

# ASCILITE 2024

## Navigating the Terrain:

*Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies*

### Co-designing an artificial intelligence (AI) literacies framework for learning designers: Knowledge, skills, and mindsets for a post-AI profession

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Advances in artificial intelligence (AI) are undoubtedly changing the practice and profession of learning design. While the full impact is yet to be realised, learning designers grapple daily with the challenges, risk, and opportunities these technologies represent for changing how students learn, how faculty teach, and how we design. So, what knowledge, skills, and mindsets do learning designers need to survive and thrive in a post-AI higher education sector? This paper reports on a project to co-design an AI literacies framework for and with a team of learning designers. Using the world café method, we conducted an online workshop with a group of 18 learning designers, drawing on our collective experience and expertise to ideate and refine the essential elements of an AI literacies framework. The data generated was then coded and thematically analysed to develop a practical framework comprising four domains and 16 specific elements, each elaborated to describe the knowledge, skills, and mindsets required for post-AI learning design. This framework informs the development of training programs and professional learning opportunities for learning designers.

*Keywords:* artificial intelligence (AI); digital literacies; learning design; professional learning

#### Introduction

Recent rapid developments in generative artificial intelligence (GenAI) and large language models (LLMs) have the potential, one way or another, to radically transform practices of teaching, learning and assessment in higher education. While the full impact is yet to be realised, these technologies are already undoubtedly changing the practice and profession of learning design. As new tools with new affordances become more available and more common, a major challenge for learning designers is to keep up-to-date and informed about the variety of pedagogical, technical, ethical, social, and other issues related to the use of these tools by students, faculty, and designers. The topic has all but consumed the higher education discourse, generating oceans of opinion and research on topics ranging from academic integrity and cheating to pedagogical applications such as chatbots, personalised learning, and automated assessment, to developing students as effective and ethical users of AI, and incorporating AI skills into redesigned curricula. It's a lot to navigate for a learning designer—but especially crucial given the advice and support they provide to faculty dealing with these issues first-hand.

So, what knowledge, skills, capabilities, and mindsets do learning designers need to survive and thrive in a post-AI higher education sector? Responding to the increasingly urgent challenge of AI in higher education, this paper reports on the co-design of an AI literacies framework for and with a team of learning designers. First, it reviews recent research on the impacts of AI in teaching and learning as well as existing frameworks for digital and AI literacies, explaining how learning designers are implicated. Second, it outlines our methodological approach, working with a team of 18 learning designers in a 'world café' online workshop to generate and refine the elements of an AI literacies framework. Third, it describes the resulting framework, which comprises four domains and 16 specific elements, each elaborated in terms of the knowledge, skills, and mindsets required for effective and ethical learning design practice in a post-AI profession. It concludes with discussion of how this framework informs the development of training programs and professional learning opportunities for learning designers, as well as next steps and future research.

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### Background

Recent rapid developments in AI are re-shaping our relationship to knowledge, including our educational practices. Research on the impacts of AI on education has consequently burgeoned, exploring both the positive and negative impacts of GenAI and LLMs, reflecting its potential to radically transform teaching and learning one way or another (Bearman & Ajjawi, 2023; Bozkurt & Sharma, 2023; Carvalho et al., 2022). A lot of cognitive and practical effort has gone in to rethinking and redesigning assessment practices (Bearman & Luckin, 2020; Bearman et al., 2022; Mao et al., 2024; Swiecki et al., 2022), including marking and feedback (Kumar, 2023), academic integrity and cheating (Kumar et al., 2024; Sullivan et al., 2023), and the challenges of detecting AI-generated writing (Fleckenstein et al., 2024; Scarfe et al., 2024). Research has focused on significant ethical issues (Crawford et al., 2023; Holmes et al., 2022), including algorithms bias, fairness, and transparency (Baker & Hawn, 2022); data privacy and security (Huang, 2023); and copyright, intellectual property, authorship, and ownership (Bozkurt, 2024). Research has also explored the actual and potential social harms and environmental impacts of AI (Selwyn, 2022, 2024), including the role big data increasingly plays in supporting automated and AI-powered decision-making in education, reinforcing the importance of unpacking the black box of AI (Gallini et al., 2023; Bearman & Ajjawi, 2023) and the necessity of AI literacies for students as well as academic and professional staff in higher education.

