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DECODING VIRTUAL PEOPLE AND DIGITAL LABOUR IN HIGHER EDUCATION. TECHNOLOGIES, DYNAMICS AND IMPLICATIONS

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INTRODUCTION

The Higher Education (HE) sector is facing increasing operating costs associated with recruiting and retaining staff alongside competition in a global marketplace. It is in this context that synthetic media companies such as Synthesia, Hour One and Soul Machines frame the use of virtual people as a means of reducing labour costs by scaling-down the production of content for teaching, learning and support whilst maintaining student engagement. To highlight these issues, this research explores three salient research questions. Firstly, how might staff and students perceive the use of virtual people? Secondly, to what extent will virtual people impact upon human labour in HE? Thirdly, how effective are virtual people in relation to pedagogical and professional tasks and services? By exploring these questions, our research aims to offer a nuanced and context specific account of the opportunities, challenges and implications arising from using virtual people to perform personal tutoring roles, delivering teaching material and administrative tasks.

Research topic

Virtual people can be produced by motion-capture recordings of human movements and speech patterns, or by animating digital imagery. As such, virtual people are enmeshed within a photo-realistic aesthetic that includes facial expression and gestures. They also mimic the human voice and are programmed to speak a range of languages. In some cases, human operators write scripts which are presented by virtual people, but in other cases they are autonomously animated through artificial intelligence programs.¹ Our research questions whether virtual people are more than just software programmes embedded in chatbots or digital assistant devices, since their uncanny resemblance to human beings includes emotive facial expression and voice intonation, which are crafted for commercial purposes to perform their roles, which may displace, augment, or replace human labour.² There is much discussion about the use of generative AI in HE settings in relation to professional services (such as recruitment, admissions, and progression monitoring) and the automation of academic tasks such as assessment.³ However, the interactions between virtual people, staff, and students as the site of performativity and emotional labour is less understood.⁴ This omission within current research into technological innovation in HE is significant since virtual people have the potential to fulfil some aspects of teaching, professional and customer-facing roles in HE.

Background

The creation and deployment of virtual people can be placed in the context of neoliberalism, cognitive capitalism and the fourth revolution.⁵ The use of virtual people is positioned by synthetic media companies such as Synthesia, Hour One and Soul Machines as offering benefits such as speed, efficiency and convenience at a time when universities have become increasingly structured on business principles. On this basis, the introduction of technological systems in HE, such as virtual people and generative AI systems are linked to competition in the global marketplace (including the rise of private providers) and the increasing costs associated with recruiting and retaining staff.

Current research around the production and use of digital technologies makes the analytical and political move of connecting workers within an international division of labour. Whether they are highly paid, low paid or unpaid these workers are exploited because they generate surplus value⁶ This sort of framing encourages an alignment between all producers of surplus labour in opposition to the owners of capital. Yet, we also need to consider gendered and racialised exploitation such as the activities of the digital housewife and the ISlave, who directly generate or otherwise enable surplus value through often unpaid work.⁷

Virtual people are dependent on the affective intensities exploited by creative industries and are central to cognitive capitalism.⁸ Synthetic media companies produce proprietary virtual people by digitally capturing actors. While the capability to produce virtual people with a photo-realistic appearance has existed for some time, the task was time consuming. The process starts by scanning a real-life subject in a professional studio. Here an array of motion sensors, scanners and cameras capture images from different angles and poses.⁹ A professional render can require days of filming, hundreds of precisely aligned cameras and generates huge amounts of data.¹⁰ By contrast, AI-enabled approaches offered by Synthesia and other synthetic media companies are streamlining the process, so that a photo-realistic character can be created quickly and easily using software templates. In this way, the creation of virtual people is also dependent on the Internet and social media users whose activities the large language models, and other AI systems are based.

