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Seeking and sending signals: Remodelling teaching practice during the Covid-19 crisis

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(Montgomery, 2020)

ABSTRACT

With the increased use of online teaching during the Covid-19 crisis, technology-mediated interactions have become central to the co-constructive nature of learning in universities. This research questions the efficacy of online teaching as it has been implemented during the crisis by examining critical forms of online interaction. These include the strategies used by academics to identify cues from students to allow them to adapt their teaching and the interactions of academics with students to help learners self-regulate their learning. The findings provide evidence that technology-mediated interactions can help academics develop perceptions of students, but this requires opportunities for spontaneous, free-form interactions online. Academics can signal proactive learning strategies to students to help them self-regulate their learning, though these strategies have to be made visible within the online environment. Academics need guidance in the use of technologies to support these fundamental practices.

KEYWORDS

Higher education; online teaching; teaching practice; digital higher education; Covid-19

Introduction: Crisis teaching

As a direct result of the Covid-19 crisis, the Higher Education sector worldwide has undergone the biggest transformation of teaching in its long history. In an attempt to slow down the spread of the virus, countries quickly introduced social distancing rules and travel restrictions (Demuyakor, 2020). In step with or anticipating these restrictions, universities ended face-to-face lectures and seminars for millions of on-campus students around the world (THES, 2020). Teaching was moved online to restrict human-to-human contact in order to protect students and staff from the risk of infection.

The transformation in teaching was characterised by a sudden shift away from face-to-face, classroom interaction to online teaching and working from home (Hewitt, 2020). Most universities changed teaching over a period of days to allow students to continue with their studies with minimal disruption, affording little opportunity to redesign teaching (Sahu, 2020). Prior to the pandemic, online teaching was a small part of university education and a relatively small proportion of teaching staff had experience teaching online. In the rapid move to online teaching, academics had little opportunity to develop the practices and skills of online teaching. The response to the

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Covid-19 crisis has been characterised by attention to making available an abundance of content and media accessed through digital devices, with on-campus lectures tending to be replaced by livestreamed, online seminars or recorded video lectures along with online discussion (Crawford et al., 2020). This foregrounds specific teaching and learning practices previously embedded within the university system while diminishing other forms of engagement and interaction, particularly those outside formal curriculum such as informal conversations and interactions. It raises questions about limitations in the ways learners engage with learning supports such as media resources and other people, including peers and tutors. This limitation prompted Hodges et al. (2020) to term the response to the crisis as 'emergency remote teaching', differentiating it from the experiences of students engaged in online learning.

Teaching through lecturing is a well-established practice within academic culture and identity. It is natural for any profession to carry entrenched practices from one environment to another. However, academics who are new to online teaching tend to evolve their practice over time by reworking established teaching strategies within the online environment (Kaatrakoski et al., 2016). In conventional classroom settings, teachers use multisensory cues - such as facial expressions, body language and vocal responses - to assess how well students are learning, and adapt their teaching strategies accordingly (Titsworth, 2001). This ability to scaffold learning by observing and adapting to each learner's needs is a fundamental part of good teaching practice. However, academics may find it difficult to pick up and interpret signals from students online, particularly in circumstances where they have limited opportunity for direct interaction with students (Littlejohn & Kennedy, 2020).

While learning online during the crisis, students reported that they found it difficult to self-regulate their learning. A survey of how students learned online during the pandemic identified difficulties students experienced in self-regulating their learning (Jackson, 2020). When learning online, 71% of students struggled to sustain motivation and interest in their learning; 66% found it difficult to stay connected with academics and other students; 63% felt less prepared to undertake course assignments and activities; and 50% had difficulty managing their time and keeping track of their learning. Direct interaction with academics and peers helps students develop perceptions of themselves as learners, which aids them in adopting proactive learning strategies that foster self-regulation (Zimmerman, 1989). However, in online environments it may be more difficult for academics to model effective learning strategies that support students' understanding of how they learn.

