

Chapter 7

The Future of Presence in Online Education, a Speculative Design Approach



Henrietta Carbonel 

Abstract This paper adds to the movement towards rethinking the university of the future following the upheaval of emergency remote teaching during the COVID-19 pandemic. It investigates new and emerging alternatives for creating innovative teaching and learning spaces and experiences. The paper focuses on the question of creating presence at a distance within a networked learning framework. The purpose of the research is three-fold: imagine, with teachers and educational designers, what presence could look like in the online university of the future; critically engage with these futures; and evaluate the speculative approach as a means to initiate a conversation and engage teachers in thinking differently about presence in online education.

In six speculative design workshops, teachers and staff developed prototypes of what presence and affective closeness could look like in online education. Based on three groups of prototypes (measuring cognitive presence in high-tech laboratories, VR classrooms, and creating asynchronous social contact through connected objects), the paper elaborates on how presence can be enacted, each prototype offering opportunities and challenges. Bourdieu's concepts of habitus and hysteresis are then used to explain the difficult move from face-to-face experience to a new form of presence and why some participants may close off alternative imaginaries.

Keywords Networked learning · Online education · Presence · Speculative methods · Habitus · Future university

Introduction

This research is part of the movement towards re-thinking the university of the future following the upheaval of emergency remote teaching during the COVID-19 pandemic (PaTHES, 2021; The Post-Pandemic University, 2020) and focuses on the

H. Carbonel (✉)
UniDistance Suisse, Brig, Switzerland
e-mail: henrietta.carbonel@unidistance.ch

question of creating presence at a distance within a double networked learning framework. Presence is part of connecting and engaging and being able to connect at a distance, possibly asynchronously, can support new means of networked learning. Moreover, the method itself takes a networked learning approach through interactive online speculative design workshops. I use the word distance to indicate that teachers and students are not required to be in the same physical space at the same time, aware that there are many other distances at play such as temporal, affective, or political (Bayne et al., 2020).

Pre-pandemic, OnlineUni (anonymised) required students to attend six on-campus meetings each semester, making it difficult for some potential students to pursue their studies. The move to emergency remote teaching worked well, many students asked to keep the flexibility, and offering a fully online programme would help the university better meet its mission to offer the possibility to study to non-traditional students. However, many teachers want to return to some form of on-campus teaching, holding onto the common belief that “only face-to-face teaching and learning can be authentic, with the power of eye contact frequently cited as emblematic of the quality mark of face-to-face interaction” (Bayne et al., 2020, p. 133). Starting from the idea that learning is emergent (Carvalho & Goodyear, 2018), and involves “complex entanglements of students, teachers, ideas, tasks, activities, tools, artefacts, places and spaces” (Networked Learning Editorial Collective, 2021, p. 313), is it possible to create teacher and student presence at a distance?

The purpose of this research is three-fold. My first purpose is to imagine, with teachers and educational designers, what presence could look like in the online university of the future. The second objective is to critically engage with these possible futures to understand the beliefs they are based on, the types of educational spaces they would create, and “the dilemmas and trade-offs between imperfect alternatives” (Dunne & Raby, 2013, p. 189). I use ‘educational space’ as all spaces, whether physical or virtual, in which education takes place to include both teaching and learning (Lamb et al., 2022).

To do so, non-traditional, speculative methods were chosen as they offer the possibility to broaden the range of possibles. As Dunne and Raby write “we need to experiment with ways of developing new and distinctive worldviews that include different beliefs, values, ideals, hopes and fears from today. If our belief systems and ideas don’t change, then reality won’t change either” (2013, p. 189). The third purpose of this research is epistemological, can a speculative approach help initiate a conversation and engage teachers in thinking differently about presence?

The output of the workshops shows that speculative approaches generate creative enactments of presence at a distance, opening the field of possibilities. However, when describing their prototypes, many teachers highlighted the fact that they had tried to replicate at least a part of their experience of traditional on-campus classrooms. Bourdieu’s (1980, 1984) influential work on habitus and hysteresis can help

better understand this apparent contradiction. *Habitus* offers a well-researched concept that explains both the *hysteresis* of teaching methods and the agency to change (if at the margin) while recognising the importance of the embodiment of practice.

Bourdieu's habitus consists of

systems of durable, transposable dispositions, structured structures predisposed to function as structuring structures, that is, as principles of the generation and structuring of practices and representations which can be objectively 'regulated' and 'regular' without in any way being the product of obedience to rules, objectively adapted to their goals without presupposing a conscious aiming at ends or an express mastery of the operations necessary to attain them and, being all this, collectively orchestrated without being the product of the orchestrating action of a conductor. (1977, p. 72)

The concept is not used here in its most common acceptance, to understand how teachers replicate social structures through teaching, but to explain how these ways of being have become ingrained through what Bourdieu calls "le *sense pratique*"¹ and maintain the identity of the social academic group (Bourdieu, 1980, 1984). The habitus of teachers are dispositions such as their style of expression, dress code, positioning in the physical classroom, or form of teaching, which have become internalised through schooling from an early age as an embodied history. The structuring of the teacher's habitus goes back to their own experience from kindergarten and throughout their school life, often as good students. It becomes second nature, both an individual and collective identity, creating a matrix for how to behave in the academic world. This behaviour is not based on an automatic reaction, "reducible to the mechanical functioning of pre-established assemblies, 'models' or 'rôles'" (Bourdieu, 1977, p. 73). Neither is there an objective, consciously determined and deliberate action. The habitus offers a "structuring structure". The teachers have agency and adapt; however, hysteresis means that it is only possible to change at the margin. The deeper, embodied ways of being persist, even after the initial conditions that created them have changed significantly. This can help explain why the teachers were able to adapt to online teaching but found it challenging to imagine a very different form of presence.

