An exploration of student experiences with social media and mobile technologies during emergency transition to remote education

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ABSTRACT
The adoption of mobile computing technologies in higher education has been accelerated during the emergency transition from on-campus to distance learning, which occurred due to the unprecedented situation caused by Covid-19 pandemic. The aim of this study is to explore how undergraduate students experienced learning through mobile computing devices during the emergency transition to remote education; how this experience may have impacted learner engagement and their overall academic performance; and students' perceptions on the role social media played while learning under lockdown. To gather students' insights and perceptions, in-depth, semi-structured interviews were conducted with both full-time and part-time undergraduate students. Three main themes emerged from the thematic analysis of the interview data. Firstly, the significant, multifaceted role social media play during distance education in keeping students engaged; secondly, students' positive experiences with using mobile computing devices to support their learning under lockdown; and thirdly, the frustrations from learning at a distance with mobile technologies. The research findings can empirically inform the design of engaging, inclusive, and inviting mobile learning environments towards improving the experiences of the mobile learner in an everchanging world.

Author Keywords
Mobile learning, social media, mobile technology, higher education, undergraduate students, learner engagement.

INTRODUCTION
Mobile technologies seamlessly disperse into all aspects of our lives including our learning spaces. Through Internet-connected mobile devices learners can seamlessly access course content beyond any time and place restrictions, as well as interact effortlessly with their instructors and peers alike. However, comparing and contrasting learning in a conventional classroom with online learning can reveal significant variations in the ways students communicate with their lecturers, interact with their peers, and engage with the learning content (Bolliger and Martin, 2018; Gikas and Grant, 2013; Martin and Bolliger, 2018; Schindler et al., 2017; Xie et al., 2019). Still, it is not always a matter of choosing one over the other. Amidst the recent Covid-19 pandemic, higher education has been disrupted as never before (Marinoni and van't Land, 2020). Academic communities worldwide have been presented with several challenges and in many countries around the world campuses remained closed following recommendations for social distancing and restricted mobility. The transition from on-campus to online learning was both rapid and imposed because of the unfolding Covid-19 crisis (Hodges et al., 2020; Vlachopoulos, 2020). During this transition, the role of mobile computing technologies has been vital. With the assistance of mobile technologies, Higher Education Institutions (HEIs) have readily reacted to the challenges and continued functioning, despite the unprecedented circumstances reported globally (Marinoni and van't Land, 2020). There are however key aspects to explore regarding how undergraduate students experienced these challenges.

The research presented here was initially sparked by the author's observation that the lecturer-student dynamics changed during the online lectures compared with teaching the same students in the classroom before the lockdown. This gave rise to a set of exploratory questions which consist the primary research questions for this study: How did undergraduate students experience learning through mobile computing devices under lockdown? How did students' experiences impact their engagement and academic performance? What role did social media play during the emergency transition from classroom-based to remote education?

Given the novelty of the situation, there is insufficient empirical research into how mobile devices and social media have been utilised by undergraduate university students during Covid-19 lockdown. Additionally, in the broader field of pedagogical applications of digital technology, there exists an imbalance between papers adopting quantitative and qualitative approaches, with newly established research quality metrics often favouring objectivistic approaches (Twinning et al., 2017). Furthermore, prior research has tended to focus on evaluating the effectiveness of mobile devices or using quantitative methods to depict students' intentions (Gikas and Grant, 2013). This study attempts to address these methodological and empirical gaps through an exploratory study performed in the context of a private HEI in Cyprus. The purpose of the research is to present students' voices and in-depth perspectives about their experiences with mobile computing devices and the role social media played during Covid-19 lockdown. The value and necessity of understanding the 'student voice' through qualitative data is increasingly recognised as an indicator of educational quality (Grebennikova and Shah, 2013; Kahu, 2020).

LITERATURE REVIEW

Any research problem needs to be informed by relevant literature, previous empirical work, and educational theory, before engaging into further exploration of individual perspectives (Twining et al., 2017). The following paragraphs provide the research background.

Trends in mobile computing technologies

The mobile revolution has profoundly affected all aspects of our lives, due to the ubiquity of mobile devices and the seamless integration of mobile technology into everyday tasks (Schindler et al., 2017), including teleworking and remote collaboration, online teaching and learning, shopping, finding information, and keeping in touch. Mobile devices (such as smartphones, tablet PCs, iPads, and e-readers) expand the notion of learning at a traditional place, like a classroom or a computer lab, into distributed, mobile learning spaces. These spaces are supported by a range of mobile technologies including: Virtual Learning Environments (VLEs) and Learning Management Systems (LMS) (e.g. Canvas, Blackboard, Moodle, Google Classroom, etc.); online meeting rooms and video-conferencing platforms (e.g. Zoom, GoToMeeting, Microsoft Teams, Cisco Webex Meetings, Google Hangouts Meet, etc.); VoIP (Voice over Internet Protocol) and Instant Messaging (IM) mobile applications (e.g. Facebook Messenger, Skype, WhatsApp, Viber, etc.); social networking sites (e.g. Facebook, Instagram, Twitter, etc.); and mobile Web 2.0 tools (e.g. blogs, wikis, etc.).

