From script to screen: An emergent view of AI-generated avatars

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Abstract

In an age of 'deepfakes', designing learning media and video intentionally and ethically becomes more important than ever. Emerging educational research focuses on generative large language models, which use neural networks to produce human-like text based on prompts. Yet the educational design of synthetic media, particularly AI-generated avatars, which are also currently produced from text prompts, remains less explored. This paper share insights from an ongoing evaluation of realistic, AI-generated avatars as educational presenters at a large Australian metropolitan university. Using commercially available software, we created a suite of AI-generated avatars and accompanying interactives to explore the topic of ethics in business intelligence which was delivered to approximately 1200 students across two semesters in 2022 and 2023. The aim was to provoke critical discussion around ethical decision-making with AI by immersing students in text-to-video technology as part of their learning experience. To better understand students' perceptions of synthetic media as a stimulus for learning, we conducted four focus groups over two iterations of the course. Our multidisciplinary team also documented the design, development, and implementation challenges of AI-generated avatars. Preliminary findings suggest that clarifying design intentions is key to the effective and ethical application of AI-generated avatars. Automating video content with synthetic media to simplify certain types of educational content could be a catalyst for increased sharing and collaboration. While traditional video formats may prove a simpler choice in the short-term, this study indicates the potential of more hybrid human and nonhuman representation in certain contexts. Students were comfortable with synthetic media use and blending humans and nonhuman elements, expressing a desire for greater interaction with both. We propose a posthuman perspective on AI-generated avatars, one which acknowledges the messy and entangled nature of learning and teaching with technology, that often surfaces issues of ethics and power. To assist educators, 'VIEW' is outlined, a brief educational design guide for AI-generated avatars that considers aspects such as the intentions or purpose of the video, the suitability of video as a medium, implementation, and ethical questions. Finally, we suggest more critical and ethical studies on the emergence of synthetic media applications in higher education are needed.

Keywords

Generative artificial intelligence, GenAI, synthetic media, multimedia design, AI avatars, posthuman

Introduction

Universities globally are scrambling to make sense of how Artificial Intelligence (AI) might influence teaching and learning (Siemens et al., 2022). Educational research on large generative language models, which use neural networks to produce human-like text based on prompts, is growing (Bozkurt et al., 2021). However, less is known about the use of educational media generated from text prompts.

Our aim in this study is to explore the potential of AI-generated avatars as presenters. We share emerging insights from an ongoing evaluation of educational videos developed to present content and activities with realistic, AI-generated avatars (Britton & Vallis, 2023). Guiding questions are formulated to assist educators in ethical design decisions around synthetic media.

Research context and design

The authors of this paper form part of a multidisciplinary, educational design and development team that supports business academics to facilitate innovative learning and teaching at scale, combining iterative and collaborative praxis and research (Vallis et al., 2022).

This research builds on a prior study involving AI avatars as presenters in a business information course at a large, metropolitan Australian university (Vallis et al., 2023). In this course, students explore ethical decision-making in business intelligence and more widely. Before attending workshops, students work through online learning

resources and activities, designed to provoke discussion and reflection. The initial study uses a highly realistic avatar to present a series of short videos on ethics in business. The videos were generated through text-to-video software which is marketed as a platform for creating training videos (Synthesia, 2024), although such commercial companies are proliferating. For one week, students were asked to learn from this AI presentation so they might better understand potential ethical and business implications of this technology from this authentic use-case. This exploratory study considered the ambivalent perceptions of students towards AI avatars in educational content delivery and raised many questions about its appropriate use and limitations.

In the following year, we further refined the design and implementation of the avatars to address key findings from the study. As students asked for greater personalisation of the avatar experience, in the second iteration we added two more avatars with different accents and styles so that students could choose from three AI presenters for their learning. This provided more choice, though students were unable to customise the avatars. Also, choosing the AI presenter made students more aware of the algorithmic nature of the video.