In the rest of the paper, I first consider the concept of presence in both the physical classroom and in online education. I then consider the methodology for researching the future in a complex world. In section "[A Speculative Design Method](#)", I describe the setup of the speculative design approach used in the research process, as well as the method of analysis, followed by a description of the findings. In the final discussion, I focus on the concepts of habitus and hysteresis to explain why change essentially happens at the margin and how a more fundamental transformation may be encouraged.

¹The logic of practice.

Physical and Online Presence in Education

I take a networked learning approach, focusing on relationships, collaborative engagement, and how these can be supported by technology. Networked learning has been defined as “learning in which information and communications technology (ICT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources” (Banks et al., 2003, p. 1). To promote relationships and engagement, presence plays a central role. Garrison et al. (1999)‘s Community of Inquiry model defines three essential types of presence: cognitive presence, social presence and teaching presence. However, there is a long-held belief that presence must be physical, the teacher and student need to be co-located for a quality education. In his seminal book *On the Internet*, Dreyfus (2001) affirms that the body is needed to understand the world, to give us a sense of reality, students need to be able to imitate their teachers; the anonymity of online activities means that there is no real commitment or risk-taking; and finally, moods are essential to creating memorable and meaningful experiences. In the preface to the second edition, Dreyfus continues “it is now clear that distance learning has failed” (2009, p. xi). With the emergency move to remote teaching, similar statements have been repeated by teachers and at the institutional level.

The traditional image of the teacher and student in an engaged dialogue in physical presence, such as between Socrates and Plato (350 B.C.E./1966) or Emile and his tutor (Rousseau, 1762/2009), appears as a sufficient argument that authentic quality education must be in physical presence. However, learning in universities today is far from a one-to-one dialogue, and has never been limited to the physical classroom, but is formed of a network of people, places and spaces, activities, technologies, etc.

Students learn with their bodies, from their bodies (Dreyfus, 2009; Merriam et al., 2007), and with their emotions, both “experienced in the educational setting”, and “instrumental for academic achievement” (Pekrun & Scherer, 2014, p. 1). However, this does not imply the need for the physical presence of the teacher and student in the same place. Even at a distance, students and teachers ‘meet, think, work, and learn in, for and with the world’ (Nørgård & Hilli, 2022, pp. 25–26). The student’s body is just as present and feeling in the physical classroom as at a distance, there is no “virtual learning”, as Gourlay (2021) puts it. Zembylas et al. (2008) show how emotions, both positive (excitement about flexibility or interactions, satisfaction about fulfilling the course requirements, for example) and negative (anxiety, loneliness, isolation or stress regarding multiple obligations) affect the online learning experience.

For each statement about the need for physical presence, we could give a counterexample of what online education has to offer. For example, online education does not only focus on controlled and efficient teaching and learning as suggested by Friesen (2011) in his analysis of a dissection app but can also be messy and involve risk-taking (Collier & Ross, 2017). Rather than just two or three students asking or

answering questions in class, the chat allows all students to ask questions, making it often easier for the shyer or non-native speakers, and online quizzes allow all students to answer.

Presence is a multifaceted concept. The first definition in the Oxford English Dictionary (2021) is “the fact or condition of being present; the state of being with or in the same place as a person or thing; attendance, company, society, or association.” The first part of the sentence is probably the most important for higher education, as it refers to focusing on or being closely engaged with what one is doing (cognitive presence), and does not imply other people or a shared space. The reference to being in the same place, in the second part of the definition, has, for centuries, meant sharing a physical space, but with today’s technologies, space can also be virtual (e.g., cyberspace). You can be present on Zoom or in Minecraft, as you can in a meeting room or on a basketball court. Moreover, presence does not always imply being visible. Often used with a possessive form, it can also mean “a person’s self or embodied personality” (Oxford English Dictionary, 2021). A teacher’s energetic presence may be felt on the forum. It can also refer to a person that exists, but is not seen, as in “a feeling of presence” (Oxford English Dictionary, 2021). Or finally, when referring to a sound recording, “a quality in reproduced sound that gives a listener the impression that the recorded activity is occurring in the listener’s presence” (Oxford English Dictionary, 2021). Being present does not require simultaneous co-location, but what Lombard and Ditton (1997, p. 15) call the “perceptual illusion of non-mediation”. All communication is mediated, through light, language, text, or digital technologies, for example. As Downes (2002) notes, it is natural for the mind to engage with reality through different media. Films, fiction, and the Internet can all offer an authentic educational experience, just as valuable, if different, as Dreyfus’ in-physical-presence experience. Presence can take many forms in education, as noted in *The Manifesto for Teaching Online* “a video call is contact, and so is teacher presence on a Twitter feed; a phone call is contact and so is a shared gaming session; an asynchronous text chat is contact, and so is a co-authoring session on a shared document. (...) Contact works in multiple ways” (Bayne et al., 2020, p. 144).

Attempting to compare online and on-campus education, showing that what can be done in one space can or cannot be done in the other, would be an unfruitful exercise. Friesen himself started *The Place of the Classroom and the Space of the Screen* (2011) noting that the outcome of learning, whether online or on-campus, was the same. There is a large body of literature about the no-significant difference phenomenon between the different modes of education (Russell, 1999). There has always been more to a learning experience than the face-to-face encounter or even the teacher-student interaction. Architecture, economy, institutions, society, technology, etc., all participate in the creation of knowledge and learning. We live in a postdigital world. Digital and face-to-face education are not opposites but are inextricably intertwined in our lives (Fawns, 2019). Learning arises from the socio-material interactions, retroactions, entanglements, each time emergent and unique (Carvalho & Goodyear, 2018). And digital technologies offer new networks and spaces for learners in which understanding and practice can unfold in new and

different ways (Calder & Otrell-Cass, 2021) such as Bayne's (2015) teacherbot with which students interacted during the course. The issue is not which is superior, nor how to make up for the limitations of digital education or reproduce as closely as possible the in-person experience, but how presence can be enacted in new and different ways in online education.

