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“A co-pilot for learning design?” Perspectives from learning designers on the uses, challenges, and risks of generative artificial intelligence in higher education

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Keypath Education

Recent rapid developments in generative artificial intelligence (genAI), including large language models (LLMs), have the potential to radically transform higher education—perhaps especially the work of learning designers. This paper investigates how learning designers are making sense of and adapting to the current challenges and future changes caused or enabled by ongoing advances in genAI and LLMs. A team of learning designers was surveyed to gain insights into how they are currently engaging with genAI and LLMs in their professional practice and in teaching and learning contexts. This paper describes how these learning designers see genAI and LLMs emerging as not only useful tools but as agential actors and collaborators in teaching and learning contexts, and how they see this changing their practice and profession now and potentially into the future.

Keywords: artificial intelligence; educational technology; generative artificial intelligence.

Introduction

Recent rapid developments in artificial intelligence (AI), particularly generative artificial intelligence (genAI), including large language models (LLMs) such as ChatGPT and Google Bard, have the potential to radically transform global higher education—perhaps especially the work of learning designers. This paper investigates how learning designers are learning to navigate the brave new world of AI in higher education—how they are making sense of and adapting to the current challenges and future changes caused or enabled by ongoing advances in genAI and LLMs. The broad question guiding our research is: How is generative AI currently changing the practice and profession of learning design? What might be its future impacts? To gain critical insights into the current uses, challenges, and potential risks associated with the emergence of these epoch-defining technical developments, we surveyed a team of learning designers, seeking their perspectives on how they are engaging with genAI and LLMs in their professional practice, and the teaching and learning contexts within which these are situated.

Background

The concept of artificial intelligence (AI) has been around for centuries, but it wasn't until the 1950s that the field began to take shape. In 1956, a group of scientists and engineers met at Dartmouth College to discuss the possibility of creating machines that could think like humans. In these early years, AI research focused on developing machines that could perform specific tasks, such as playing chess. In the 1980s, new machine learning algorithms emerged, allowing AI systems to learn from data, which made them much more powerful. Today, AI systems are able to perform many tasks that were once thought to be impossible for machines—from basic algorithms for classification and pattern recognition, to more advanced predictive algorithms that can run regressions and make forecasts based on historical data sets, to the most recent developments in generative AI, and the burgeoning array of new tools that can learn from the patterns and structures of data sets to generate new text, images, videos, or other media in response to human prompts. Perhaps the most novel development in the field of AI has only occurred within the last twelve months with the advent of freely available large language models (LLMs) such as BLOOM, ChatGPT, Claude, LaMDA (Google Bard), and LLaMA. Such models are a current hot topic in the media, permeating contemporary culture both online and offline, and provoking conversations and experimentations of potential applications across a range of sectors and industries. Everyone, it seems, wants to be at the forefront of this AI arms race. These models are spawning a variety of new AI-enabled applications, including tools for checking and improving spelling and grammar, as well as more complex writing tasks, copywriting, editing, and text generation (i.e., Grammarly, Jasper, Sudowrite, WordTune); creating and editing photorealistic images (DALL•E 2, Midjourney, Stable Diffusion); producing original videos, audio, and music (Coqui, Listnr, Mubert, Murf AI, Speechify, Synthesia) which can all be captioned, transcribed, translated, or even dubbed (AssemblyAI, Dubverse, Otter.ai, Papercup, Verbit, Zubtitle); coding and web development, app development (Codacy, Debuild, MutableAI, Tabnine); and research assistants

which can locate, organise, and summarise academic papers and other research, and even brainstorm new ideas (Elicit, Iris.ai, Lateral.io, Research Rabbit, SciSpace Co-Pilot, Scite). A significant amount of academic and grey literature has been generated recently in response to the real and potential impact of AI on education, reflecting its potential to radically transform teaching, learning, and research. Educational technology (EdTech) discourses always tend to polarise between the utopian and the dystopian. There is a significant trend in the literature treating genAI and LLMs as a threat, focusing mostly on these tools being used for cheating instead of learning (Sullivan, Kelly, & McLaughlan, 2023). Some issues in higher education are thought to become more pronounced with the prevalence of AI, such as measuring the performance of teachers for punitive purposes, profiling students, and rolling out biased algorithms that can recommend misleading actions (Carvalho et al., 2022). But there are also more optimistic voices looking at how we might reimagine higher education and academic practices, including designing for learning, speculating on our possible futures in response to these developments (Aoun, 2018; Bearman & Ajjawi, 2023; Bozkurt et al., 2023; Bozkurt & Sharma, 2023; Holmes et al., 2019; Milano, et al., 2023; Popenici, 2023; Williamson & Eynon, 2020). There has naturally been significant focus on the ethics of AI in higher education (Crawford et al., 2023; Holmes et al., 2022; Selwyn, 2022), including bias and algorithmic fairness, as well as breaking into the ‘black box’ of AI by addressing issues of explainability and sensemaking (Khosravi et al., 2022). Assessment is a particular topic of consternation, specifically issues of academic integrity and cheating (Cotton et al., 2023; Eaton, 2022; Stokel-Walker, 2022; Sullivan et al., 2023), and so redesigning or AI-proofing assessment is also a hot topic (Bearman & Luckin, 2020; Bearman et al., 2022). This is a large and diverse field, growing and changing rapidly. Learning designers find themselves working amidst this ambiguity and uncertainty. With the massive growth of technology-enhanced and online learning, the practice and profession of learning design is becoming more and more important in contemporary universities. Part of a growing workforce of ‘third space’ professionals (Whitchurch, 2012), learning designers collaborate with academics and other stakeholders to create learning experiences in a variety of educational settings and modalities: “Whereas academics bring a wealth of expertise in their discipline area, alongside experience in how to teach it, learning designers bring an array of pedagogical, technological, and design expertise—especially regarding how students learn most effectively in technology-enhanced and online contexts” (Abblitt, 2024, n. p.). Learning designers act as consultants, border-crossers between communities of institutional stakeholders (Keppell, 2007), and are often also activators and drivers of change and innovation in teaching and learning at interpersonal, professional, institutional, and societal levels (D’Souza et al., 2022). Learning design is thus “not simply ... a technical methodology to be applied to design situations, but also ... a socially constructed practice” (Campbell et al., 2009, p. 646), situated at the intersection of people, pedagogies, and technologies. Learning designers are often a first port-of-call for academics grappling with the impact of technologies such as AI on their teaching practices, asked to consult on a range of issues and provide solutions across a burgeoning and rapidly changing field of educational technology. This requires a significant investment into upskilling and ongoing professional learning—always learning the latest tool, keeping informed about the latest trends, one eye always on the future of learning and teaching.