In the case of synthetic media companies, digitised actors become stock characters who function in a similar way to digital photographs in image banks such as Shutterstock and Getty Images. Natalie Monboit, Head of Strategy at Hour One in conversation with Helen Todd of Creativity Squared technology podcast, asserts that humans whose likeness is digitised receive a passive income through royalties.¹¹ In the HE sector, however, whilst there are existing intellectual property regulations (that pertain to research, publication and patents, for example), the issues arising from creating a digital likeness or clone of staff members is unclear.¹²

Our research explores the framing of virtual people as a technological innovation which raises concerns about displacing existing forms of human labour.¹³ Although grounded in justifiable concerns for the long-term impact on labour relations, this sort of framing tends to overlook the new and existing forms of work which are required for the creation, development, maintenance, and management of virtual people. Therefore, a more nuanced approach is required to explore the types of labour surrounding the implementation and maintenance of virtual people in the HE sector and more broadly the creative industries.¹⁴ Creative, critical, and emotional competencies are central to interactions in HE and drive innovation, though at present, it is unclear how virtual people might perform in relation to these competencies.¹⁵ It is also important to evaluate how the increasing precarity and casualisation for human workers intersect the drive towards technological innovation as a means of competing in the HE marketplace. On this basis, researching virtual people raises critical questions about which tasks could become automated and how institutions and workers adapt to these changes.¹⁶

MATERIALS AND METHODS

Focus groups were conducted for this research because they are an efficient way to generate ideas and stimulate debates.¹⁷ Before recruiting participants, we obtained ethical approval from our institution. All participants received an information sheet and consent form which provided details of how their responses would be recorded and analysed to ensure anonymity and compliance with data protection regulations. Our participants were recruited from undergraduate and postgraduate cohorts in the social sciences and humanities and professional services teams including library and information services. On this basis, researchers and participants were ‘insiders’ and their interpretation of virtual people were shaped by institutional practices, social norms, and academic culture.¹⁸ Four focus groups consisting of between 8-10 participants took place, between September 2023 and June 2024. Each focus group engaged with audio-visual texts featuring virtual people to facilitate discussion and participants also interacted with a virtual person, called Nova, via the Soul Machines website.¹⁹ These audio-visual texts were produced using Synthesia design studio and consisted of short videos (less than five minutes in length) featuring virtual people. To begin with participants were shown a video which was scripted and edited by one of the researchers and presented by a virtual person. In this way, the researcher made informed creative and intellectual decisions about the content. The second video was produced by a researcher using generative AI prompts which required minimal human labour.

The researchers transcribed and analysed the focus group discussions to uncover common themes, sentiments and perspectives. To do so, we engaged in a close reading (line by line) of transcripts and used open coding methods. To interpret the data, we considered the extent to which participant responses aligned with our research questions. Therefore, from an epistemological perspective the interpretative process of data analysis was a form of ‘knowledge construction’²⁰.

We also considered virtual people as social, cultural, economic and technological phenomena by interpreting the claims made by synthetic media companies via their websites, reports and promotional materials. In doing so, we analysed these texts through the theoretical prism of digital labour²¹ to help us understand how they framed the understanding of the discursive field surrounding virtual people.

FINDINGS AND DISCUSSION

Perceptions

Research participants were invited to share words or phrases that encapsulated their initial responses to virtual people. After viewing short videos featuring virtual people, common responses from participants referred to their appearance and included terms such as: uncanny, creepy, fake, spooky, weird, stiff, and scary. Some participants remarked that virtual people had ‘dead eyes’ or lacked facial expression. As virtual people are based on photorealistic principles, this generates a sense of the uncanny because they attempt to replicate human appearance and conversational patterns.²² Indeed, striding for realism can result in the uncanny valley effect which creates a sense of unease because face animacy perception is linked to qualities of self-awareness in other humans.²³ In this regard, the photorealistic qualities of virtual people unsettle the boundaries between the animate and inanimate.²⁴ Establishing the differences between virtual people and human beings was a frequent concern amongst participants. One participant opposed the photorealistic aesthetic of virtual people stating that they would not ‘speak to something that impersonated a human’ because it is ‘a second-rate experience. If it looks like a human, then it should perform like a human.’ Therefore, this participant was using the cognitive and communicative capabilities of human beings as the yardstick with which to compare virtual people.

