, comply with privacy policies, and teach students the cognitive and social-emotional skills to safely navigate the online world. Studies show that professional development focused on advancing teacher digital literacy leads to increased use of classroom technology and improvements in student learning outcomes (Hsu, 2016).

We believe that promoting student digital literacy begins with modeling—teachers should think aloud as they evaluate online information and demonstrate ethical technology use. Lessons can then allow students to practice critical thinking and ethical reasoning in the context of digital dilemmas, social media, online security, and identifying misinformation (Curran & Ribble, 2017). Researchers state that literacy instruction should go beyond operational, technical skills to empower students as creative, collaborative, and discerning digital citizens (Kiili et al., 2018).

With careful and intentional development of both teacher and student digital literacy skills, technology can be an asset for teaching and learning rather than a distraction. It is essential that schools continue to prioritize digital literacy instruction to prepare both educators and students to harness the educational potential of technology (Falloon, 2020). It is also important to remember that as with tech literacy before it, one can be more or less literate, and just because someone is familiar with technology or makes ready use of it does not mean that they are inherently highly literate (i.e., the myth of the digital native). To be highly literate suggests a certain creative and critical capacity with the tool. Said another way, just because our students know where to find information does not mean they are digital literates. Indeed, many will need help to move to higher proficiency levels and to engage in critical engagement with digital information and tools, especially given the sharp rise in mis- and disinformation.

The Emergence of AI Literacy

As we have witnessed the evolution of tech literacy into digital literacy and the emergence of powerful and publicly available generative AI tools, we now see that AI literacy will be increasingly required to operate in an AI-rich world. AI literacy itself is nothing new, however, with roots in the fields of computer sciences and engineering education (e.g., Pillay et al., 2018; Tenório et al., 2023), albeit with a stronger focus on understanding the algorithms and

technologies that undergird AI systems to a sufficient degree to create new AI systems and tools. Recently, however, there has been an increased call for a more generalized form of AI literacy to develop a competitive labor force (Ellingrud et al., 2023) and facilitate an informed citizenry. This more generalized AI literacy refigures the specialized form from computer sciences and engineering as its foundation—focusing on understanding AI fundamentals, learning how to use AI tools, and parsing AI-generated outputs. However, we believe that basic AI literacy skills will not be enough. Instead, what is needed is a more critical AI literacy that also equips individuals to parse and evaluate AI outputs and to identify the likelihood that content has been AI-generated or modified to identify potential mis- or disinformation, creating space and value around human expertise in an AI-rich world (e.g., Strauß, 2021). Here we turn to an extended discussion of what critical AI literacy entails for ELT and our continued work as practitioners working closely with English language learners.

Critical AI Literacy for ELT

Critical AI literacy can be broadly defined as the ability to understand, evaluate, and ethically use artificial intelligence, recognizing its capabilities, limitations, and societal impacts, particularly in the context of education and daily life. More specifically, critical AI literacy in the context of ELT consists of several subparts that work together to contribute to one's overall critical AI literacy, and an individual may be more competent in one area than another. Indeed, as new tools become available and the technology changes, one may find the need to “re-learn” or evolve certain AI skills and competencies. The components of critical AI literacy, which we will discuss in greater detail below, are:

- 1. Understanding of the pedagogical impacts of AI systems and how to influence students' use of AI tools to support lifelong learning**

This competency builds upon understanding how AI tools can enhance the learning process across various subjects by providing personalized learning experiences, fostering adaptive learning environments, and/or encouraging students to become active participants in their lifelong educational journey.

2. Understanding the fundamentals of AI systems and how they operate

This competency pertains to comprehending the basic mechanics of AI, such as machine learning and data processing, and how these can be applied in educational settings to support diverse learning styles and needs, automate administrative tasks, and facilitate innovative teaching methodologies.

3. Knowledge of the limits and capabilities of AI systems

This competency requires that educators become aware of both the strengths and limitations of AI in an educational context, recognizing where AI can supplement human instruction effectively and where it may fall short—particularly in areas requiring emotional intelligence, ethical considerations, and complex decision-making.

4. Habits of mind necessary to use AI systems and evaluate the output of AI systems and the critical digital literacy skills to identify likely AI-generated mis-/disinformation

This competency involves cultivating a critical mindset in educators and students to effectively use and evaluate AI tools and outputs, along with developing digital literacy skills that are crucial in identifying and understanding the implications of AI-generated information and potential misinformation in the educational context.

5. Knowledge of AI ethics and algorithmic fairness and how it interfaces with disciplinary best practices and theoretical underpinnings

This competency refers to understanding how AI ethics and fairness should be integrated into educational practices, ensuring that AI tools used in education are free from biases, respect privacy, and align with the ethical standards and educational objectives of various disciplines.