The ability to learn proactively through self-regulation of learning is important for student success. We previously published evidence that shows the choices students make about how their study influences their outcomes (Littlejohn & Hood, 2017). Those who are able to adopt proactive learning strategies are better advantaged by online education than others (ibid). Students' ability to succeed in an online, remote-learning environment differs greatly by income levels and by their ability to interact with academics and peers online (Castaño-Muñoz et al., 2014; Kim et al., 2020).

Universities' efforts to reduce the attainment gap tended to focus on assisting students to access hardware, internet and educational resources, or providing a quiet space to study (OECD, 2015). Although these pragmatic strategies are helpful in some ways in closing the attainment gap, they do not address all the issues that limit access to education for students who already are disadvantaged. For example, there is evidence that more advantaged students use their time online more effectively and are able to develop more successful strategies than those who are disadvantaged (Hsieh et al., 2008). This concern raises questions around the efficacy of online teaching as it has been implemented during the Covid-19 crisis.

This paper examines how academics and students are remodelling their engagements by interrogating the role of technology mediated interactions in the co-constructive nature of learning during the Covid-19 crisis. The research examines strategies used by academics, first, to identify cues from students to allow them to adapt their teaching, and second, to model effective learning

strategies to help students self-regulate their learning. The findings contribute to the debate around implementing online teaching in higher education in ways that do not disadvantage some students. The methodology is outlined in the next section.

Method: Homeworking survey

The UCL Moving to Online Teaching and Homeworking (MOTH) study was launched on March 26, 2020 to investigate the experiences of academics and professional services staff at University College London as they worked from home (UCL MOTH, 2020). In March 2020 an email invitation was circulated by Deans to staff in their faculties to invite them to provide demographic data (gender identity, age, role, discipline, number of rooms at home, and mood rating) then respond to a free-text, online survey gathering quantitative and qualitative data about the experiences of remote teaching and research while working at home during the Covid-19 crisis. Participants accessed a free-text survey and were invited to write short, free-text narratives describing their experiences of working from home, online teaching and remote research. Between March 26, 2020 and July 30, 2020, a total of 412 responses were received. The qualitative data was coded and analysed. Only findings relevant to online teaching are in this paper and these are laid out in the next section.

Findings: Seeking and sending signals

There is evidence that while teaching during the Covid-19 crisis, academics expended a great deal of energy trying to identify signals from students to help them adapt their teaching. They also remodelled their interactions with students to signal how they could adopt pro-active learning strategies.

Academics used a variety of approaches to signal to students how they could develop as active learners. Sometimes they encouraged students to reflect, question and connect with others in ways that were not possible in face-to-face settings without digital technology tools. One illustration of this is how the use of recordings of audio, video and text during technology-mediated teaching sessions produced resources that encouraged students to reflect on what has been learned:

> Chat is in some ways better than an in-person meeting as it allows greater clarity and leaves a written record. (Academic, 36)

Additionally, academics encouraged students to use digital technology tools to help them understand the language and discourse used during teaching sessions. Students were encouraged to switch on captions during discussions to help them reflect upon what was being said or asked to talk with other students via online text forums to help them become enculturated within the language and discourse of their discipline. Technology mediation helped non-native speakers to understand the conversation better and students who were less able to speak publicly in the physical classroom appeared more able and willing to engage in dialogue:

> I believe online teaching can enable greater participation from students. For some students who feel too shy in group settings to call out answers / respond, the chat feature in most of the online platforms can facilitate better engagement. (Academic, 385).

Another way technology was used to foster active learning strategies was by encouraging students to ask questions and discuss concepts during online teaching sessions by using 'raise hand' indicators in online platforms. These tools were also used to poll student opinion, encouraging students proactively to reflect on their responses:

> Although teaching lectures without seeing student faces is a bit disorienting at first, the experience is still relatively interactive as students are able to put their hands up to ask questions as normal. (Academic, 102)

Observation of vocal and textual responses from students who had previously been reserved in class indicated to the academics that the online environment may be more accessible for some learners.

