The future of presence in distance learning, a speculative design approach.

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NLC Abstract

Face-to-face teaching remains for many teachers the golden standard in education. However, learning is always emergent, dependent on the socio-material context. Sharing a physical space is one option, but with new digital technologies, alternative assemblages can create new and exciting learning environments and experiences. Based on the community of inquiry model, I consider cognitive, social, and teaching presence as central to a valuable educational experience in higher education. The aim of this research is to look at what presence could look like in the distance university of the future.

Traditional research methods, whether quantitative or qualitative, focus on what is and on linear causal effects. However, education is open, recursive, nonlinear, and new environments introduce new actors, human and material, that affect the learning and teaching. In this research, I experiment with a speculative design method to see if it can lead to opening up new possibilities and to their critical evaluation. In six speculative design workshops, teachers developed prototypes of what presence and affective closeness could look like when students and teachers were spatially and temporally distant.

I present the three main categories of prototypes that answer the needs of distance teaching creating social interactions, offering feedback, or re-creating a virtual classroom. These all show how presence can be enacted at a distance, including asynchronously. From a science-based and data-driven approach to the Virtual Reality University, via a live course map and the connected coffee cup, each prototype offers a different view of education with its opportunities, but also challenges.

The prototypes also highlight how difficult it is to change our perception of what presence could look like in higher education. I use Bourdieu's concept of habitus to help explain the difficulty of moving away from the face-to-face experience, and how a revolutionary view rather than a marginal approach to change requires a return to the fundamental questions of how students learn, the purpose of education and the role of the teacher.

Keywords

Distance learning, online presence, speculative methods, habitus.

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

OnlineUni (name changed) is a Swiss, federally accredited distance university, with the mission to offer equal chances for adults to receive quality higher education, compatible with family or job responsibilities. Pre-pandemic, the university had a hybrid model including six in-physical presence meetings per semester. (5 classes and one examination day). With the pandemic, the university moved fully online. Student surveys and focus groups have shown that students appreciate the greater flexibility, without any significant change in marks or dropout rates (Baillifard & Martarelli, 2021). Like many universities across the world, OnlineUni is now considering the best pedagogical model going forward. A fully online programme would enable greater flexibility and access for more students. However, a survey during the summer 2020 showed that nearly 50% of teachers want to return to some form of on-campus teaching. Although the numbers may have changed as teachers moved out of an emergency situation and have adapted their modules to the new format, many still share 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).

The purpose of this paper is to see if a speculative approach can help initiate a conversation and engage the teachers in thinking about what presence could look like in a distance learning environment, with different socio-material assemblages; and to critically engage with these possible futures to understand the beliefs they are based on, the types of learning environments they would create, "the dilemmas and trade-offs between imperfect alternatives" (Dunne & Raby, 2013, p. 189). To do so, I take a speculative design approach. As Dunne & 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's. If our belief systems and ideas don't change, then reality won't change either" (2013, p. 189).

In the rest of the paper, I first carry out a literature review on the role 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 4, 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. I end with a short conclusion regarding further research.

Physical and online presence in education

In a socio-constructivist approach to learning, presence plays a central role in the educational experience. 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 in many teachers' and institutional discourses.

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 classroom, but happens in a multiplicity of spaces and through many types of activities.

As Dreyfus wrote, students learn with their bodies, from their bodies (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 in itself does not imply the need for the physical presence of the teacher and student in the same place. The student's body is just as present and feeling in the classroom as at a distance, there is no "virtual learning", as Gourlay (2021) puts it. In online learning, 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 learning experience (Zembylas et al., 2008).

For each statement about the need for physical presence, we could give a counterexample of what distance learning has to offer. For example, online learning does not have to be limited to controlled and efficient 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). Moreover, what appears as a new requirement in online teaching, can often be seen as good practice in all environments.

Presence has always been 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 in relation to higher education, as it refers to focusing on or being closely engaged with what one is doing, which 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 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." 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". 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." 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, for example through light, language, text, or digital technologies. 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, even if different, as Dreyfus' in physical presence experience. Moreover, presence can take many forms when teaching, 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 environment 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* noting that the outcome of learning, whether online or on-campus, was the same (2011, p. 6). There is a large body of literature about the no-significant difference phenomenon between the different modes of teaching (Russell, 1999). There has always been more to a learning experience than the face-to-face encounter or even the teacher-student interaction. Architecture, technology, institutions, culture, economy, society all participate in the creation of knowledge and learning. We live in a postdigital world. Online and in physical presence are not opposites, but inextricably intertwined in our lives (Fawns, 2019). The issue is not which is superior, nor how to make up for the limitations of online learning or reproduce as closely as possible the in-person experience, but how can presence be enacted in new and different ways in a fully online environment.
Learning emerges from the socio-material interactions, retroactions, entanglements. Each teaching and learning experience is emergent and unique (Carvalho & Goodyear, 2018). And digital technologies offer new spaces for learners in which understanding and practice can unfold in new and different ways (Calder & Otrel-Cass, 2021). Presence to support learning can also be enacted in multiple ways and spaces. For example, Bayne's (2015, p. 456) teacherbot, Botty, showed how an "assemblage of teacher-student code might be pedagogically generative." Or Ash (2013) researched how technical objects such as an iPhone can be actors, generating affective atmospheres which transform our experience of space and time.

The purpose of this research is to use a speculative method to create and think critically about new ways of generating presence in an online environment. What could presence and contact in distance learning look like in the future? What are the assumptions that lie behind these propositions? What type of educational experience might they create?