This critical AI literacy framework allows us to better think through the complexities of living and working in an increasingly AI-rich world. With new tools and technologies coming online almost daily and with students making regular use of AI tools, even if some report having a deficit view of AI because of academic dishonesty concerns, a framework can be valuable to

teachers. By breaking critical AI literacy into separate parts, busy educators can more quickly assess where they need to focus their ongoing professional development. Beyond that, by identifying the areas in which they are most competent, they can connect with peers who are more proficient in specific areas, which facilitates collaboration and peer-driven professional development. To explore the framework for critical AI literacy that we propose for ELT more fully, we discuss how to gauge and grow AI literacy competencies. Here, we also rely on an example of our own assessment to highlight the need to work together to meet student needs and expectations during a time of radical change.

Gauging AI Literacy and Growing Competencies

Given the rapid emergence of technology and the speed with which new AI tools that are more capable, versatile, and available, we advocate for a collaborative approach to addressing the acquisition of critical AI literacy and its core competencies. We do, however, acknowledge that this approach can be uncomfortable and require a certain amount of vulnerability and perhaps a (perceived) threat to the professional self. However, we truly are better together—or if you prefer the sociocognitivist approach, two brains working together on a problem are often times better than one. For this reason, we extend our invitation to you to think alongside us as we dig more deeply into what critical AI literacy looks like for ELT as a field and for us as practicing educators. We will do this by embracing that call to collaboration and discussing our own experiences to reinforce our point about acquiring AI literacy. We aim to create space for all of us no matter where we are in exploring and/or integrating AI systems into practice.

Figure 1 shows the AI literacy skills introduced in the previous section placed at the vertices of a radar chart. The various dashed lines represent how well each of the authors of this book feel they have “mastered” the various competencies needed to be AI-literate. We have chosen to map our ratings to a radar (or spider) chart to allow you to see the “shape” of our literacy more quickly and to see where our strengths and weaknesses lie. Immediately, you should notice a couple of peculiarities.

First, you may notice that none of us have a perfect pentagon shape to our AI literacy, nor do any one of us have all our marks at the five, or “expert,” rating. Indeed, from this chart, we could best describe ourselves as “highly skilled early adopters” (Rachel and Ilka) and “expert power users” (Joshua,

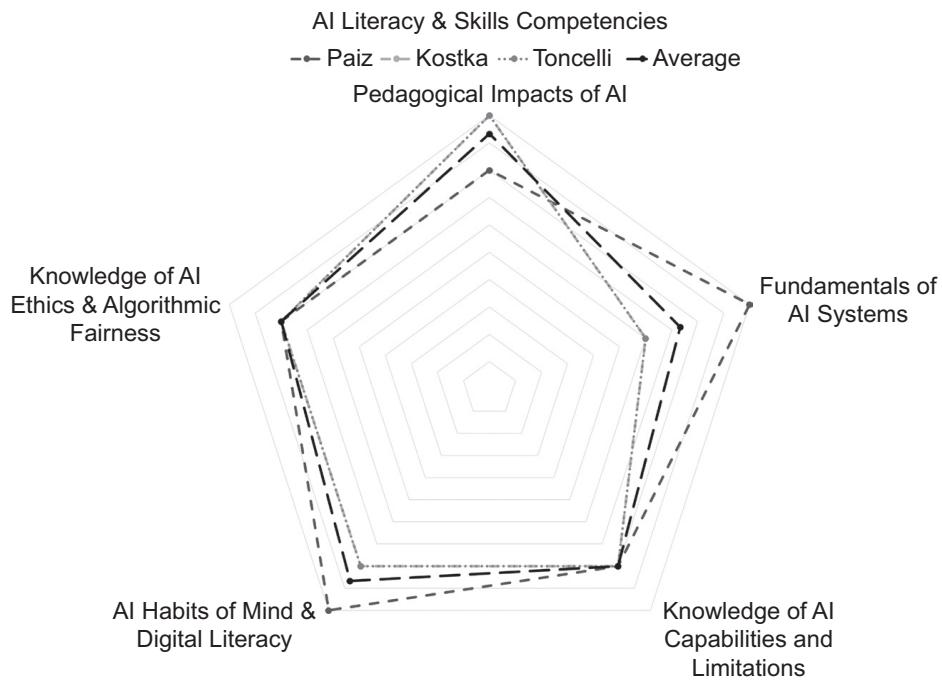


Figure 1 Comparative Radar Chart of AI Literacy and Skills Competencies

due to greater technical understanding). The second element you may notice is that we tend to balance each other out, with one author's growth area being another's strengths. The exception to this appears to be in the area of AI ethics and algorithmic fairness, which is itself a relatively new subfield of inquiry in AI, ethics, and computer science. Finally, you will likely note that it is relatively easy to identify the parts of the graph for one author (Joshua) and the average of the group but that there seems to be only three sets of lines instead of four. This is because the assessment scores for Rachel and Ilka were the same in each category.