However, there was a marked difference in the way academics with prior experience of online teaching and those with limited expertise encouraged students to foster proactive learning strategies. Those who appeared more comfortable with online teaching tended to capitalise on the affordances of the digital technologies and platforms to help students self-regulate their learning. Academics who were less confident about teaching online tended to adapt established teaching practices they used during face-to-face teaching and transfer these to the online environment.

There were two primary ways that academics transferred teaching practices from face-to-face teaching to online settings. The most common form of practice adaptation was livestreaming lectures for students via videoconferencing platforms such as MS Teams or Zoom, thereby transferring lecturing practice from the physical to the virtual classroom. However, academics found this adaptation unsettling for a number of reasons. Some were concerned that students could record screenshots or videos without consent. Another established practice that academics adapted was office hours. Instead of on-campus office hours, some academics scheduled Microsoft Teams calls with students or responded to email queries. However, these approaches appeared more formal and time-consuming than ad hoc discussions with students, generating an increase in workload and anxiety.

In the absence of direct, face-to-face interaction with students, one of the main difficulties for academics was picking up cues from students about how they were responding to teaching. Body language and facial expressions are important visual clues that help guide academics' interactions with their students. In the online environment students could switch their camera off, which meant the academics were not able to observe student reactions during a teaching session. Even when they could see the students, they could only view a headshot and were not able to assess reactions from body language. Academics found this stressful because of difficulties in interpreting how students were responding to their teaching. This problem made it difficult for academics to adjust their teaching and communication strategies in the same ways they would have done in face-to-face teaching:

> The lecturer cannot see the audience to gain clues as to engagement and understanding… Particularly with first year undergraduates they are often unwilling to ask for clarification, so one relies upon body language and facial expression to assess that. (Academic, 175)

Academics reported further difficulties facilitating student-student interactions. This was attributed partly to students not being able to interpret multisensory cues from other students:

> Lag time, fear of talking over others, difficulty in "reading the room" all inhibited student participation; and engagement between students (usually quite a feature of some of my seminars) was indirect and hesitant. (Academic, 265)

> Being online directly impacts on the quality of group/paired/discussion, which would then use [sic] to feed into whole cohort debates. It stops … students interacting as much, and thus limits dialogic conversations. (Academic, 235)

In the absence of multisensory cues that are picked up through physical presence, academics found online teaching exhausting and isolating. This was articulated by an academic who commented:

> Online teaching is far more exhausting than face-to-face teaching. The latter benefits from the physical presence of students and the energy that provides, as well as from human signs of comprehension, interest, etc., that are crucial to guide "live" teaching. In contrast, online teaching leaves you alone with the computer with a remote audience that will get to see your teaching hours after in the case of lectures. (Academic, 54)

Having to organise technology-mediated interactions, rather than naturally engaging with a student, formalised interactions that otherwise would have been spontaneous and informal. Several academics described an 'energy' from students that was perceptible in physical teaching sessions

that appeared absent while teaching online. Not being able to engage in spontaneous discussions with students created two problems: first, it reduced opportunities to assess whether or not the students had learned, and second, it also made it difficult for academics to exemplify and support students in developing the proactive learning strategies that are critical for learning. As one academic explained:

> I cannot connect with my students online in the same way. In face-to-face delivery, I talk to students before and after lectures. While they are completing group activities in lectures, I walk around the tables and talk to them - especially those I don't know. I am not sure how this sense of connection can be achieved online with lectures. (Academic, 295)

Academics expressed frustration at having limited opportunities to talk one-on-one with students to assess their progress and understanding. Although it was possible to facilitate text-based or audio-based dialogue online, there was a perception that online discourse had to be organised and, therefore, was more formal and less spontaneous than dialogue in physical settings. By formalising the informal, academics reported difficulties in scaffolding proactive learning strategies students need to develop for effective self-regulation, such as encouraging self-reflection and self-evaluation through spontaneous questioning, or modelling strategies for self-efficacy.