The first two purposes of this research are then to create and think critically about new ways of generating presence in an online educational space. What could presence in online education look like in the future? What are the assumptions that lie behind these propositions? What type of educational experience might they create? The third question concerns the question of research method.

Researching the Future

In this section, I briefly discuss the limits of traditional, evidence-based methods to research the future and explain the affordances of speculative design methods for the purpose of this project.

Traditional, evidence-based approaches offer limited insights when researching the future. Biesta, in *Why 'what works' still won't work: From evidence-based education to value-based education* (2010), highlights three deficits to the traditional scientific approaches: a knowledge deficit (linked to the epistemological dimension), an effectiveness or efficacy deficit (epistemological dimension), and an application deficit (practical dimension). The first two are particularly relevant to our purpose of researching the future. According to Biesta, the **knowledge deficit** is linked to the fact that what we know from the past through evidence-based research does not guarantee that it will continue in the future. When we carry out an experiment, we are not an external observer, but an actor in the world, intervening, changing the world, and gaining knowledge from this intervention. 'What works' is then about relationships between our actions and their consequences in an ever-changing world. Accordingly, evidence-based research cannot prescribe a course of action for the future, although it can enlighten choices to be made. The second deficit is that of **efficacy**. Education is an "open recursive semiotic system" (Biesta, 2010, p. 500) actions do not have linear, deterministic consequences (required for evidence-based research), but their effects are probabilistic and complex. Education systems interact with the world, and an external intervention will most likely lead to more changes as the actors adapt. Finally, the system is based on the meaning and understanding given by the teachers and students. What worked in the past, may not work in the future, and will most certainly transform the world into something different from what it was.

There is no unique, predetermined world out there waiting to unfold in the future. Theories and facts are not free of value or historical context (Kuhn, 1990). The research itself changes the world and the participants' perception of it and researchers bring their own subjectivity. Therefore, an interpretivist epistemology in which social actors are seen as constructing their understanding of the world,

negotiating its meaning in their social practices, in which meaning-making cannot be dissociated from the actors (including the researcher), and is embedded in the cultural, linguistic and historical context (Cohen et al., 2018) appears more appropriate to researching possible futures than a more traditional positivist approach.

Speculative design methods suggest a way to “explore and *create* possible futures under conditions of complexity and uncertainty” (Ross, 2018, p. 197 emphasis in original) and thus offer a solution to the epistemological issues discussed above, adapted to the question at hand (Lury & Wakeford, 2012). These are not necessarily futures to strive for, a best version that would be used to colonise the future, but a diversity of possibles to think about how things could be (Facer, 2016) and “create spaces for discussion and debate about alternative ways of being” (Dunne & Raby, 2013, p. 2). Here, design is seen as critique, it does not offer one given, necessary solution, but a field of possibles and asks questions, “challenges the way technologies enter our lives and limitations they place on people through their narrow definition of what it means to be human” (p. 34). These can help unpick hopes, dreams, fears, or concerns about new technologies, questioning underlying assumptions. Moreover, they do not leave the problem untouched, but “engage with and affect the problem it addresses” (Ross, 2017, p. 219).

A speculative approach, therefore, offers a valid framework for research into imagining and critically engaging with possible futures of presence in online education. It is not the only valid choice, traditional scientific methods help understand specific points and other approaches such as extrapolation, consensus, creative imagination or collective wisdom can and should also be used to ensure that a diversity of points of view, disciplines, and cultures are included and to offer a rich and deep palette of possibles (Gough, 2010). As the third objective of this research, we analyse whether this speculative approach enables teachers to create and engage with radically new forms of presence. The speculative design method is presented in the following section.

A Speculative Design Method

The context of this research is a Swiss, federally accredited online university, with the mission to offer equal chances for adults to receive quality higher education, compatible with caring, job or other responsibilities. Pre-pandemic, OnlineUni had a blended model including six in-physical presence meetings per semester. With the pandemic, the university moved fully online. Student surveys and focus groups showed that students appreciate the greater flexibility, without any significant change in marks or dropout rates (Baillifard & Martarelli, 2022). A fully online programme would therefore better help achieve OnlineUni’s mission. However, a summer 2020 survey showed that nearly 50% of teachers wanted a return to some form of in-physical-presence teaching. By choosing a speculative approach, I hoped teachers and staff would be able to imagine different socio-material assemblages to create presence at a distance. Moreover, the method itself is an example of

networked learning, a process of “collaborative, co-operative and collective inquiry, knowledge creation and knowledgeable action, underpinned by trusting relationships, motivated by a sense of shared challenge and enabled by convivial technologies” (Networked Learning Editorial Collective, 2021). All workshops were carried out online using Zoom (Yuan, 2021) and the online collaborative whiteboard, Miro (Miro, 2021).