Researching the future

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, the first two are particularly relevant to our purpose. First, there is a **knowledge deficit**: what we know from the past through evidence-based research does not give us any 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) so that an action does not have a linear, deterministic consequence (required for evidence-based research), but effects are probabilistic and complex. Education systems interact with the world, 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), moreover, 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 offer 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, p. 11). 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). Design is seen as critique, it does not offer solutions, but 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 online presence in higher education. It is not the only valid choice, traditional scientific method could 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).

The speculative design method is presented in the following section.

A speculative design method

The speculative design method follows the four steps outlined by Ross (2018):
1. **A speculative question**: What could presence and contact in distance learning 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. They then defined the problem in a sentence before ideating. Each participant then chose one solution and developed a prototype. These objects were then shared and discussed in the group.
3. **An audience to engage with**: 13 professors and assistants, 1 faculty manager, 5 instructional designers, and 2 educational technologists took part in the six workshops on a voluntary basis. Participants came from across Switzerland (one was based in France), representing eight different fields (AI, psychology, economics, law, IT, education, engineering, and business) and three languages (French, German, and English).
4. **Capture and analyse the design decisions and responses to the object**: the workshops were recorded and transcribed. A thematic analysis was carried out on the ideation stickies, images of the prototypes and texts.

The research process followed BERA's ethical guidelines.

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

Findings: possible futures

The speculative method reached its objective of broadening the possibilities of creating presence in a distance 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_lDE34RA=/ 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 distance teaching: fostering social interactions and receiving feedback. 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 offer 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 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 Figure 1), populated with the students symbolised by different coloured dots with their initials, like Harry Potter's Marauder's Map (Rowling, 1999).

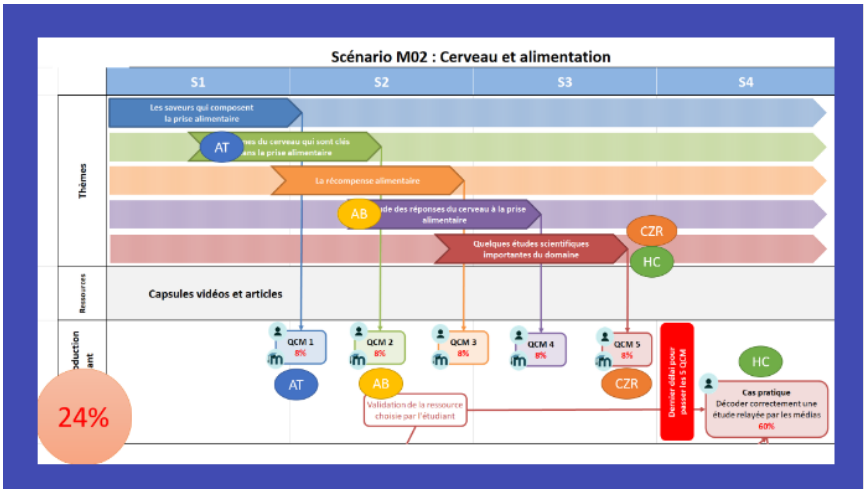

Figure 1: The Live Course Map

The different scenarios of the modules can be seen as a visual and dynamic representation of Gee's affinity spaces. Students are seen 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 (2004, pp. 70–82). 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 distance 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. 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, 2005).

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 presence. They considered these essential to adapt their teaching to the students' needs. One group of solutions focused on feedback during synchronous meetings and included a connected dice students could turn on their desk to send automatic feedback to the teacher 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.

For feedback in a fully asynchronous setting, three teachers suggested similar science-based and data-driven approaches. To receive feedback on the quality of the videos they would share with their students, 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 carried out, 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 let to the question of the role of the teacher in such an environment. The last set of prototypes put the teacher back in the centre, as seen in Figure 2.

Figure 2: VR University 2025

The **VR University** solves the problems the teachers were meeting in distance teaching. Participants' avatars would be beamed synchronously into a common space where they could interact freely with a feeling of non-mediation. 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 distance 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 they were not always able to stop students from online shopping or checking social media.

The illustration in Figure 2 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 distance learning. 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 from the kitchen table. The unstructured digital space created uncertainty around the usual social rules and hierarchies.

The speculative approach created 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 whether the extent to which these prototypes were able to create a new teaching and learning experience.

Discussion

The speculative method reached its objective of broadening the possibilities of representing presence in a distance education setting, as well as discussing the views about teaching and learning they are based on and the types of education they may lead to. The prototypes included measuring student's cognitive presence in high-tech laboratories, enabling the cyber-presence of both teachers and students in a VR setting, 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 of research in education 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 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 of the prototypes attempted to re-create the conditions of a traditional classroom online, rather than imagine an entirely new model or approach. As discussed in the second section, the value of speculative design also lies in how it leaves no one and nothing untouched, so we need to ask whether this speculative method can change the way people think and then act.

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.

In an experiment similar to the one in this research, although much larger in scale, Markham (2021) 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 Museum of Random Memory (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 environment.

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. The influential work by the French sociologist Bourdieu on *habitus* offers a well-researched concept that explains both the *hysteresis* of teaching methods and the agency to change (even 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 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, "reductible 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 leads teachers to certain reactions, 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 was not automatic, but felt 'natural' and 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

[1] The logic of practice

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 looking 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 the society to which they belong and their place in society (Mauss, 1934/2021, p. 54). In the 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 online. 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, but 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 from traditional teaching environments to distance learning, 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 distance learning, moving lectures online, for example. However, the habitus was no longer adapted to the new context. What made it successful, in particular 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 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 level. 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 the 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 remote learning created misalignment between the practice and its objective. 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 environment 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, ability to take advantage of them (Bourdieu, 1980, pp. 100–104).

The current research created a space in which teachers could talk about their experience and frustrations, hear about how others transformed their teaching and encouraged them to imagine other possibilities. However, it did not focus on changing beliefs or practices. Further research is needed. One path is Markham's suggestion to carrying 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.

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