As nice as a radar chart may be at presenting differences in the characteristics of two or more groups, there is a little bit of nuance lost in relying solely on data visualization. Thus, we return to the text to drill into this more deeply and explore the proposed critical AI literacy framework more fully. Here you may notice subtle shifts in tone and voice as each author offers some of their unique insights. We will, however, return to the organization of the framework to help carry the discussion in this section forward.

Pedagogical Impacts of AI on ELT

We have chosen to front-load this competency due to the nature of our work as ELT practitioners, teacher educator, and scholars. We see a critical role for generative AI in providing more individualized learning, automating certain administrative tasks, and empowering students to become lifelong learners by scaffolding their agency over the learning process. Perhaps most importantly, this also means knowing now just which AI systems to deploy for which tasks—for example, knowing to use something like Claude 2 when greater information fidelity is required and using ResearchRabbit when exploring a domain of knowledge and the history of scholarly conversation—but may also include possessing the judgment needed to know when *not* to use AI tools.

For Joshua, it was tempting to mark himself higher, as his current roles are classroom-focused, but he admittedly spends more time learning about the technical side of AI because of his work in the field of computer science and application development. As such, he spends some days thinking more about code and coding than pedagogy and teaching. For Rachel, this competency felt like her strength because it is most related to her existing expertise. Considering the pedagogical impacts of AI felt like an extension of her understanding of the learning process rather than something entirely new. Lastly, Ilka became interested in exploring applications of generative AI primarily because of her role as an educator. She knew that students were already using ChatGPT soon after its release and wanted to learn more about it in order to teach and support them more effectively. The three authors agree that prioritizing educational uses of generative AI requires an individual to grow their competency in identifying and utilizing AI tools as a resource to empower both teachers and learners in educational settings.

At its core, however, this competency will likely become critical to the work of ELT practitioners in an increasingly AI-rich world. This is why it was prioritized in our proposed critical AI literacy framework even though it is reliant on other, more foundational competencies, such as understanding AI systems and their limits and capabilities. Indeed, an understanding of AI's potential pedagogical implications can not only help prepare educators to be adaptable in their teaching practices but also better connect them with students to carry out the very human labor of education.



Understanding the Fundamentals of AI Systems and How They Operate

Here we want to stress that you do not need a deep technical understanding of AI systems and how they work. For example, you do not need a profound understanding of the math behind gradient descent or the ability to carry out operations on tensors on the back of a napkin. If reading that made you want to momentarily dissociate, do not worry. For the ELT practitioner, this competency is more about understanding applicable metaphors for AI (e.g., it is not like a library of information but more of a research assistant working *in* a library). It is more about understanding that modern AI systems engage in a form of *learning* about the world around them based on the *training data* to which they are exposed, often using a mix of *supervised* and *unsupervised machine learning*, along with a basic knowledge of what these terms refer to. You *do not* need a doctorate in engineering in AI to possess some form of AI literacy, just as you do not need a doctorate in philosophy or education to possess most forms of (more traditional) literacy.

For Joshua, much of his professional energies have been focused on taking an interdisciplinary approach to understanding AI systems and their underlying technologies (e.g., machine learning, natural language processing, deep learning), which is driven largely by a push to improve his skills in data and computer science during the early days of the pandemic. Given this fact and that the great amount of time he spends consuming computer science journals (and journalism) and active membership in organizations like the Association for Computing Machinery and the IEEE Education Society, he marked himself very highly here. He even teaches these fundamentals to students in his EAP and college composition courses. For Rachel, this competency has felt like the newest terrain. Since ChatGPT appeared on her radar in late 2022, she has been reading, exploring, and collaborating with peers to deepen her knowledge, yet she recognizes that her competency is still emerging. Similarly, Ilka finds many of the popular AI tools user-friendly (e.g., Twee, ChatGPT); however, she is still experimenting with these tools and learning the nuances of how they work.

Despite being second on our list, we see competency in this area as foundational to all others. One must understand the very basics of how AI works to proactively and meaningfully use them. Just as knowledge of mobile computing (e.g., using your smartphone) rose in importance through the 2010s, knowledge about AI will become increasingly important through the 2020s and beyond. Said another way, knowing about AI means knowing that you can



now pay for access to the underlying *foundation models* of AI, like Anthropic's Claude (through AWS Bedrock) or Google's Gemini (through Google Cloud AI). This then means that if an educator takes a critical look at a new tool, they will know to question which foundation model is being used to determine whether it is an accurate and trustworthy tool, something that truly offers unique functionality or merely a different use of an existing tool that they might already be paying for.