The speculative design method follows the four steps outlined by Ross (2018):

1. **A speculative question:** What could presence in online education look like in the future? Using a speculative design method we generate alternative futures and explore them critically.
2. **An object to think with:** to open the range of possibilities, I used a design thinking process, as defined by Stanford’s d.school (D.School Starter Kit, 2021). In each workshop, the participants (2–4 people) started by discussing what they missed when teaching fully online, they then tried to gain a deeper understanding of the issue through empathy (through questions, stories, or an empathy map: what does the teacher feel, think, see, hear, say and do). This was followed by writing a common definition of the problem before ideating. Each participant then chose one solution and developed a prototype (drawing, collage, set of instructions, scene using figures, etc.). Finally, these objects were shared and discussed (‘tested’) in the group.
3. **An audience to engage with:** 13 professors and assistants, one faculty manager, five instructional designers, and two educational technologists took part in the six online workshops on a voluntary basis. Participants came from across Switzerland (and one was based in France), representing eight different fields (AI, business, economics, engineering, IT, law, and psychology) and three languages (English, French, and German). The researcher facilitated the design thinking process for each group (explained each step and asked clarification questions when needed) but did not take part in the activity.
4. **Capture and analyse the design decisions and responses to the object:** the workshops were recorded and transcribed. I then carried out a thematic analysis on the ideation stickies, images of the prototypes and transcriptions of the discussions. The analysis was based on Braun and Clarke’s (2012) six phases: becoming familiar with the data, generating initial codes, combining the codes in overarching themes, the coherence and accuracy of the themes relative to the data, a definition of each theme and the final report. Although occurrence was used to understand which themes were central to the participants, particular attention was also given to surprising, outlying, or ‘idiotic’ ideas (as defined by Michael (2016)).

The research process followed BERA’s ethical guidelines.

Although the approach was cautious compared to the speculative research of practitioners with more experience such as Dunne & Raby, the workshops produced a wide range of possible representation of presence at a distance and the critical discussions around what this would mean for education were lively, as we show in the findings.

Findings: Possible Futures

The speculative method reached its objective of broadening the possibilities of creating presence in an online university, as well as critically analysing their implications. The ideation process led to over 100 different ideas, nineteen were then turned into prototypes, mostly drawings, digital collages, or text. The output of the workshops can be accessed here: https://miro.com/app/board/o9J_IDE34RA=/ The Miro board includes the output from the ideation process, the prototypes, and relevant sections of the anonymised transcripts of the discussions. The prototypes respond to two main issues that the teachers considered central to their experience of online teaching: fostering social interactions and receiving feedback on their teaching, from the students. A third group of prototypes offered a more holistic approach, re-creating the on-campus experience through Virtual Reality (VR). I discuss each set of prototypes in turn.

The first group of prototypes offers ways to foster **social interactions** and build trust. Some ideas are known from on-campus teaching and already used in online education, such as icebreakers, peer feedback, group work, break-out rooms during videoconferences, or a social app to help find study buddies. Two prototypes did not attempt to re-create the face-to-face experience but suggested new ways of creating interactions and experiencing presence at a distance, asynchronously. One prototype attempted to re-create the feeling of presence and belonging through a coffee cup that lights up when other students or teachers share messages, an implicit reference to the informal coffee breaks many faculty members said they missed. The cup offered a form of immediacy in the connection and a discreet reminder that students were not alone. The second prototype offering an asynchronous solution is the Live Course Map which focused on making students' presence in the learning process visible. The pedagogical scenario, which is already shared with the students for each module was transformed into an electronic app to show where students are in the course, what activities and assessments they have completed, what they are working on and their progression. The scenario looks like a live map (see Fig. 7.1), populated with the students symbolised by different coloured dots with their initials, like Harry Potter's Marauder's Map (Rowling, 1999).

The different scenarios of the modules can be seen as a visual and dynamic representation of Gee's affinity spaces (2004, pp. 70–82). Students are visually represented as coming together to reach a common purpose, through shared activities and discussions. The dots or avatars represent the coming and going of students with different levels of engagement. The course looks alive with people active in different areas. Students could gain a more objective view of where they stand compared to others, and what is left to do. Moreover, it was hoped that this would reduce their feeling of isolation, often an issue in online education (Zembylas et al., 2008); and increase their self-efficacy and motivation, knowing that others, like them, can do it (Ryan & Deci, 2000). In the discussion, the issues of data and privacy were brought up. It was agreed that participation should be voluntary. However, the feeling of presence and affinity space may be lessened if the dots were anonymous.

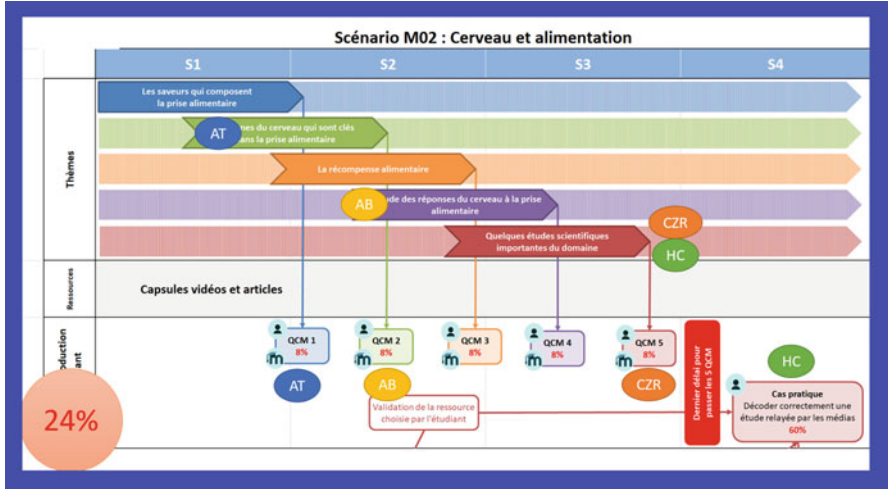


Fig. 7.1 The live course map

What data should be considered remained open, should a student dot appear when they open a document, finish the reading, complete an activity? Should the positioning be automatic or done by the students? As with other forms of learning analytics, it is important to be transparent, avoid back boxing, and understand the meaning of the data and its limitations (Knox, 2017). As in Knox’s (2017) Learning Analytics Report Card, students could be asked to choose the type of information they would like to share and receive.