Multiple digital literacy frameworks exist that support students and faculty to develop the critical thinking, information and media literacy, communication, collaboration, and technology skills needed in post-digital education and society. (Beetham et al., 2009; Belshaw, 2014; Gillen, 2014; Jones & Hafner, 2012; Lankshear & Knobel, 2008). The two most prominent are the digital capability framework developed by Helen Beetham and Rhona Sharpe for JISC (JISC, 2018) and Doug Belshaw's eight elements of digital literacies (Belshaw, 2014). The JISC framework identifies six elements: foundational technology skills; information, data, and media literacy; digital creation, problem-solving, and innovation; digital communication, collaboration, and participation; digital learning and development; and digital identify and well-being. Similarly, Belshaw's eight elements of digital literacy encompass a range of skills and mindsets, including cultural understanding, critical thinking, creativity, communication, confidence in using technology, the ability to construct and use information, and responsible participation as a post-digital society. Building on this existing research into digital literacies, there has been a growing body of research into AI literacies. Some frameworks focus on general AI literacies in education (MacCallum et al., 2023; Ng et al., 2021a, 2021b; Pretorius & Cahusac de Caux, 2024; Song et al., 2024), while others look at the specific contexts of higher education (Southworth et al., 2023), teacher education (Ng et al., 2023; Sperling et al, 2024), and early childhood education (Su et al., 2023). Educational organisations have also begun creating AI literacies frameworks for teachers and students, including UNESCO's *AI Competency Framework for Teachers and School Students* and the *National AI in Schools Framework* developed by the Commonwealth, State, and Territory governments in Australia.

Learning designers find themselves toiling amidst this ambiguity and uncertainty. With the massive growth of technology-enhanced and online learning, and now the emergence of AI, learning designers—alongside a growing array of 'third space' professionals (Whitchurch, 2012)—are increasingly vital to the teaching and learning activities of the contemporary university. We tend to "toil in the interstices between the more prominent teacher and student narratives" (Costello et al., 2022, 1), and so our work is sometimes poorly understood. Simply put, "[l]earning design is a practice, a process, and a profession that facilitates the systematic design and development of learning experiences" (Abblitt, 2024, p. 141). Ours is a complex social (Campbell et al., 2009) and socio-material practice (Abblitt, 2024) unfolding within and between networks connecting people, organisations, technologies, materialities, data, and discourses. Learning designers collaborate with academics and other stakeholders to create learning experiences in a variety of educational settings and modalities. They are often activators and drivers of change and innovation, and a first port-of-call for academics grappling with the impact of new and emerging technologies on their teaching practices, asked to consult on a range of issues and provide solutions across a burgeoning and rapidly changing field. This requires a substantial outlay of time and effort in upskilling and professional learning—always learning the latest tool, keeping informed about the latest trends, one eye always on the future of teaching, learning, and

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assessment. Extending our earlier research into how learning designers are responding to and using AI in their work (Ryall & Abblitt, 2023), this paper seeks to reconsider digital and AI literacies research from the specific contexts and perspectives of learning designers.