Knowledge of the Limits and Capabilities of AI Systems

This competency refers to one's ability to recognize when and how AI tools might supplement human action and expertise and where they might not meet our needs. For example, a student in one of Joshua's TESOL Institute classes once quipped that AI was useless because it could not finish a sentence from his unpublished novel when he put in the first three words of the sentence. The student thus concluded that AI was not worth talking about for educators. Many of us have seen the AI hype engine at work, as proponents have promised that AI will be our best friend, outperform us on affective tasks, or be indistinguishable from a human on the telephone. In both cases, someone with some competency in this area would see that what we have is a student who does not understand the capabilities of the AI tool they were using. The platform the student used was *not* designed to finish text from an unpublished manuscript with 100 percent fidelity and had no contextual prompting about *what* the user was looking for from the system. In the other case, we would know enough to say the claim that an AI phone agent can be indistinguishable from human beings on the phone is still rather far off because of processing delays and imperfect prosodic features in the audio output that do not match natural speech.

For Joshua, he critically marked himself lower here. While he feels well aware of AI's limitations, he sometimes feels that his ability to counter those limitations is emergent, especially given the speed with which even established tools like ChatGPT or Google Gemini are changing. Additionally, most of his work with students in this area has focused on awareness-raising instead of active mitigation strategies. Rachel also marked herself critically here as she shares a sense of awareness of limitations but is still actively developing skills to address those limitations on both front-end and back-end uses of AI. Finally, Ilka marked a lower score here given the many unknowns that remain as generative AI continues to develop. Because she also continues



to experiment with new tools, she feels that her knowledge in this area is still emerging.

For the ELT practitioner, competency in this area is necessary not only to join in (inter)disciplinary conversations about AI or to evaluate new AI tools that you or your students may be using. Indeed, it is also important for assessing potential AI outputs and identifying when additional attention may be needed to identify AI-generated mis-/disinformation.

Habits of Mind and Critical Digital Literacy

The phrase *habits of mind* refers to the ways in which individuals deploy their skills and knowledge to engage in meaningful, purposeful, and appropriate action. This competency focuses on the habits of mind necessary to engage with AI content and to use AI tools. It includes but is not limited to capabilities like flexibility and curiosity in exploring new tools and potential use cases; critical thinking to discern the influence of AI on a text, image, or video; engaging in continuous learning; reflective practice; and problem-solving with AI tools. More than this, however, is building advanced digital literacy skills so one can become more proficient at identifying possible AI outputs and potential mis-/disinformation and understanding the implications of AI-generated content on teaching, learning, and living in an AI-rich world.

For example, this competency for Joshua has taken the shape of engaging with AI systems as a teacher, a teacher educator, and a student, noting the different ways in which AI tools like Claude or Gamma App are used for different purposes and how prompting and dialogue change when working from each of these roles. He has found this a particularly helpful approach in considering how he talks about AI with his students, whether they are future ELT practitioners or international students in academic literacy classes. For Rachel, fostering habits of mind and critical digital literacy is an ongoing and open process of experimentation and reflection alongside teaching colleagues, in-service teachers she consults with, and students. Lastly, Ilka sees a direct link between her experimentation with AI tools in teaching and the professional development activities she has engaged in to build her own AI literacy skills. Thus, cultivating a habit of mind about AI involves a natural interplay between what she reads and learns about and how she uses those tools in class and outside of class to support teaching.

We feel quite strongly that competency in this area will be critical not only for educators but also for many going forward. We have already seen the



very real personal and social damage done by mis-/disinformation before the emergence of powerful generative AI tools. Given this fact, explicit training for both teachers and students is necessary at all levels. Indeed, when we read stories of AI paragons warning of AI's threat to humanity, we (the authors) are far less worried about AI robots run amok, the efforts of companies like Palantir notwithstanding. We are far more worried about AI-generated mis-/disinformation and its impacts on social order and stability.

Knowledge of AI Ethics and Algorithmic Fairness

AI ethics is a relatively new area of scholarly inquiry in computer science, and one of the first truly interdisciplinary efforts in AI, bringing together linguists, sociologists, psychologists, ethicists, computer scientists, and philosophers, among others. Broadly speaking, AI ethics deals with the responsible creation and use of artificial intelligence, ensuring that AI systems are developed and operated in a way that is fair and transparent, respects privacy, and does not harm individuals or society. AI ethics also involves considering the moral implications and societal impacts of AI, including issues of bias, accountability, and the rights of those affected by AI decisions. This often requires an awareness and understanding of *algorithmic fairness*, the knowledge that as AI systems learn about the world, they often acquire many of the biases that already exist in society, further reifying them and potentially amplifying their effects.