One drawback of the pedagogical scenario is that it makes learning look like a race, as in a horse racing board game with the different tracks and the final exam as the goal. Workshop participants worried about the feeling of competition this could introduce, positive for some students, but not all. It also seems to imply that learning is linear, with a starting point and an endpoint, far from the messiness of the learning process, the multiple iterations it implies and its open-endedness. A rhizomatic representation or knowledge map may be more appropriate to illustrate the students’ presence (Cousin, 2004).

The second set of prototypes offers different ways of **eliciting student feedback**. In all workshops, teachers mentioned missing the visual cues they received from students in physical presence. They considered these essential to adapt their teaching to the students’ needs. One group of solutions focused on feedback during synchronous meetings. These included a connected dice students could turn on their desk to send automatic feedback to the teacher (e.g., on their level of understanding or wish to go faster or slower), an economics’ game theory approach for a group of students to decide on whether to turn on their cameras or not, or the more traditional emojis (e.g., thumbs up).

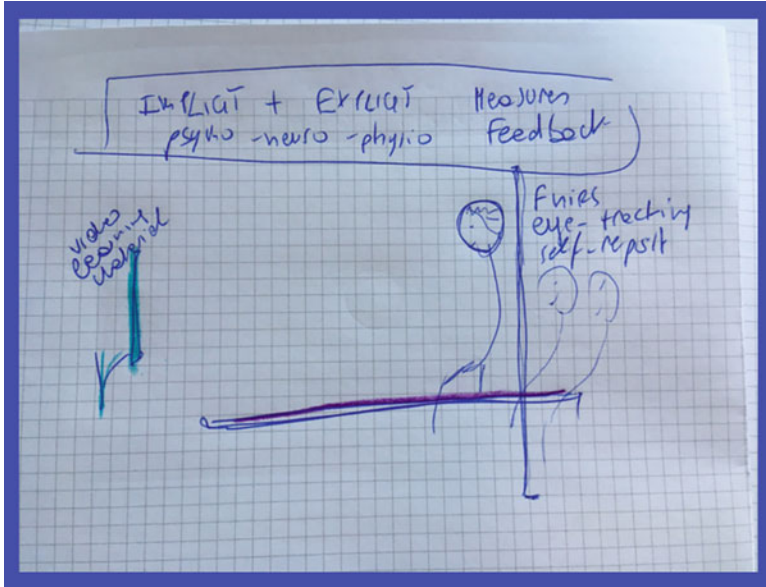


Fig. 7.2 Measuring students cognitive presence

Another set of prototypes focused on asynchronous feedback. Working independently, three teachers suggested similar science-based and data-driven approaches (see Fig. 7.2). To receive feedback on the quality of the content videos they were recording, the teachers suggested testing them in a laboratory on a group of volunteers. The students' cognitive presence would be recorded and analysed to then adapt the content and create “high-quality videos”. A scientific process of data collection and analysis would be set up by a specialist in neurosciences and would include both explicit and implicit measures. Students would self-report on their emotions while watching the video, as well as on the content (understanding or optimal speed, for example). Simultaneously, psychological, neurological, and physiological measures would also be taken, including the analysis of facial expressions, body position, measures of blood pressure, eye-tracking, functional near-infrared spectroscopy (fNIRS) and saliva analysis. Finally, the data would be analysed using AI to indicate where the videos need to be improved. For a more detailed discussion regarding such a data-driven and evidence-based approach see Carbonel (2021, pp. 36–41). This teaching approach led to the question of the role of the teacher in such a space. The last set of prototypes put the teacher back in the centre, as seen in Fig. 7.3.

The **VR University** offers a very different solution to the issue of presence in online education. Participants' avatars would be beamed synchronously into a common space where they could interact freely with a feeling of non-mediation.



Fig. 7.3 VR University 2025

Body language and facial expressions would be visible (all current technological limitations had been lifted in the speculative approach). The teaching space has two blackboards, one for the teacher and one for the students to ask questions and vote questions up or down. Finally, a social media blocking app would be made available. Teachers could once again use eye contact and movement in the room to catch students' attention and check that they were fully present. This would create what one teacher called a "special moment of learning" that they missed in online teaching. The VR classroom would be a closed space over which the teacher would have control, as in the traditional on-campus classroom, at least in its idealised version. Teachers did note that, even on-campus, they were not always able to stop students from online shopping or checking social media.

The illustration in Fig. 7.3 puts the teacher back at the centre, with their body visible and the possibility of using gestures, moving around the room and writing on the blackboard, all elements that were mentioned as missing in an online class. They also felt that the institutional environment would "convey a sense of authority" and seriousness of university education, that some felt was threatened when teaching on Zoom from the kitchen table. The unstructured digital space created uncertainty around the usual social rules and hierarchies.

The speculative approach led to a variety of possibilities to create cognitive, social, and teaching presence at a distance, in both synchronous and asynchronous environments. The discussions highlighted the assumptions these were based on and the potential issues that may arise if they were implemented. In the next section, we discuss the extent to which these prototypes were able to create a radically new teaching and learning experience.

Discussion

The speculative method fostered the broadening of possibilities of enacting presence in online education, as well as engaging the participants in a critical discussion of these possible futures. The prototypes included measuring students' cognitive presence in high-tech laboratories, enabling the cyber-presence of both teachers and students in a VR environment, or creating asynchronous social contact through connected objects. These avoided the oversimplistic "one-would-just-need-to" solution while highlighting the complex socio-material entanglement of both human and non-human actors (Stengers, 2005, pp. 998–999). The effect of affordances (the laboratory equipment, for example) on our choices was highlighted in the data-driven and science-based prototype. The agencies of both the human and non-human are clear: the teachers and students transform the teaching and learning experience, but it is also affected by the technological and material environment such as the teaching space (a lecture hall, the blackboard, a videoconference from the kitchen table), the presence of the body, or the apparent non-mediation of the VR technology.