Method

Online surveys were circulated to a population of approximately 125 learning designers working for an online program management (OPM) company who provide course development and educational technology services for over 40 public and private universities, developing around 200 degree programs since 2015, in the United States, Canada, the United Kingdom, Australia, Malaysia, and Singapore. Qualitative data was generated through open-ended questions to allow the researchers to develop a nuanced and in-depth understanding of learning designers’ practices and perspectives in relation to the emergence of AI in higher education, with a particular emphasis on online learning contexts. Open-ended questions sought to elicit qualitative information in two key areas: 1) how AI is changing the practice and profession of learning design, now and into the future; and 2) how AI is currently being used to support student learning and future opportunities. 30 survey responses were collected from a population of 125 across all locations, with most respondents from Australia (16). All survey participants provided their informed consent through their participation in the optional opt-in survey. Respondents come from diverse educational and professional backgrounds, and have varying levels of experience in learning design, educational technology, and related fields. Most respondents reported having worked in one or more of these fields for less than five years (11), although many have significantly more than five years’ experience, up to as much as thirty years. All respondents 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 both undergraduate and postgraduate levels across a wide range of fields of study. Qualitative survey responses were coded using Qualtrics Text IQ and analysed thematically to interrogate learning designers’ perspectives on how AI is changing their work and that of the faculty they work with, and

ultimately how students learn. The major themes that emerged are discussed below, illustrated with direct quotations and examples from survey respondents.

Discussion

80% of respondents reported using AI tools in their professional practice as learning designers. Overwhelmingly, the most used tool reported was ChatGPT (18 occurrences). The most common uses of ChatGPT cited by respondents include content creation and development, instructional writing, generating explanations and examples, generating references and citations, writing alt text, and even writing or refining learning outcomes and objectives. Respondents also reported using ChatGPT for basic information searching and research tasks. More advanced use included brainstorming and idea generation, often generating sample activities to prompt or spark academics. Other tools most cited were spell-checkers and proofreaders such as Grammarly and WordTune. Tools for editing and generating images, videos, and audio appear to be being used minimally or not at all. However, in contrast to this substantial use in work practices, 89% of respondents reported that they do not design learning activities requiring students to use AI tools—that is, they still avoid the use of AI in teaching and learning contexts. This might be attributed to several factors. Firstly, learning designers may hesitate to suggest the use of AI tools in student activities due to a lack of technical awareness about the tools and their practical applications in industry. Secondly, academic staff often deliver content to learning designers without incorporating activities that involve students using AI. This hesitation from learning designers and academics can stem from a lack of AI expertise in the working relationship, concerns about misalignment with university policies, correct scaffolding of AI activities, or the potential for misuse of AI tools, resulting in academic misconduct. When asked how they see AI changing the work of learning design now and into the future, respondents emphasised AI is “a time-saver and process efficiency tool”, lifting more menial tasks off their shoulders to allow a focus instead on ‘heavier’ tasks and more ‘intellectual and creative work’: “AI is going to change the work of learning design and every other field. It is going to help automate basic or mundane tasks so designers can focus on heavier lifts.” Another respondent commented: “AI can reduce menial work for learning designers and free up time to devote to more intellectual and creative work.” The use of AI will hopefully allow for more time to collaborate with stakeholders and higher order tasks:

“I see ChatGPT as becoming a standard tool to refine content and save time. Instead of having to spend time re-writing content for online delivery, we will use ChatGPT to do this and present it to the academic to review and build on. In terms of other AI, I am sure in the future we’ll be able to use AI to build good-quality courses from scratch.”