For Joshua, gaining competency in this area has involved engaging with the accessible literature that exists through popular press sources written by AI scholars with backgrounds in sociology, law, philosophy, and the letters (e.g., Christian, 2020; Crawford, 2021; Pasquale, 2020). From there, he began to consider how he could revise class activities about critical thinking to also address thinking about the AI tools we might use in class. For Rachel, turning to literature has also been effective, and she continues to enhance her competency in this area by attending interdisciplinary webinars and conferences. Because AI impacts all professional spheres beyond education, thinking more broadly with others has been useful. Ilka recognizes that this is a growth area for her skill set, having less experience with philosophy, ethics, and legal studies. Thinking critically about her emerging competency in this area has motivated her to explore scholarship in this area and begin drawing parallels to English language teaching.

Given that multilingual students may be the most at risk as AI tools are deployed to greater effect in educational settings, we would argue that



AI ethics and algorithmic fairness will come to define many of our disciplinary conversations after we address more immediate pedagogical questions. We will need to begin to grapple with the ethics of AI tools assessing our learners—either in the classroom or once they leave and enter the labor market—and the implications of AI systems potentially preferring racialized, prestige varieties of English and ways of presenting knowledge over others.

A framework can provide us with a means of making sometimes complex and “fuzzy” concepts more familiar. Additionally, it can provide us with a shared vocabulary to engage in discussions with our peers about the opportunities and challenges facing us in the classroom and as a discipline. Beyond that, it can help reduce anxieties by providing an accessible entry point and removing some of the unknown. We will discuss one road map to help you conceptualize your journey to greater AI literacy and, where appropriate, integration with your practice and teaching philosophy. First, however, we encourage you to take a moment to reflect using the “Make It Your Own” activity below.



Make It Your Own

Application Activity

1. **Reflective Self-Assessment:** Begin by reflecting on your current understanding and application of each of these areas in your educational practices. Consider your experiences, challenges, and successes related to each competency in the critical AI literacy framework discussed in this chapter.
2. **Self-Assessment Scale Explanation:**
 - **0—No Awareness:** You have no awareness or understanding of this competency, having heard of it only upon reading this chapter.
 - **1—Basic Awareness:** You have heard of it but lack detailed knowledge and practical experience.
 - **2—Developing Understanding:** You have a beginning understanding of the competency and/or are developing practical application skills.

- **3—Competent:** You possess a solid understanding and/or have practical experience or application in this area and maybe have had guiding conversations with peers.
 - **4—Proficient:** You have a strong understanding and significant experience; you can apply this knowledge effectively in teaching and learning and/or you're contributing to initiatives in this area.
 - **5—Expert:** You have an in-depth understanding and extensive experience; you are capable of teaching others and/or leading initiatives in this area.
3. **Self-Evaluation Criteria:** For each area, ask yourself the following questions:
 - How familiar am I with the concepts and theories underlying this area?
 - Have I applied these concepts in a practical educational setting?
 - Can I effectively communicate and explain these ideas to others?
 - Am I aware of the latest developments and research in this field?
 - How confidently can I handle challenges related to this area?
 4. **My AI Literacy Radar Chart:** Once you have taken a moment to self-assess, plot out your own AI literacy radar chart to see the shape of your current critical AI literacy levels. We would encourage you to make a copy or use pencil and return to this activity after a few months of continued professional development to see how your learning may have changed over time (Figure 2).
 5. **Honesty and Openness:** Approach the assessment with honesty and openness. Acknowledge areas where improvement is needed since this is a tool for personal and professional growth.
 6. **Plan for Improvement:** Based on your assessment, create a plan for improving areas where your knowledge or skills are weaker. This might include professional development courses, workshops, reading, or practical experimentation.

One challenge of acquiring critical AI literacy and then applying new competencies and habits of mind to implementation is feeling lost. Lost in the dense fog of technical descriptions. Lost in the forest of new tools. Lost in the winding and clogged roadways that are the rapidly expanding (inter-)disciplinary conversations on AI. These are all legitimate issues, some of which can speak