However, many prototypes attempted to re-create the conditions of a traditional classroom online (e.g., eye contact, image of the physical classroom, teacher-centered), rather than create a new way of showing presence at a distance, in particular asynchronously (which was encouraged during the workshops although rarely taken up). As discussed in the second section, the value of speculative design also lies in how it leaves no one and nothing untouched. What may have been some obstacles to engaging in more radically new approaches with the question of presence at a distance?

Imagination has long been recognised as grounded in the context in which it takes place, as Sartre wrote, a "melange of past impressions and recent knowledge" (Sartre, 1948/2001, p. 90). This is not a drawback but makes speculative methods valuable in understanding our world today (Law, 2004; Ross, 2017). However, to encourage participants to think differently, widen the field of possibles, and not be left unaffected by the process, we need to understand why some participants closed off alternative imaginaries. Markham (2021) offers some insights in her analysis of an experiment that shares a similar approach to the one described here, although on a much larger scale. In the Museum of Random Memory (MoRM) project, Markham and her team encouraged participants to imagine alternative futures in relation to the question of memory, also using speculative methods. They too found that it was difficult for participants to imagine alternative futures. Markham's analysis of the participants' interactions shed light on a strong feeling of inevitability about the future. She explains this using the concept of discursive closure, focusing on "how certain patterns of thought, talk, actions, or interactions tend to function like negative feedback loops in social ecologies, discouraging evolution and change." Through the repetition of everyday discourses and narratives, the projected future becomes normalised and appears inevitable, the cause of these practices was forgotten, leaving just the habit. In our research, it was the image of what teaching looked

like and the embodiment of what it felt like that was difficult to move away from, rather than a feeling of technological determinism. In the MoRM experiment, many participants announced that they did not understand certain technologies and therefore could not engage with them. In contrast, OnlineUni teachers, even when they did not feel they fully understood a technology and were not quite sure what it might be able to do (such as AI or VR), still suggested it as a means to create a different teaching space.

Discourse closure helps explain the narrative around the idea that face-to-face education is the superior mode and the wish to put an end to “emergency remote teaching” to return to “normal on-campus teaching”. However, there are two limits to the discourse closure approach. It does not allow for change or agency and focuses exclusively on discourse, leaving aside the embodied aspects of teaching that were a recurring theme in the workshops. Bourdieu’s work on *habitus* and *hysteresis* can help explain both, the agency to change and adapt to the new conditions, while maintaining or attempting to return to certain aspects of the embodied practice. The *habitus* means teachers can react to change, within a range of possibles, without having to think through a response to each classroom event. In the brick-and-mortar classroom, the teacher’s behaviour felt ‘natural’ and it adapted easily to changing situations. When workshop participants remembered their teaching in the classroom, they felt they knew what to do and how to do it, for example when disproving prejudices, giving emotional support, or stopping side discussions in the class. The *hexis* of the body (the tendency to hold and use one’s body in a certain way) was also mentioned, how the body was seen or not, being able to walk around the class, create eye contact, move one’s arms, or look down on the room. There is a teacher’s way of moving their body, a “technique of the body”, deeply ingrained, learned through education, and specific to teaching (Mauss, 1934/2021, p. 54). In the traditional classroom, the expectations are clear regarding ways of being, codes, and socialisation. When walking into a classroom, no teacher needs to be told where to stand. However, when moving to a videoconferencing platform, the teacher does not know where they are on the students’ screen, or whether they are even visible and audible. They do not have a visible position of authority but are on the same level as all other participants.

The *habitus* offers a “structuring structure”. The overall structure remains over time, but the teachers still have agency and adapt at the margin, transposing the historically successful face-to-face format to an online synchronous class. The on-campus class is moved to a videoconferencing platform, the presentation is shared on the screen and the teacher engages in a dialogue with the students. There is a learning curve for using the technologies and setting new expectations. Still, most teachers were able to move their classes online, replicating the on-campus class in a virtual environment. However, many felt frustrated. Online presence in a videoconference was considered second best to in-physical presence classes. When moving physical classrooms to online platforms, physical presence is no longer an implicit part of the experience, and teachers became conscious of its role in their *habitus*. Hysteresis meant that many teachers transposed the historically successful face-to-face format into online teaching, moving lectures online, for example.

However, this habitus was no longer adapted to the new context. What made it successful, the physical presence and immediacy that created and maintained engagement, interactions and motivation, were gone. Furthermore, an online lecture highlights the limits of the format: a pre-recorded video that can be watched when students have time, at their speed, as many times as they need, rapidly appears more appealing (Khan, 2013; Nordmann et al., 2019). Although teachers focused on the lack of physical presence, it is the whole assemblage that no longer works as it used to.

A habitus is, by definition, enduring, subconscious, and deeply embodied, and its transformation puts into question the whole identity of the teacher at the individual and collective levels. This creates a greater barrier to change than what is often put forward such as the time and effort required to learn new technologies (Selwyn, 2017), the greater value put on an existing practice compared to an alternative that doesn't yet exist (Eidelman et al., 2009), or the difficulty in understanding new (threshold) concepts such as networked learning (Sinclair & Macleod, 2015). Increasing the duration of training or including modelling to change the teacher's habitus, as suggested by Belland (2009), is not sufficient to overcome the power of early experiences in forming a habitus. In a study of the German teachers' habitus and the pandemic pedagogy, Blume concludes that "any attempts to address the nature of teaching and schooling in a postdigital society will require the examination of long-held and deeply situated personal and systemic beliefs" (2020, p. 896).