Opportunities for informal interactions are crucial for teacher-student relationships. Students implicitly learn strategies for self-regulation through vicarious learning by observing academics and other students and there is evidence that this is best learned through spontaneous and informal interactions. This highlights the interconnectedness of formal teaching and informal interactions of students and academics in physical teaching settings. It raises questions around how academics and students conceive of their roles under pandemic conditions and how they remodel their engagement and interactions under pandemic conditions.

Discussion: Prioritising human interaction

With the increased use of online teaching during the Covid-19 pandemic, academics have adapted a range of teaching strategies. By examining how academics have remodelled their practice during the Covid-19 pandemic, this research provides evidence of two areas of teaching practice that need special attention. First, many academics find it difficult to develop perceptions of students while teaching online. They need signals from students to help them adapt their teaching. Second, in the online environment some academics have problems modelling a range of strategies to help students self-regulate their learning. These two difficulties are discussed in this section.

The need to mediate all interactions with students via technology systems has made it difficult for academics to develop perceptions of students while teaching online. Academics reported difficulties in gauging student reaction in formal, remote teaching, which reduced their ability to teach effectively. They also suggested that it required more effort to foster spontaneous connections online compared with face-to-face settings. This could be because transferring teaching practices from physical to digital environments tends to privilege formal, planned interactions, losing the opportunity for spontaneity. Yet informal interactions are critical for learning.

Interaction may well be the single most important activity in online education. Interpreting how students are reacting to teaching is critical to allow the teacher to modify the teaching and provide useful feedback. However, the cues available to academics as they teach online are limited. Developing ways to recognise and respond to informal feedback cues in online learning environment needs serious consideration.

Online learning environments offer a range of learning analytics tools, including dashboards that trace the time students spend online and the progression of students through learning materials. However, these tools do not compensate for natural indicators and prompts that the

academic picks up in real-time when teaching in a physical classroom. While it could be argued that analytics tools are being developed to monitor each students' affective state - for example, facial recognition technology can monitor emotion - the camera gathers a fraction of the data a human teacher would observe. Furthermore, there are privacy concerns related to continuous surveillance. It is also important to reassure students that they can interact with academics and other students outside formal teaching sessions

The second problem is that in the online environment academics find it challenging to signal proactive learning strategies to students to help them self-regulate their learning. Interactions of students with academics and other students are crucial in terms of supporting students to develop their ability to learn. Academics need to encourage students to foster proactive learning strategies such as reflecting, questioning and engaging critically with problems. A challenge for academics is to maintain presence both by sustaining interaction with students, as they would in face-to-face classroom teaching, and also by making sure students could interact with each other. While learning on campus, students are instrumental in creating their own environments for informal dialogue by meeting up outside the classroom either face-to-face or through social media. Academics need to work with students to encourage them to continue informal interactions online during the Covid-19 crisis in ways that help students develop as learners.

This paper has examined how academics are remodelling their teaching practice during the Covid-19 crisis. To ensure online teaching is implemented in an equitable way, academics, and those who support them, need to focus on two areas of practice. First, academics need to be supported in picking up cues from students to allow them to adapt their teaching. Second, academics need help in signalling self-regulation strategies to students to help them learn. Academics need guidance in the use of technologies to support these fundamental practices. However, new practices and processes are most powerfully supported when embedded within an educator's day-to-day practice (Kaatrakoski et al., 2016). Rather than providing courses and training, educators' professional development is likely to be more effective integrated within their everyday practice. While all of this is complex and challenging, it provides an opportunity for us to build a better future for student learning. While the current focus on generating and disseminating an abundance of digital content is important, student-academic interaction is vital to education. Above all, we need to use technologies in ways that foster better and more equitable human connections that form the foundations of human learning.

Notes on contributor

Allison Littlejohn is Director of the UCL Knowledge Lab, a centre exploring the future of education and communication with technology in the Institute of Education at University College London. Her research focuses on the role of professional learning in addressing global challenges, making contributions to the understanding of how people learn for work across the energy, finance, health, education and international development sectors.

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