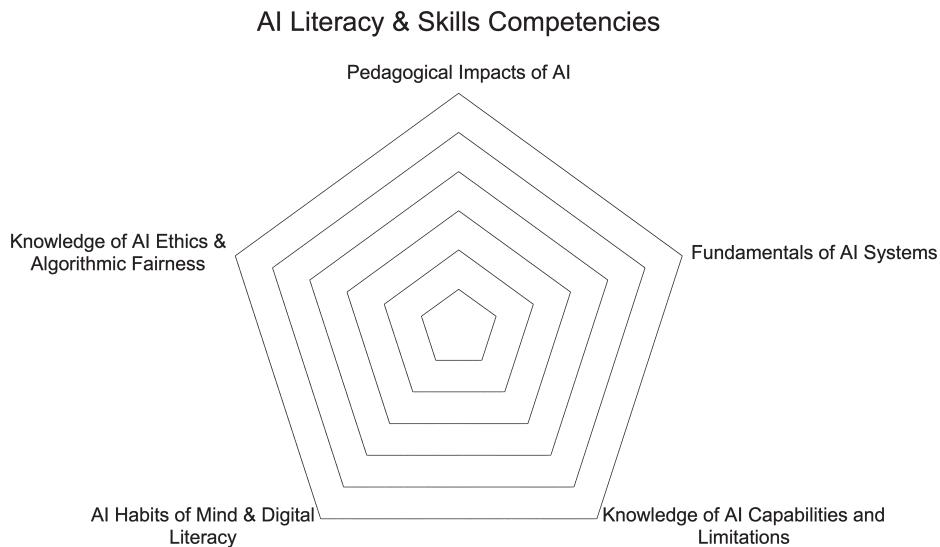


Figure 2 Framework of AI Literacy and Skills Competencies

to the challenges brought on by times of rapid, disruptive change, and some of which can speak to the challenges of facing an uncertain future. It is not our place to question any of the anxieties that you may be feeling. Instead, our goal is to equip you with tools that can help lessen that feeling of being lost, overwhelmed, or anxious.

To that end, we suggest adopting the metaphor of the road map, commonly used in project management and agile software development. A road map, in this context, gives us a simplified view of the journey ahead of us. It may contain:

- A destination
- A path forward
- A set of milestones to reach

The road map we display in Figure 3 consists of five key milestones that we hope will help you gauge your progress and ease some anxiety. Before we explain the details of the road map, we encourage you to bear two important facts in mind. First, while the road map as a visual metaphor tends to move into a rather linear representation, this journey is far from linear and has no clear end point. This is in no small part because of how rapidly the AI in education landscape is changing and newer, speedier, and more capable models become available and as existing tools may get scaled down to run locally on our smartphones and computers. We would like to emphasize that you are

AI LITERACY & INTEGRATION ROADMAP

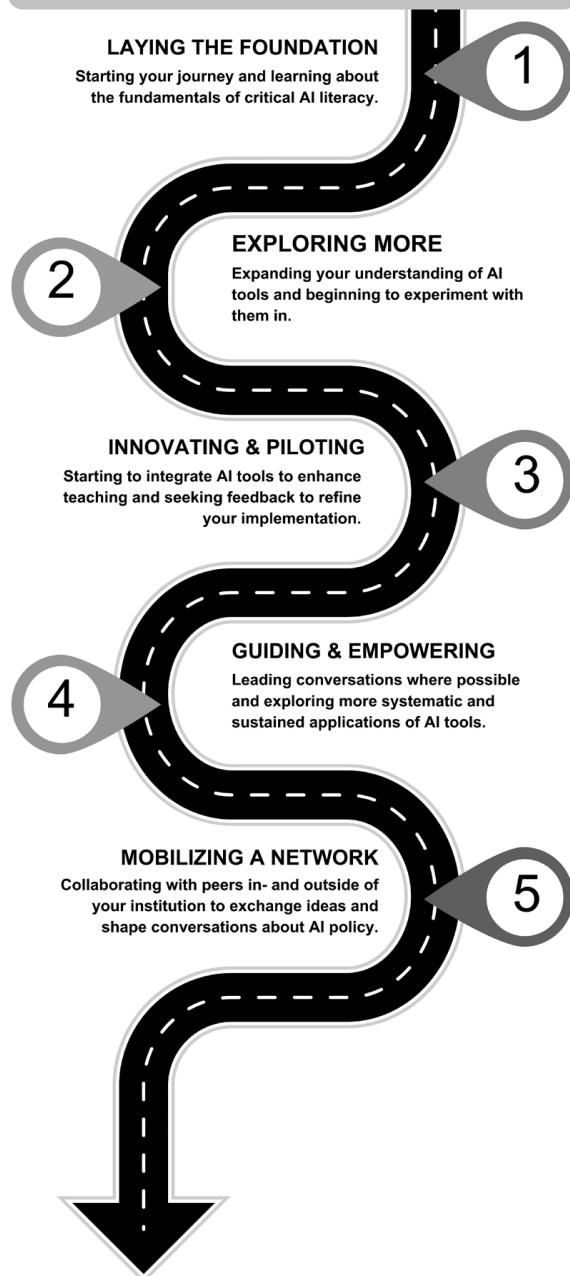


Figure 3 AI Literacy and Integration Road Map

not on this journey alone. While we have been pleased to be on this part of the journey with you, we encourage you to view this journey as a highly collaborative one at all stages and actively seek opportunities to work together with others in your institution or department to ease cognitive and affective burdens.

To give you a general sense of the road map and to create space for you to make it your own, we look very briefly at the five major stages identified in it. Remember that we encourage you to view this iteratively and collaboratively as you localize this road map to your own journey.