The COVID-19 pandemic and the forced move to emergency remote learning created a misalignment between the practice and its objectives. The hysteresis of the habitus means that the teachers adapted to the change using their historical and embodied understanding of what teaching looks like and feels like. However, the new space is too far away from the traditional classroom and changes at the margin were insufficient, leaving a gap between the opportunities that have become available and the ability to take advantage of them (Bourdieu, 1980, pp. 100–104).

The current research created a space in which teachers could talk about their experiences and frustrations, hear about how others transformed their teaching and encouraged them to imagine new possibilities offered by networked learning. Therefore, the speculative approach did help initiate a new and critical conversation. However, it did not change beliefs or practices, getting teachers to think differently about presence. Further research is needed. One path is Markham's suggestion to carry out multiple iterations of the same experiment, shifting "from modes of engagement that sponsor general curiosity to more short-term actionable goals, using techniques akin to persuasion and activism" (2021, p. 400). A switch of perspective from the needs of the teacher to those of the student may bring teachers to differentiate between their needs (or habitus) and those of the student to experience a "worthwhile educational experience" (Garrison et al., 1999). Further research should include students and other stakeholders such as staff and management. With a raised awareness, research can then move towards practice and from speculation to actionable goals.

References

- Baillifard, A., & Martarelli, C. (2022). Notes et taux de décrochage inébranlables durant la Covid-19 en enseignement universitaire à distance. Asymptomatic epidemic in distance learning: A global disruption that remains inapparent in university dropout and grades. *Savoirs*, 60, 13–30. <https://doi.org/10.3917/savo.060.0013>
- Banks, S., Goodyear, P., Hodgson, V., & McConnell, D. (2003). Introduction to the special issue on advances in research on networked learning. *Instructional Science*, 31(1–2), 1–6. <https://doi.org/10.1023/A:1022583918064>
- Bayne, S. (2015). Teacherbot: Interventions in automated teaching. *Teaching in Higher Education*, 20(4), 455–467. <https://doi.org/10.1080/13562517.2015.1020783>
- Bayne, S., Evans, P., Ewins, R., Knox, J., Lamb, J., Macleod, H., O’Shea, C., Ross, J., Sheail, P., & Sinclair, C. (2020). *The manifesto for teaching online*. The MIT Press.
- Belland, B. R. (2009). Using the theory of habitus to move beyond the study of barriers to technology integration. *Computers & Education*, 52(2), 353–364. <https://doi.org/10.1016/j.compedu.2008.09.004>
- Biesta, G. J. (2010). Why ‘what works’ still won’t work: from evidence-based education to value-based education. *Studies in Philosophy and Education*, 29, 491–503. <https://doi.org/10.1007/s11217-010-9191-x>
- Blume, C. (2020). German teachers’ digital habitus and their pandemic pedagogy. *Postdigital Science and Education*, 2(3), 879–905. <https://doi.org/10.1007/s42438-020-00174-9>
- Bourdieu, P. (1977). *Outline of a theory of practice* (R. Nice, Trans.; 1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511812507>
- Bourdieu, P. (1980). *Le sens pratique*. Éditions de Minuit.
- Bourdieu, P. (1984). *Homo academicus*. Éditions de Minuit.
- Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. <https://doi.org/10.1037/13620-00>
- Calder, N., & Otrell-Cass, K. (2021). Space exploration: approaches to inhabiting digital spaces and their influence on education. *Postdigital Science and Education*, 3(2), 444–463. <https://doi.org/10.1007/s42438-020-00199-0>
- Carbonel, H. (2021). *The future of presence in online learning, a speculative design approach*. <https://www.apassionforteaching.org/post/the-future-of-presence-in-online-learning-a-speculative-design-approach>
- Carvalho, L., & Goodyear, P. (2018). Design, learning networks and service innovation. *Design Studies*, 55, 27–53. <https://doi.org/10.1016/j.destud.2017.09.003>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.
- Collier, A., & Ross, J. (2017). For whom, and for what? Not-yetness and thinking beyond open content. *Open Praxis*, 9(1), 7–16. <https://doi.org/10.5944/openpraxis.9.1.406>
- Cousin, G. (2004). Learning from cyberspace. In S. Bayne & R. Land (Eds.), *Education in cyberspace* (pp. 117–129). Routledge. <https://doi.org/10.4324/9780203391068>
- D.school Starter Kit. (2021). *Stanford d.School*. <https://dschool.stanford.edu/resources/dschool-starter-kit>
- Downes, S. (2002). *Education and Embodiment*. <https://www.downes.ca/post/92>
- Dreyfus, H. L. (2001). *On the internet*. Routledge.
- Dreyfus, H. L. (2009). *On the internet* (2nd ed.). Routledge.
- Dunne, A., & Raby, F. (2013). *Speculative everything: Design, fiction, and social dreaming*. The MIT Press.
- Eidelman, S., Crandall, C. S., & Pattershall, J. (2009). The existence bias. *Journal of Personality and Social Psychology*, 97(5), 765. <http://dx.doi.org.ezproxy.is.ed.ac.uk/10.1037/a0017058>