### Method

To develop our AI literacies framework, we worked with a team of learning designers in a ‘world café’ online workshop. Our method emphasises collaborative co-design, while also drawing on aspects of action research (McNiff, 2013; Stringer & Ortiz, 2021; Zuber-Skerritt & Wood, 2019). The workshop participants comprised a group of 18 learning designers, educational technologists, and web developers working for an online education services provider partnered with universities in Australia and South-East Asia. Participants for the workshop were recruited on an opt-in basis from a larger team of 50 individuals. All members of the team were eligible to participate; no specific criteria were used to limit eligibility. Participants come from diverse educational and professional backgrounds – in higher education various third space roles in higher education, educational technology, primary or secondary teaching, corporate learning and development, or academia. Their levels of experience vary greatly, from 1 to 20 years – although most are relatively new to the field of learning design, with less than 5 years’ experience. All participants currently work with academics at partner universities, either directly or indirectly, to support the design, development, and delivery of fully online courses contributing to degree programs at postgraduate levels across a range of fields.

A 90-minute online workshop allowed us to share experiences and ideas and develop a framework that reflects diverse perspectives and best practices, ensuring it meets specific needs of learning designers and is highly practical and relevant to their everyday work. The stated objectives of the workshop were to reflect critically on the intersection of and relationship between human and artificial intelligences in the learning process, identify the broad capabilities required to be a learning designer in a post-AI higher education sector, and articulate elements of an AI literacies framework for our specific professional context. The workshop was modelled after the ‘world café’ method:

1. *Preparation:* We set the scene. The workshop was hosted in Microsoft Teams. We set-up a digital whiteboard with pre-prepared questions, frames, and sticky notes (Figure 1) to help stimulate and structure participants’ thinking and to capture and visualise data.
2. *Welcome and introduction:* We welcomed participants, and discussed the workshop format, rules, and etiquette. We set the context by reviewing some existing digital and AI literacies frameworks with the whole group.
3. *Small groups:* We cycled through three rounds of 15 minutes each, using small group breakout rooms of 5-6 participants each. Participants could build upon each other’s ideas by adding to or responding to existing notes on the whiteboard.
4. *Questions:* Each round was prefaced by a set of specific questions related to the impact of AI on learning design. Prior to the workshop, we reviewed existing digital and AI literacy frameworks, and developed guiding questions in three areas: AI pedagogies, AI at work, and AI ethics.
5. *Harvest:* At the conclusion of each round, we harvested insights and outcomes in a whole-group discussion, inviting participants to ask questions and elaborate on their contributions. To conclude the workshop, a whole group discussion allowed participants to share any further insights, ideas, or lingering questions arising from the workshop.

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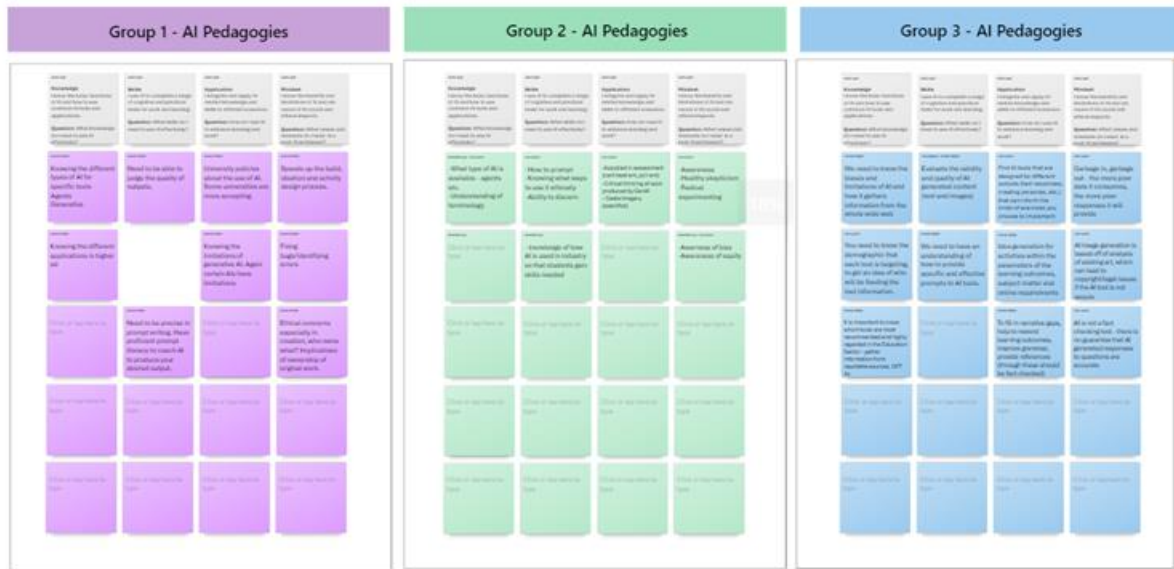