Approximately 1200 students were enrolled in this course in 2022 and 2023. All students were emailed an invitation to participate in focus groups, soon after the implementation and as close to the learning experience as possible. Recruitment during semester around busy assessment schedules limited student availability and the sample size. A total of twenty students attended four focus groups in 2022 and 2023. These participants were then asked about their perceptions of AI-generated avatars as a stimulus for ethical exploration. The research was conducted according to the protocols of the University of Sydney Human Research Ethics Committee (2019/892). Throughout the development and implementation process, the authors of this paper met to discuss and evaluate its educational design and production issues, and to establish a workflow. The text or scripts used to generate and update the video content were often modified for the technical constraints of the synthetic media format, requiring frequent, collaborative meetings to ensure consistency. Critical observations and questions from these meetings inform the findings and guide outlined below. We undertook a networked learning approach of collaborative inquiry as we created and implemented this project, which was "underpinned by trusting relationships, motivated by a sense of shared challenge and enabled by convivial technologies" (Networked Learning Editorial Collective (NLEC), 2021, p.320).

Preliminary findings

Automating video content with synthetic media may simplify production and possibly assist in learning from certain types of educational content (Li et al., 2016). In general, students were open to the use of AI-generated avatars as part of their course as it suited the learning purpose. They sometimes valued its convenience over live lecture instruction because they could use "the skip mode" and international students commented on the clear pronunciation of the AI presenters and captioning. Previous research has also shown that students learn more information in a video presented in their second language when subtitles are included (Mayer et al., 2020). Nevertheless, students were wary of its overuse. A typical comment was "if we're going to use avatars all throughout, I wouldn't like it, because I think I still would like to have human interaction".

Some (but not all) students found the AI presenters static and less engaging than their teachers' recorded lectures. Research on video lectures suggests that learning is enhanced when presenters actively draw on a board to illustrate concepts and alternate their gaze between the audience and the board (Mayer et al., 2020). In this study, however, the AI presenters appear on camera either in a close-up view or a mid-shot. Our design intentions were constrained by the technology available at the time. We note that synthetic media is continuously improving, particularly the customisation of voice, gestures and facial expression. All aspects of video production, including scripts, composition, audio and backgrounds, are increasingly automated from contextual clues. Software is already more feature-rich and intuitive to use, and the capability for visual storytelling, ideation and design is likewise increasing (Halperin & Lukin, 2023).

Most students were comfortable with synthetic media as part of a complex network of the human and nonhuman in education, while noting the limitations of the online embodiment of algorithms (Vallis et al., 2023). Student data indicated a learning preference for interaction, whether with people or content. Videos with questions and interactives were preferred and students suggested future enhancements. One student felt interaction was key:

> …most people choose the on-campus lectures because there are some interactions with instructors. And I think if they do the lecture readings in that way, it also can have the same kind of interactions with recordings.

A posthuman perspective on learning, as proposed by Savin-Baden (2021), highlights the interconnectedness of humans with technology and the environment. The concept of humans and technology as inseparable may further discussions regarding the use of synthetic media in education.

From a production perspective, we found that the process of generating AI avatars was as important as the product. The design and development of these simple AI artifacts revealed the often messy and entangled nature of learning and teaching with technology, ethics and issues of power (Ross & Collier, 2016). For example, ensuring that our production processes were explainable and transparent to students and teachers was complex. Changing content as a team made it unclear where the ideas originated, especially compared to how teachers usually present information in a classroom, raising issues of provenance and intellectual property.

Creating transparent and trustworthy explanations of AI use is clearly an ongoing challenge (Khosravi et al., 2022). Although teachers told students that the presenter was algorithmically created from their scripts, some students were still unaware of our use of AI and were "shocked" while others simply found it "cool... especially now that generative AI is everywhere, and everyone's trying to use it".

Interestingly, most students preferred "the one that looked more human-like". One student noted:

> Having three avatars also made a lot of sense, because sometimes you might just prefer to have a different kind of pronunciation. So that made it easy to go through that week's lecture, because there were three, so I could choose which one I preferred to listen to, even though the content was the same, so that was interesting for me.