Current research indicates that human-like vocal expression increases the appeal of interacting with virtual assistants such as Amazon's Alexa and Google Assistant.²⁵ Arguably the technological capabilities of these assistants have prepared the groundwork for interaction with virtual people. However, several participants commented that the vocal patterns of virtual people were 'robotic' and 'not convincing.' One participant remarked that 'the audio sounds synthetic, like a machine, whilst another stated that 'the voice didn't match the face. I'd prefer an accent or something more realistic.' The lip-synching for virtual people is a complex endeavor, demanding precision in matching mouth shapes with specific speech sounds. While this is separate from speech generation – the words we hear- lip synching requires coordination between the two to produce lifelike results.²⁶

These discussions of realism and interaction with virtual people bring together wide and complex topics related to appearance, behaviour and actions. As humans, we talk about realism with the aim of seeking something deeper – a realistic sense of connection. The expression of emotions by virtual humans serves as a pivotal factor in establishing meaningful connections with users. For example, if a virtual character displays authentic facial expressions, body language and responsiveness, humans are more likely to empathise and accept them. Micro expressions refer to subtle and rapid facial movements that communicate complex emotions. These expressions are triggered by specific facial muscles around the eyes, eyebrows, nose, cheek and mouth.²⁷ Micro expressions make virtual people more relatable by mirroring detailed human emotions. These cues, especially when aligned with verbal communication, enhance the believability of the virtual person, leading to increased user trust and stronger emotional connection.²⁸

Labour

Participants commented on virtual people in the labour market and the impact this would have on perceptions and expectations of human workers. For example, one participant stated that because virtual people are constantly available to work 'a human worker 'wouldn't be allowed to be tired.' In other words, the human worker would be regarded by employers as lacking productivity in comparison to a virtual person. One participant said that virtual people are a convenience for employers because 'they don't get pregnant and require time off.' On a similar note, another participant stated that virtual people are emblematic of 'vampire capitalism' because they have no human rights or employment rights. In this context, participants contended that hiring a human worker would seem like a troublesome, expensive and inconvenient option.

It is essential to consider how synthetic media companies function in the context of global power, neoliberalism and the dignity of labour, as they shape, not just facilitate, how such industries function and contribute to new subjective formations.²⁹ Microworkers are essential to the functioning of AI, the front end of which obscures the labour of many hours of labelling and classifying. This creates a complex division of labour comprised of disparate, disconnected workers which for most is the site of alienation and marginality. Automation and AI technologies will not only generate major disruption in low-paid service sector jobs (such as hospitality and retail); these technological developments will also impact upon middle-class professions such as teaching and healthcare.

Synthetic media companies such as Synthesia and Hour One provide online 'studios' to produce video content using virtual people. These studios are designed for those without programming or desk-top publishing skills. Yet, like many other software interfaces, these studios occlude the labour that makes these systems possible. As one participant remarked in response the systems that generate virtual people, behind this interface, 'There are people who are being exploited.' To illustrate their point, the participant drew analogies with mobile phones, stating that although they are 'the norm' this 'completely invalidates the fact that all of the insides of my phone were mined from somewhere by children.' Virtual people are clearly directly dependent on several forms of digital labour³⁰ including,

information workers (e.g. Programmers and social media users), industrial workers (eg. assemblers working in factories to produce digital devices needed for production, management and use of virtual people) and agricultural workers (eg. extracting minerals from mines to be assembled in digital devices).

HE Sector

Universities are not immune to processes such as casualisation and precarity. Moreover, digital technologies are framed within the HE sector as a means of reducing labour costs whilst maintaining student engagement and performance. Furthermore, the market for EdTech has increased through the generation of teaching and learning platforms such as Coursera, Future Learn, Multiversity and UpGrad. Taking these points into consideration, the use of virtual people within HE raises a series of question about pedagogy, monitoring student progress and providing pastoral support.³¹ One participant stated that virtual people could be used to create generic learning and teaching video content ‘like a course welcome, an introduction to a module or an assessment brief.’ In these cases, the content ‘is not interactive, it’s just information.’ Similarly, another participant stated that, ‘in a couple of years, students sign up and they get a personal avatar of their course tutor to follow them through the course and provide them advice and guidance.’ The scenario the participant outlines is already in use at IU university, which has a digital tutor called Syntea which is embedded in their virtual learning environment and acts as a personal tutor.³²

In lecture theatres, classrooms and offices the presence of a human tutor or administrator is linked to spatial and psychological closeness, verbal and non-verbal cues such as smiling, nodding and eye-contact. As one participant remarked a key part of teaching ‘is reading the room and picking up the vibe of the students.’ Our participants spoke of the co-present social aspects of studying and argued that engaging with a virtual person would not foster the same sort of community. One participant asserted that ‘studying is ‘a chance to socialise, meet friends and talk to them, it’s a human need.’ They added that virtual people will reduce social interaction with other humans, creating psychological problems because ‘people will feel lonely.’