Figure 1. Digital whiteboard, AI pedagogies breakout session.

Following the workshop, the qualitative data collected using the online whiteboard was thematic analysed. Items were grouped and regrouped thematically, producing specific elements (Figure 2). These elements were then grouped under four broad domains to give the overarching structure of the AI literacies framework. The data within each element was then consolidated into specific knowledge, skills, and mindsets to create the rubric of the framework, explained in detail in the discussion.

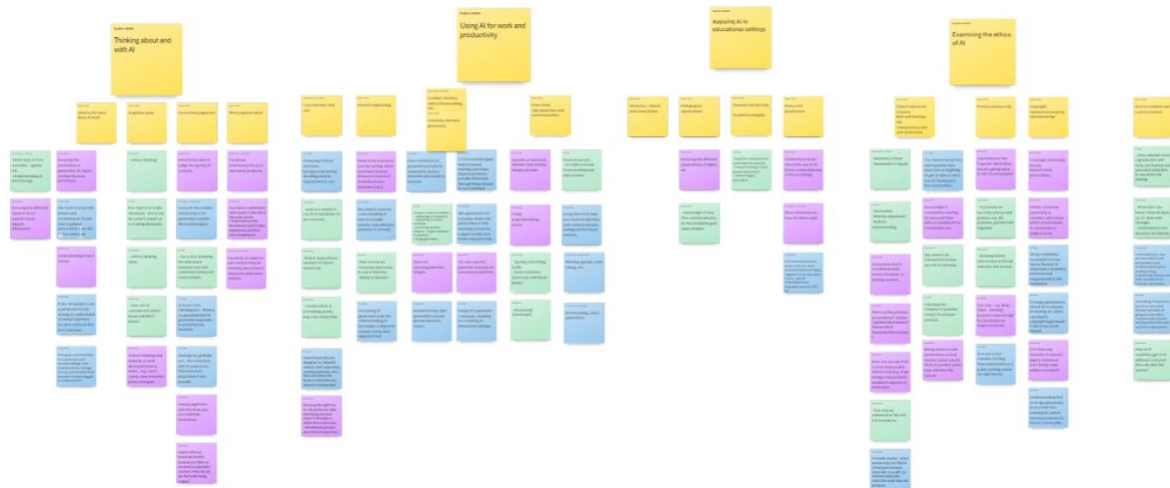


Figure 2. Grouping and thematic analysis of workshop outcomes.

## Discussion

The framework comprises four broad domains and 16 specific elements. Once the 16 elements were identified through thematic analysis of data, each was elaborated based on professional ways of knowing, acting, and being (Barnett & Coate, 2004). For each element, we articulated specific knowledge, skills, and mindsets:

- **Knowledge:** I know the functions, strengths, and limitations of AI and how to use common AI tools and applications.

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- *Skills*: I can use AI tools and applications to complete a range of cognitive and practical tasks for both learning and work.
- *Mindsets*: I am aware of the various human, ethical, social, cultural, and environmental impacts of AI on myself, others, and society.

The four domains and 16 elements are described below in terms of the knowledge, skills and mindsets required.