Laying the Foundation

This inaugural milestone encourages you to begin your AI literacy and integration journey by having an on-ramp where you can catch up to speed with your fellow travelers. In this case, it involves acquiring the foundational knowledge about AI systems that we discussed earlier (i.e., understanding that neural networks exist, that large language models drive many of the powerful generative AI tools on the market today, and that bias and fairness are legitimate concerns that we should be working to ameliorate). To help you move through this milestone, we encourage you to continue reading about AI in language education and participate in both disciplinary (e.g., TESOL International), industry (e.g., Grammarly), and interdisciplinary (e.g., IEEE Education Society) webinars and conferences to build your knowledge base and to raise your awareness of the available tools and their capabilities and limitations.



Exploring More

At this milestone, you are beginning to take those initial steps to seeing how AI tools might align with your teaching philosophy and practice. You may also begin to expand your knowledge base with a more nuanced understanding of AI fundamentals through workshops with organizations like AI for Education, AIEdu, and DeepLearning.AI. Here, you are “trying on” ideas and engaging in a form of directed play to see what works for you (and your learners) and what does not. Here, you also begin to separate the useful information and tools from considerable AI Hype.

Innovating and Piloting

When you reach the innovating and piloting milestone, you begin to take a more systematic approach to deploying AI literacy and tools into your educational practice and may even begin to use AI tools in a limited capacity *with* your students. While traveling through this marker, we encourage you to collaborate both with your peers and with your students, seeking to gain insights to refine your implementation of AI into your practice to better meet real learners' needs and align with disciplinary best practices.

Guiding and Empowering

You begin to use your emerging expertise and experience to engage in conversations and to empower your learners and your peers on their own AI literacy journeys. This may include a more systematic approach to deploying AI tools with feedback from students and an analysis of that feedback to drive the revision of lessons or materials. It may also mean partnering with a colleague to start leading workshops in your institution or regional professional organizations and guide the conversation on AI literacy and integration.

Mobilizing a Network

It is true that modern problems are interdisciplinary problems. Even the insular field of computer science has had to come to grips with the fact that many modern research questions about artificial intelligence and machine learning can only be answered by an interdisciplinary team working together and learning from each other's diverse perspectives. At this milestone, you begin to mobilize your network, such as people you have met at conferences or for coffee or as part of your online professional learning network (PLN). In this stage, you begin to collaborate on devising new pedagogical approaches to AI in ELT, exchange ideas, and shape conversations about AI policy.

Make It Your Own

Application Activities

To help you visualize and plan your journey through the five stages of AI literacy and integration, creating a personalized road map can reflect your current position and goals as well as the steps you need to take to advance.

1. **Self-Reflection and Assessment:** Start by reflecting on your current understanding and experience with AI in education. Use a scale from 0 (no awareness) to 5 (expert) to rate yourself on key aspects such as understanding of AI concepts, practical experience, ability to communicate AI ideas, awareness of latest developments, and confidence in handling challenges in AI.
2. **Creating Your Personal Road Map:**
 - **Drawing the Road Map:** On a blank sheet of paper, draw a road map. Label the start, the five major milestones as discussed in the book (Laying the Foundation, Exploring More, Innovating and Piloting, Guiding and Empowering, Mobilizing a Network), and the end point.
 - **Plotting Your Position:** Based on your self-assessment, mark your current position on the road map.
 - **Path Planning:** For each milestone ahead of your current position, write down specific actions or steps you need to take to reach that milestone. These can include reading certain materials, attending workshops, trying out AI tools, or collaborating with others.
3. **Setting Milestones and Goals:** Under each milestone, write down what achieving that milestone would look like for you. This might include specific skills acquired, projects completed, or feedback received.
4. **Reflection and Adjustment:** Reflect on the road map and consider if it aligns with your personal and professional goals in AI literacy and integration. Adjust your road map as needed.
5. **Review and Revise Periodically:** Keep this road map accessible and review it periodically (e.g., every three months). Update it as you progress, reflect on your journey, and adjust your goals and actions.

Chapter Takeaways

- From the early days of computers in the classroom to the emergence of the internet, we have experienced tremendous changes involving technology and learning.
- Literacy provides a powerful framework for thinking and acting in an AI-rich world; in this case, we proposed a critical AI literacy framework.
- Viewing AI literacy acquisition and implementation as a journey allows us flexibility and grace as we navigate these changing and sometimes challenging roads together.

Harnessing Collaborative AI for Inclusive Language Education

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Introduction

- How can we ensure that French curricula embrace diversity and inclusion when it comes to (generative) AI?

Introduction

- How can we ensure that French curricula embrace diversity and inclusion when it comes to (generative) AI?
- A framework of *Collaborative AI* can help to support inclusion and equity.
- Goal: Use AI to create culturally responsive, representative, and accessible language learning environments.