Educational design implications

Preliminary evidence suggests that the design intentions, the educators' view of why AI-generated avatars are to be used, is key to their effective and ethical use in teaching and learning. Traditional video formats may suffice or even be the more appropriate choice, especially if representing an idiosyncratic point of view. Recording video may also be the best option to quickly communicate individual points of view or messages that are ephemeral. These educational design decisions will also necessarily be constrained by the resources available, and the time and effort involved.

Yet AI-generated avatars are commonplace in gaming technologies, are increasingly sophisticated and intuitive to create, and may gain acceptance as an everyday communication channel. Already free software is available to train AI programs to replicate individual voices by reading and recording a short sentence. In the future, students or teachers could create avatars of themselves to present and communicate. AI-generated video offers unexplored, new ways of learning and collaboration (Ho, 2022). As one example, video content could be collaboratively written as text by students, making it easier to actively co-design, co-create, and audiovisually present learning resources and or assessment. Creative experimentation with generative forms of AI will increase educators' and student digital capabilities and open new avenues for learning (Vallis et al., 2023).

Whatever the future, educational design decisions around AI-generated avatars will have ethical dimensions that need careful forethought, as well as issues connected to privacy, identity, and control (Networked Learning Editorial Collective (NLEC), 2021). The misrepresentation of information with 'deepfakes' in the news that has been noted in media studies (Vaccari & Chadwick, 2020) may potentially erode trust in education too.

Below is 'VIEW', a guide developed to assist educational design specifically for AI-generated avatars, although it may be useful for other applications. It is grounded in observations of emerging themes in the design and production process, and evaluation of student perceptions.

Table 1: VIEW, an educational design guide for AI-generated avatars

Video – is it the appropriate medium?	Creates teacher presence online? Tells a personal story, reflection, or perspective? Intended as an immediate, ephemeral or personal response to a specific learning question or context?
Implementation - is it worth the effort?	What are the resource constraints? Does my institution have a license? How long will it take to produce an AI-generated avatar as opposed to recording video? Are frequent video updates needed? Are there multiple authors?
Ethics – are processes in place to manage ethical use?	Is it clear that this is a representation of a human? Is it clear whose point of view is being presented and at what time? Are all videos produced with informed consent? Do presenters know that their content is easily edited and changed?
Why – are design intentions clearly articulated?	Does using avatars afford more personalisation? Could more teachers or students participate by using text-to-video? Would students benefit from access to video content in multiple accents or languages?

	Does it facilitate sharing content such as disciplinary information or core concepts?
	Could creating video via text prompts be used for student co-creation as a collaborative exercise?

We identify these emergent characteristics as foundational, and the questions as a starting point for further collaborative, creative and critical inquiry (Britton & Vallis, 2023). Potentially, videos resources with flexible education design could be more easily shared, adapted and regenerated for different languages and cultural contexts, removing some of the technical barriers for adaptation of multimodal educational resources. Next steps are to apply VIEW to guide the educational design of future iterations of this course and beyond. As generative AI evolves and our understanding of it advances, we anticipate that more considerations will arise.

Conclusion

AI algorithms are intrinsic to many technological processes, which complicated explaining in a transparent way how we created content and how team members contributed. While students were aware of the potential misuse of AI to misrepresent information, we detected a growing tolerance for altered media. For this reason alone, far more research is needed to explore the use of AI presenters and the blend of human and nonhuman presence in online learning. Our view is that much more critical, ethical experimentation and analysis of the potential use of AI-generated avatars is needed. The AI presenter learning resources and activities helped this student realise:

> [Synthetic media are] now very pertinent in our environment. There are videos of singers singing in other languages that they didn't know. So these things are there. And they are quite scary, because there are multiple politicians, there are economic powers that are in play, and these videos or these things can maybe use in a very unethical manner. That's scary.

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