### Domain 1: Thinking about and with AI

Domain 1 covers foundational knowledge of AI, including how it works, how it is trained, and how it generates its outputs. Learning designers should know the various strengths and limitations of AI for supporting both cognitive processes and practical tasks. They should be critically aware of the data sources AI draws on to generate its outputs, evaluating outputs for accuracy, reliability, and biases. They should be prepared to self-direct their own ongoing professional learning regarding AI.

| <i>Element</i>       | <i>Knowledge</i>  | <i>Skills</i>   | <i>Mindsets and values</i>   |
|----------------------|---|---|--|
| <b>Functionality</b> | I can explain AI concepts and models, including how AIs are trained and how it generates outputs. | I can identify different types, functionalities, and uses of AI tools.  | I stay informed about ongoing advances in AI as they relate to education.                    |
| <b>Cognition</b>     | I know the strengths and limitations of AI for augmenting cognitive skills.                       | I apply AI tools to enhance specific cognitive skills (i.e., creativity, critical thinking, problem solving). | I reflect critically on the relationship between human and artificial intelligences.         |
| <b>Criticality</b>   | I am aware of the ways AI can generate false or inaccurate information.                           | I evaluate information sources for accuracy, reliability, and biases.   | I reflect critically on the data sources used by AI tools and how these shape their outputs. |
| <b>Learning</b>      | I know the capabilities required of a learning designer in a post-AI profession.                  | I use metacognitive skills to guide my own learning about AI.   | I am curious and open to learning about new AI tools.  |

### Domain 2: Using AI for work and productivity

Domain 2 covers the various uses of AI at work. Learning designers should be able to select and use appropriate tools for various learning design tasks, including to streamline administration and communication. They should be effective but critical users of AI for content creation and idea generation, including prompt engineering for common learning design tasks such as creating learning outcomes and objectives, instructional writing, generating examples and scenarios, and more.

| <i>Element</i> | <i>Knowledge</i>   | <i>Skills</i>   | <i>Mindsets and values</i>  |
|----------------|--|---|---|
| <b>Tools</b>   | I can identify appropriate AI tools for a variety of work tasks. | I implement AI tools into my work where useful and appropriate. | I consider accessibility, equity, inclusivity, privacy, and security when selecting and using AI tools. |

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|                     |   |  |  |
|---------------------|---|--|--|
| <b>Prompting</b>    | I recognise the elements of an AI prompt and how these relate to outputs.                     | I craft and refine effective prompts for a variety of learning design tasks.                 | I prioritise achieving accurate and unbiased results from prompts over just efficiency of outputs. |
| <b>Creativity</b>   | I can identify different AI tools for creativity and idea generation.                         | I use AI tools to generate, evaluate, and refine new ideas.                                  | I reflect critically on the relationship between human creativity and AI.                          |
| <b>Productivity</b> | I recognise the uses, benefits, and drawbacks of AI tools for productivity and communication. | I use AI to streamline and enhance administration, communication, and collaboration at work. | I approach AI integration at work with a critical perspective.                                     |

### Domain 3: Applying AI in teaching, learning and assessment

Domain 3 covers the implications of AI for teaching, learning, and assessment practices, including potential pedagogical applications of AI. Learning designers should be confident in advocating for the judicious and responsible use of AI in education. They should be acutely aware of the impact of AI on assessment security and academic integrity and be able to ideate and implement design solutions to mitigate these risks. They should be able to help faculty identify and integrate critical AI skills into courses and recommend AI-powered teaching and learning activities.

| <i>Element</i>    | <i>Knowledge</i>   | <i>Skills</i>  | <i>Mindsets and values</i>  |
|-------------------|--|--|---|
| <b>Advocacy</b>   | I can articulate the benefits and limitations of AI for teaching, learning and assessment.                       | I provide up to date, accurate and informed advice on using AI for teaching, learning, and assessment.         | I champion responsible and ethical use of AI in higher education.                                       |
| <b>Pedagogy</b>   | I can identify opportunities to integrate AI into different teaching and learning contexts.                      | I develop and implement AI-powered teaching and learning activities aligned with sound pedagogical principles. | I seek evidence-based approaches to improve student learning using AI.                                  |
| <b>Assessment</b> | I recognise the impact of AI on assessment security and academic integrity.                                      | I recommend and design assessment tasks that mitigate the risk of AI misuse.                                   | I uphold academic integrity in all aspects of my work, and support faculty and students to do the same. |
| <b>Policy</b>     | I know university policies, guidelines, and regulations on the use of AI for teaching, learning, and assessment. | I evaluate AI tools for their adherence to university policies, guidelines, and regulations.                   | I advocate for responsible policy development around AI use in higher education.                        |