At present, academic staff also produce and share content with students using commercial digital technologies (Panopto, Microsoft Powerpoint) to create blended learning experiences. The Panopto lecture capture platform, for example, captures the faces, gestures and voices of academic staff, creating their digital doubles. In this way, a lecturer’s existence in physical space and time becomes displaced and entwined with the digital flow of information. The use of Panopto for blended learning purposes became prevalent during the covid19 era and students are now familiar with engaging with digital content as part of their studies. However, the use of virtual people could extend the use of digital content within HE and shift the human labour involved, for example, in teaching, learning and supporting students.

In terms of teaching roles, Shroeder and Craig assert that the development of virtual humans as ‘pedagogical agents is exciting, innovative and productive.’³³ As discussed, it is possible that some repetitive, mundane queries surrounding teaching and learning could be automated using virtual people. However, as one participant pointed out there are limitations to the use of virtual people in staff and student interactions. ‘I think you could get it to deliver a lecture, but people don’t just want it to deliver a lecture. They want to be able to engage and ask questions. I think until it can do that, then it’s very difficult for it to deliver anything more than a sort of talk to PowerPoint.’

CONCLUSION

Our research sought to go beyond simplistic arguments that staff in HE will be replaced by virtual people. Instead, the results of our focus groups indicate that professional services and academic staff have considered the ways in which virtual people could be used for transactional types of interactions with students, such as routine administrative questions about their studies or basic assessment criteria. However, our participants were skeptical about the possibility of virtual people providing academic support for creative discussions or in-depth questioning and debate. Additionally, our participants stressed the social importance of co-present relationships between staff and students in classrooms, workshops and lectures. This project is on-going with plans to conduct further focus groups. It will be fascinating to see what further issues are suggested to this complex issue.