More than just a tool, there is a sense of AI becoming a useful collaborator, supporting a variety of core learning design tasks:

“When designing learning experiences, we often need fresh ideas and creative input. ChatGPT can assist by providing suggestions, prompts, and alternative perspectives to stimulate thinking. [I] use it to engage in a conversation with the model, describe the goals, and ask for its input, which can spark new concepts and approaches.”

As one respondent explains: “We will be more dependent on a co-pilot for learning design.” But there is a strong sense that we must retain the human element of learning design: “I do not see it replacing our work as academics often struggle to articulate what they want and we as humans are still needed to parse that out.” Developments such as those we’ve seen in AI over the past twelve months always bring into focus what technology (still) cannot do—that is, what humans are still uniquely good at. This is where learning designers are learning to focus their attention. Although they currently tend to avoid its use for teaching and learning, respondents cited several present and potential future educational applications for AI. AI will become a commonplace extension of our educational technologies: “AI tools will eventually be embedded into LMSs and library systems allowing students to collate research more effectively. This will be a game changer for how we design education.” Personalisation and adaptation were two of the major emerging AI-driven EdTech trends cited by respondents: “We are already seeing the development of personal tutoring platforms which will transform education. We will likely see far more adaptive, personalised and responsive learning opportunities by leveraging the predictive power of LLMs and genAI.” Respondents were also excited by the development of AI tutors and chatbots “to assist students with questions they have and to explain unclear concepts when needed.” Respondents noted assessment as perhaps the greatest area of change and consternation:

“AI is also going to influence [learning design] work in relation to assessment, which presents an exciting challenge but one that is likely to require an ongoing investment of time, both to learn about AI developments, engage in discussions with academics, and design new assessment.”

Respondents see this as a particularly exciting opportunity, especially “finding a way to personalise assessments to [better] engage students”. There is a sense that we cannot avoid the use of AI, not properly detect or deter its

use by students, and so we must consider how we design for its use in assessment: “I don’t think you can ‘AI-proof’ assessment tasks, so they need to be incorporated into the assessment itself.” As consultants, a critical part of the learning designer’s role is to coach academics on the opportunities and limitations of AI in learning and teaching contexts: “[I] have tried to encourage academics to engage with AI... This has had the effect of raising awareness of how AI can be used to bypass some traditional means of assessing, which has helped academics to identify for themselves which ones we might need to redesign.” One respondent eventually envisions a “[w]ide array of integration into in-house and third-party tools”, imagining AI becoming “ubiquitous and integrated into most design and information work across all domains and industries”. However, we need to remain vigilant to a series of potential ethical issues and technical limitations: “I also see its limitations will become very apparent shortly. I think predictions of continued exponential leaps are more fiction than science. Improving the performance of language models will become increasingly difficult rather than easier.” There are “several unknowns about the potential longer-term impact of AI”, and learning designers tend to remain wary. Learning is a core skill for learning designers. When asked how they are preparing for these changes, respondents cited several strategies, including “[a]ttending webinars on... AI in education and learning design”, “readings news and articles”, completing “LinkedIn Learning and other short courses”, “discussing AI with colleagues”, exploring use cases and finding opportunities to explore the use of “generative AI in work and life”, following “academics and industry experts in the media to keep up-to-date with advances and new thinking”, and “raising the topic with academics I work with to better understand how they are interpreting the potential and challenges”. However, some respondents are still hesitant, taking a wait-and-see approach by “simply observing”, “not preparing” or “doing nothing yet”. One respondent commented: “I try to keep myself in the loop with the goings on in my organisation, but I am not spending much time on it. I will not be in the innovator or early adopter phase of this tech.” This is where breaking into the ‘black box’ of AI, and issues such as explainability and sensemaking, become critical. There is a clear need for ongoing training and development for learning designers, including the development of AI literacies—not just for the AI tools we have now, but for those coming in this rapidly developing field.

Conclusion

GenAI and LLMs are changing the practice and profession of learning design. It’s early, and we are still learning to live and work with our new co-pilot. Many learning designers are using genAI tools in a variety of ways in their work; however, the contradiction is that this does not translate into the incorporation of AI tools into teaching and learning contexts—that is, learning designers appear hesitant to advocate for the use of AI tools by students. The predominant viewpoint is that these tools will inevitably change the work of learning designers, yet they remain highly cognizant of the potential risks and challenges of their use. If we are to continue to support academics with the judicious use of AI in teaching and learning contexts, we need to cultivate AI literacies, including a critical awareness of the potential risks these tools may pose to students. This would enable both learning designers and the academics they work with to leverage the potential of these tools while comprehending their limitations. By providing support and guidance, learning designers can empower academics to navigate the complexities of incorporating AI technologies effectively, fostering informed decision-making and successful integration into educational settings. It is crucial to continue to investigate the role of learning designers and other ‘third space’ professionals in shaping or leading these practices in ethical and responsible ways. This research will contribute to a more comprehensive understanding of the benefits, challenges, and best practices associated with the integration of AI technologies in education, paving the way for informed decision-making and improved pedagogical outcomes.

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