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### Domain 4: Examining the ethical impacts of AI

Domain 4 covers the human impacts of AI, including ethical, social, cultural, and environmental aspects, as well as issues such as data privacy and security, and ownership, copyright, and intellectual property rights. Learning designers should be aware of these impacts on humans individually and collectively and understand the vital importance of human expertise working alongside AI. They should be committed to the ethical, equitable, and transparent use of AI in all aspects of their learning and work.

| <i>Element</i>      | <i>Knowledge</i>  | <i>Skills</i>   | <i>Mindsets and values</i>  |
|---------------------|---|---|---|
| <b>Ethics</b>       | I recognise the potential ethical, social, and environmental impacts of AI.                 | I mitigate the ethical risks associated with AI by adopting a critical and transparent approach.  | I am committed to the ethical, equitable, responsible, and transparent use of AI.                 |
| <b>Transparency</b> | I can explain how AI tools collect, store, and use data.                                    | I evaluate and implement AI tools for transparency, privacy, and security.  | I advocate for and prioritise responsible and transparent practices for data use.                 |
| <b>Ownership</b>    | I can explain the copyright and intellectual property implications of AI-generated content. | I employ AI tools in ways that respect copyright and intellectual property rights. I identify and credit sources appropriately when using AI-generated content. | I advocate for responsible practices in the creation and use of AI-generated content.             |
| <b>Humanity</b>     | I recognise the importance of human expertise working alongside AI.                         | I collaborate effectively with AI tools while recognising the strengths and limitations of both human and AI cognition.   | I reflect critically on the impact of AI in different social, cultural, and educational contexts. |

### Conclusion

In the post-AI profession of learning design, it is imperative that designers and other ‘third space’ practitioners in learning and teaching establish but also maintain and continue to update the necessary knowledge, skills and mindsets required to think about and use AI effectively. This AI literacies framework for learning designers informs the development of targeted training programs and professional learning opportunities for learning designers. It hopes to serve not just as a momentary assessment but as part of the ongoing evaluation and revaluation of the knowledge, skills, and mindsets required to survive and thrive in the profession in a post-AI higher education sector. Ensuring that professional learning is continuous and adaptive to the changing landscape of AI is a critical factor in the effectiveness and success of the framework.

Our next steps include refining the AI literacies framework and broadening our perspective by seeking contributions from more diverse groups of learning designers and ‘third space’ practitioners in different roles and organisational settings, testing to see how the framework might meet the professional learning needs of wider audiences—we’re keen to assess the translatability of the framework across different educational contexts. This will also help to validate our data and ensure the robustness and adaptability of the framework. Future research could explore how disciplinary differences impact the framework, particularly regarding Domain 3: Applying AI in teaching, learning and assessment.

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Implementation and future research will also focus on developing an accompanying self-assessment tool to engage learning designers, as well as their managers and mentors, in identifying gaps in knowledge, skills, and mindsets. Critically, this includes developing learning designers' capabilities for reflection and self-assessment. Our aim here will be to test the validity of the framework, and the accuracy and reliability of self-assessment mechanisms, while also helping to identify and prioritise elements and topics for the creation of further training and support resources. These next steps aim to provide a clear pathway for learning designers to address each element, facilitate a culture of continuous learning and development, and prepare learning designers for the known-but-unknowable future of their post-AI profession.

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