NOTES

- ¹ Noel Shroeder and Scotty Craig, "Learning with Virtual Humans: Introduction to the Special Issue," *Journal of Research on Technology in Education* 53 (2021):1.
- ² Rajasshrie Pillai, Brijesh Sirathanu, Bhimaray Metri and Neeraj Kaushik, "Students Adoption of AI-Based Teacher-Bots (t-bots) for Learning in HE," *Information Technology & People* 37 (2023): 329.
- ³ Harry E Pence, "Artificial Intelligence in HE: New Wine in Old Wineskins," *Journal of Educational Technology Systems* 48 (2019): 6.
- ⁴ Theron Schmidt, "What if we Think of the Classroom as a Work of Art? Performance, Collaboration and Social Engagement Considered as Pedagogic Practices," *Arts and Humanities* 20 (4) (2021): 346.
- ⁵ Klaus Schwab, *The Fourth Industrial Revolution* (London and New York: Penguin, 2017).
- ⁶ Christian Fuchs, "Karl Marx in the Age of Big Data Capitalism," in *Digital Objects, Digital Subjects: Interdisciplinary Perspectives on Capitalism, Labour and Politics in the Age of Big Data*, ed. David Chandler and Christian Fuchs. (London: University of Westminster Press, 2019), 55.
- ⁷ Kylie Jarrett, "Through the Reproductive Lens: Labour and Struggle at the Intersection of Culture and Economy," in: *Digital Objects, Digital Subjects: Interdisciplinary Perspectives on Capitalism, Labour and Politics in the Age of Big Data*, eds. David Chandler and Christian Fuchs (London: University of Westminster Press, 2019), 105.
- ⁸ Mariano Zuckerfeld, *Knowledge in the Age of Digital Capitalism* (London: University of Westminster Press, 2017), 4.
- ⁹ "Digital Clones," We Humans, accessed July 31, 2024, <https://www.wearedigitalhumans.com/en/digital-humans/digital-clones/>
- ¹⁰ Trendt Boe and Chris P Carter, "Human Photogrammetry: Foundational Techniques for Creative Practioners," *International Journal of Computational Geometry and Applications*, 10:1 (2020): 2.
- ¹¹ Helen Todd, "Natalie Monbiot, GenAI & The Virtual Human Economy," Creativity Squared Podcast, accessed July 30, 2024, <https://creativitysquared.com/podcast/ep39-natalie-monbiot-genai-the-virtual-human-economy/#transcript>.
- ¹² A case pertaining to intellectual property rights and digital recordings came to the fore during the covid19 era when many HE institutions created online content. Concordia University's online portfolio including recorded art history lectures featuring François-Marc Gagnon who died in 2019. Tamara Kneese, "How a Dead Professor Is Teaching a University Art History Class," *Slate*, January 27, 2021, <https://slate.com/technology/2021/01/dead-professor-teaching-online-class.html>.
- ¹³ Jon-Arild Johannessen, *The Workplace of the Future: The Fourth Industrial Revolution, the Precariat and the Death of Hierarchies* (London: Routledge, 2018), 3-5.
- ¹⁴ Hye-Kyung Lee, "Rethinking Creativity: Creative Industries, AI and Everyday Creativity," *Media, Culture & Society* 44 (3) (2022): 605.
- ¹⁵ Ken Robinson, *Out of our Minds: Learning to be Creative* (West Sussex: Capstone, 2011), 47.
- ¹⁶ Ivanov, Stanislav, "The Dark Side of Artificial Intelligence in HE," *The Service Industries Journal*, 43 (15-16) (2023): 1059.
- ¹⁷ George Kamberelis and Greg Dimitriadis, "Focus Group Research: Retrospect and Prospect," in *The Oxford Handbook of Qualitative Research*, ed. Patricia Leavy (New York: Oxford University Press, 2020), 486.
- ¹⁸ Jason Hughes, Nick Jewson, and Lorna Unwin, *Communities of Practice: Critical Perspectives* (London: Routledge, 2007).
- ¹⁹ Soul Machines, accessed June 24, 2024, <http://www.soulmachines.com>.
- ²⁰ Allen Trent and Jeasik Cho, "Interpretation in Qualitative Research: What, Why, How." in: *The Oxford Handbook of Qualitative Research*, ed. Patricia Leavy (New York: Oxford University Press, 2020), 960.
- ²¹ Christian Fuchs, *Digital Capitalism* (Abingdon: Routledge, 2021).
- ²² Shensheng Wang, Yuk F Cheong, Daniel D Dilks and Philippe Rochat, "The Uncanny Valley Phenomenon and the Temporal Dynamics of Face Animacy Perception," *Perception* 49 (10) (2020):1070.
- ²³ Jay David Bolter, Maria Engberg and Blair MacIntyre, *Reality Media: Augmented and Virtual Reality*, (Cambridge Mass: MIT Press, 2021), 50.
- ²⁴ Christine Looser and Thalia Wheatley, "The Tipping Point of Animacy – How, When and Where We Perceive Life in a Face," *Psychology Science* 21 (12) (2010): 1859.
- ²⁵ Carolin Ischen, Theo B Araujo, Hilde A.M. Voorveld, Guda Van Noort and Edith Smith, "Is Voice Really Persuasive? The Influence of Modality in Virtual Assistant Interactions and Two Alternative Explanations," *Internet Research* 32 (7) (2022): 403.
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- ²⁷ Daxiang Li, Nannan Qiao and Ying Lui, "Micro-expression Recognition Based on a Novel GCN-Transformers Cooperation Model for IoT-e-Health," *Expert Systems with Applications*, 255 (2024):1.

- ²⁸ Aliya Tastemirova, Johannes Scheider, Leona Chandra Kruse, Simon Heinzle and Jan Vom Brocke, "Micro expressions in Digital Humans: Perceived Affect, Sincerity, and Trustworthiness," *Electronic Markets* 32 (2022):1608.
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- ³⁰ Christian Fuchs, "The Information Economy and the Labor Theory of Value," *International Journal of Political Economy*, 46 (1) (2017): 67.
- ³¹ Chad Edwards, Autumn Edwards, Patric R. Spence & Xialing Lin, "I, teacher: using artificial intelligence (AI) and social robots in communication and instruction," *Communication Education*, 67 (4) (2018): 474.
- ³² "Syntea Your Personal AI Tutor." IU International University of Applied Sciences, accessed July 30, 2024, <https://www.iu.org/how-online-studies-work/syntea/>.
- ³³ Noel Shroeder and Scotty Craig, "Learning with Virtual Humans: Introduction to the Special Issue," *Journal of Research on Technology in Education* 53 (2021):1.

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