- Facer, K. (2016). Using the future in education: Creating space for openness, hope and novelty. In H. E. Lees & N. Noddings (Eds.), *The Palgrave international handbook of alternative education* (pp. 63–78). Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-41291-1_5
- Fawns, T. (2019). Postdigital education in design and practice. *Postdigital Science and Education*, 1(1), 132–145. <https://doi.org/10.1007/s42438-018-0021-8>
- Friesen, N. (2011). *The place of the classroom and the space of the screen: Relational pedagogy and internet technology*. Peter Lang.
- Garrison, D. R., Anderson, T., & Archer, W. (1999). Critical inquiry in a text-based environment: computer conferencing in higher education. *The Internet and Higher Education*, 2(2–3), 87–105. [https://doi.org/10.1016/S1096-7516\(00\)00016-6](https://doi.org/10.1016/S1096-7516(00)00016-6)
- Gee, J. P. (2004). *Situated language and learning: A critique of traditional schooling*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/ed/detail.action?docID=200413>
- Gough, N. (2010). Can we escape the program? Inventing possible-impossible futures in/for Australian educational research. *Australian Educational Researcher*, 37(4), 9–42.
- Gourlay, L. (2021). There is no ‘virtual learning’: The materiality of digital education. *Journal of New Approaches in Educational Research*, 9(2), 57. <https://doi.org/10.7821/naer.2021.1.649>
- Khan, S. (2013). *The one world schoolhouse: Education reimaged*. Twelve.
- Knox, J. (2017). Data power in education: Exploring critical awareness with the “Learning Analytics Report Card”. *Television & New Media*, 18(8), 734–752. <https://doi.org/10.1177/1527476417690029>
- Kuhn, T. S. (1990). The road since structure. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, 1990(2), 3–13. <https://doi.org/10.1086/psaprocbienmeetp.1990.2.193054>
- Lamb, J., Carvalho, L., Gallagher, M., et al. (2022). The postdigital learning spaces of higher education. *Postdigital Science and Education*, 4, 1–12. <https://doi.org/10.1007/s42438-021-00279-9>
- Law, J. (2004). *After method: Mess in social science research*. Routledge. <https://doi.org/10.4324/9780203481141>
- Lombard, M., & Ditton, T. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication*, 3(2). <https://doi.org/10.1111/j.1083-6101.1997.tb00072.x>
- Lury, C., & Wakeford, N. (2012). *Inventive methods: The happening of the social*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/ed/detail.action?docID=981968>
- Markham, A. (2021). The limits of the imaginary: Challenges to intervening in future speculations of memory, data, and algorithms. *New Media & Society*, 23(2), 382–405. <https://doi.org/10.1177/1461444820929322>
- Mauss, M. (2021). *Les techniques du corps ‘suivi de’ L’expression obligatoire des sentiments. Payot & Rivages*. (Original work published 1934).
- Merriam, S. B., Caffarella, R. S., & Baumgartner, L. (2007). *Learning in adulthood: A comprehensive guide* (3rd ed.). Jossey-Bass.
- Michael, M. (2016). Notes toward a speculative methodology of everyday life. *Qualitative Research*, 16(6), 646–660. <https://doi.org/10.1177/1468794115626245>
- Miro. (2021). [Windows 7]. <https://miro.com/>
- Networked Learning Editorial Collective. (2021). Networked learning: Inviting redefinition. *Postdigital Science and Education*, 3(2), 312–325. <https://doi.org/10.1007/s42438-020-00167-8>
- Nordmann, E., Calder, C., Bishop, P., Irwin, A., & Comber, D. (2019). Turn up, tune in, don’t drop out: The relationship between lecture attendance, use of lecture recordings, and achievement at different levels of study. *Higher Education*, 77(6), 1065–1084. <https://doi.org/10.1007/s10734-018-0320-8>
- Nørgård, R. T., & Hilli, C. (2022). Hyper-Hybrid Learning Spaces in Higher Education. In E. Gil, Y. Mor, Y. Dimitriadis, & C. Köppe (Eds.), *Hybrid Learning Spaces* (pp. 25–41). Springer International Publishing. https://doi.org/10.1007/978-3-030-88520-5_3

- Oxford English Dictionary. (2021). <https://www.oed.com/>
- PaTHES. (2021). *PaTHES thematic webinar series 2021: Foresight, speculative design and preferable higher education futures*. <https://pathes.org/pathes-thematic-webinar-series-2021/>
- Pekrun, R., & Scherer, K. R. (2014). Introduction to emotions in education. In R. Pekrun & L. Linnenbrink-Garcia (Eds.), *International handbook of emotions in education* (p. 698). Routledge.
- Platon. (1966). *La république*. GF Flammarion. (Original work published 350 B.C.E.)
- Ross, J. (2017). Speculative method in digital education research. *Learning, Media and Technology*, 42(2), 214–229. <https://doi.org/10.1080/17439884.2016.1160927>
- Ross, J. (2018). Speculative method as an approach to researching emerging educational issues and technologies. In L. Hamilton & J. Ravenscroft (Eds.), *Building research design in education* (1st ed., pp. 197–210). Bloomsbury Academic.
- Rousseau, J. J. (2009). *Émile ou de l'éducation*. Éditions Flammarion. (Original work published 1762).
- Rowling, J. K. (1999). *Harry Potter and the prisoner of Azkaban*. Arthur A. Levine Books.
- Russell, T. L. (Ed.). (1999). *The no significant difference phenomenon*. North Carolina State University.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Sartre, J.-P. (2001). *The psychology of imagination*. Routledge. (Original work published 1948).
- Selwyn, N. (2017). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.
- Sinclair, C., & Macleod, H. (2015). Literally virtual: The reality of the online teacher. In P. Jandrić & D. Boras (Eds.), *Critical learning in digital networks* (pp. 77–99). Springer International Publishing. https://doi.org/10.1007/978-3-319-13752-0_5
- Stengers, I. (2005). The cosmopolitical proposal. In B. Latour & P. Weibel (Eds.), *Making things public: Atmospheres of democracy* (pp. 994–1003). MIT Press.
- The Post-Pandemic University. (2020). <https://postpandemicuniversity.net/about/>
- Yuan, E. (2021). *Zoom* [Windows 7]. Zoom Video Communications. <https://zoom.us/>
- Zembylas, M., Theodorou, M., & Pavlakis, A. (2008). The role of emotions in the experience of online learning: Challenges and opportunities. *Educational Media International*, 45(2), 107–117. <https://doi.org/10.1080/09523980802107237>