Context: The Need for Inclusion

Challenges in Traditional Curricula

Limited Representation of Diverse Cultures:

- Language education often marginalizes non-Western cultures, prioritizing Eurocentric norms and perspectives (Canagarajah, 2005; Holliday, 2005).
- Example: Curricula that focus on native-speaker norms and exclude Francophone voices from Africa and the Caribbean (Kumaravadivelu, 2006).

Colonial Legacies in Eurocentric Perspectives:

- Language teaching practices have historically been tied to colonial power structures, reinforcing a Western-centric worldview (Pennycook, 1998).
- Example: Emphasis on French literature and culture from Europe while neglecting global Francophone contributions.

Context: The Need for Inclusion

The Need for Decolonization

Amplifying Francophone Voices:

- There is a need to integrate diverse Francophone voices from Africa, the Caribbean, and Asia into the curriculum, challenging the dominance of European French (Chamoiseau, 1999; Murdoch, 2008).
- Example: Including works like *Creole Folktales* to highlight Caribbean cultural narratives.

Respecting Regional Dialects and Marginalized Languages:

- Decolonization involves validating regional dialects and indigenous languages that have been historically marginalized (Calvet, 2006; Makoni & Pennycook, 2007).
- Example: Recognizing Creole and regional varieties of French as legitimate parts of the Francophone world.

So, What is Collaborative AI?

Collaborative AI Principles

- Transparency
- Complementarity
- Fairness
- Student-centeredness

Ultimately views AI systems as *tools to extend* human capabilities and foster inclusion and access.

Towards Applications in the French Curriculum

Culturally Inclusive Content

- Use AI *transparently* by acknowledging when and how AI has been used to help diversify Francophone materials to overcome potential mainstream limitations with ensuring representation of voices from Africa, the Caribbean, and Asia.
- *Complementarity* enables teachers to collaborate with AI to empower educator creativity and agency to both identify underrepresented content and integrate it into the curriculum and to better connect with students of diverse ability, neurotype, socioeconomic, and linguistic backgrounds and needs.

Towards Applications in the French Curriculum

Accessibility Features

- *Fairness* in AI ensures tools like real-time transcription and multilingual translations support learners with disabilities and neurodivergence, as well as those from non-dominant linguistic backgrounds. Importantly, it means being aware of the possibility for generative tools to “misbehave” and addressing these issues proactively.
- *Student-centered design* focuses on removing barriers to access, creating inclusive learning environments while protecting students’ rights to data privacy.

Challenges & Ethical Considerations

Bias in AI Systems

- Educators must be equipped and prepared to address algorithmic biases and ethical concerns with AI integration into education (Noble, 2018; O’Neil, 2016).

Teacher’s Role

- Ensure that AI aligns with broader inclusive instructional practices and always augments and enhances the human without replacing it entirely (Holmes, et al. 2019; Paiz, et al., 2025; Selwyn, 2019).

Challenges & Ethical Considerations

Ecological Impacts

- Educators must be equipped and prepared to address ecological impacts that comes with ed tech generally and gen AI specifically (Strubell, et al., 2019; Bender et al., 2021; Selwyn, 2021).

Data Privacy

- Educators must be empowered and equipped to protect student information and right-to-be-forgotten (Solove, 2020; Westin, 2003; Floridi, 2019).

A Call to Action

Educators

- Build AI literacy and co-design tools and pedagogical practices with stakeholders and traditionally marginalized communities.

Institutions

- Invest in local AI tools to help ensure tech equity and access.

A Closing Thought

- AI, if properly implemented and supported, can serve to bridge inclusive, equitable, and accessible education.

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Fear Leads to the Darkside

Confronting AI Anxiety in Teaching & Learning
Joshua M. Paiz, Ph.D.

Darkside Apparitions – Defining AI Anxiety

- *AI Anxiety* refers to the feelings of worry, fear or uncertainty in relation to AI systems and their potential impacts on their personal and professional lives along vectors of job security, personal privacy, and data ownership/security.
- (Kaya et al. 2024; Lemay, et al. 2020; Li & Huang, 2020; Wang & Wang, 2020)



Understanding AI Anxiety



- Fear of the unknown/Lack of understanding
- Job security concerns/Attacks on livelihood
- Privacy & security
- Ethical & moral implications
- Loss of control
- Issues managing change
- Lack of trust

Avoiding the Fall to the Darkside

- Create space for others' AI anxiety
 - Give it a name
 - Engage in open dialogue
- Demystify & Debunk
 - Educate self/others
 - Inculcate critical AI literacy
- Provide hands-on experience
 - Highlights strategies/processes
 - Showcases use cases
- Advocate for professional code of ethics



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