Industries such as the financial and banking sector, media, and more recently healthcare, have thrived by effectively digitising their operations and moving their services on the cloud, while other industries, including education, have struggled to keep up with the pace of technological innovation (Gandhi et al., 2016). Integrating mobile technology into teaching and learning is not, however, a new challenge. Several factors may act as barriers that hinder universities from efficiently and effectively integrating new technologies. These include rigid institutional procedures combined with the sheer volume of new technologies and the increasing number of mobile apps launched on the market, as well as the limited shelf life of new devices and software (Schindler et al., 2017). On one hand, students are already using their mobile devices and social media channels to communicate, collaborate, and learn. On the other hand, some faculty members may be hesitant to use technology (or choose not to) due to lack of technical knowledge, uncertainty about how technology can seamlessly blend with existing pedagogy, or doubts about whether technology can improve student learning outcomes (Gikas and Grant, 2013; Schindler et al., 2017). Still, utilising mobile technologies in education holds many opportunities for engaging learners and inspiring them to collaborate and construct new knowledge as citizens in a mobile world (Gikas and Grant, 2013; Piki, 2017; Schindler et al., 2017; Sharples et al., 2007; Sharples et al., 2010; Sung et al., 2017). As mobile technologies evolve and seamlessly blend with conventional teaching and learning approaches, we need to capitalise on these opportunities (Ally and Tsinakos, 2014; Tsinakos and Ally, 2013). The focus in future research efforts should be in harnessing mobile technologies to address equality, inclusion, diversity, and engagement in all aspects of learning, across disciplines and geographical, social, and cultural contexts. The unfolding Covid-19 crisis has motivated the adoption of mobile computing trends and many changes are anticipated in higher education as we emerge out of the pandemic.

Foundations of mobile learning

Mobile learning, or mLearning, has been defined and conceptualised in diverse ways during the last two decades. In the broader sense, mobile learning extends from the use of mobile computing devices in a formal, physical location (such as a physical classroom or lab); to the use of personal mobile technologies to support informal, contextualised learning anywhere, anytime, and on the move; to an even wider conceptualisation of learning in a mobile society characterised by the mobility of people and knowledge alike (Sharples et al., 2010; Sung et al., 2017). Collectively, the varied definitions and descriptions that exist in the literature pinpoint the potential of mobile learning initiatives towards (a) integrating both formal, informal, and lifelong learning (Gikas and Grant, 2013; Schindler et al., 2017; Sharples et al., 2007; Viberg et al., 2018); (b) combining individualised, self-directed learning with learning that is social, continuous, and accessible anytime and anywhere (Ally and Tsinakos, 2014; Mottiwalla, 2007; Sharples et al., 2010); (c) offering authentic and context-aware learning opportunities (Herrington and Herrington, 2007; Mottiwalla, 2007; Sharples et al., 2007); and (d) empowering learner engagement through collaborative learning (Piki, 2017; Schindler et al., 2017; Sung et al., 2017).

Social media and mobile learning

The educational benefits of mobile learning can be enhanced by encouraging learners to engage with social media. Coined in 2005, social media can be defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content" (Kaplan & Haenlein, 2010, p. 61). Types of social media include, but are not limited to: (a) social networking sites (such as Facebook, Twitter, Instagram, and LinkedIn); (b) media sharing sites (such as YouTube and Flickr); (c) content creation and publishing tools or Web 2.0 tools (such as wikis and blogs); and (d) instant messaging mobile applications (such as Messenger, Skype, WhatsApp, and Viber). As the term implies, interactions through social media are 'mediated' through digital networks and computing devices (Gikas and Grant, 2013). Social media allow users to interact in a 'social space' (Rodriguez, 2011) for personal, professional, or entertainment purposes hence leveraging the notion of social networks and creating a sense of community (Gikas and Grant, 2013). Theoretical frameworks such as the theory of connectivism (Siemens, 2005) and the notion of learning as conversation (Sharples et al., 2010) propose that learning events are continuous and may seamlessly transpire within other networks in which we belong. Consequently, interactions through social media can facilitate the seamless integration of learning activities, formal and informal alike, and provide collaborative and engaging opportunities for students (Bahati, 2015; Bowman and Akcaoglou, 2014; Camus et al., 2016;

Clements, 2015; Cochrane, 2010; Cochrane and Bateman, 2009; Mansouri and Piki, 2016; Naghdipour and Eldridge, 2016; Rodriguez, 2011; Schindler et al., 2017). Nevertheless, it has been suggested that without appropriate structure, the use of social media can negatively impact student learning (Gikas and Grant, 2013). Therefore, understanding students' perceptions and attitudes towards social media, is invaluable in determining the role they can play in the future of mobile learning.

METHODOLOGY AND RESEARCH DESIGN

Gathering students' insights and perceptions is a valuable tool for understanding what students do, how they experience a situation and why certain aspects are important to them (Grebennikova and Shah, 2013; Kahu et al., 2020).

Rationale for the study context

The study is conducted in the context of a private HEI in Cyprus. This choice was both opportunistic and purposeful given the fact that teaching at this institution is traditionally delivered face-to-face and no distance learning procedures or platforms were in effect before Covid-19 lockdown. This presented a genuine opportunity for exploring the stories and voices of students regarding their experiences and perceptions on the emergency transition to remote education.

Study participants

Qualitative data was collected from 43 undergraduate students. Students from all years, both modes of study (part-time, full-time), and different subjects (including subjects not taught by the researcher) were invited to participate in the study. The aim was to gather the typical perspectives from students at different levels of their studies and listen to unique stories and viewpoints. The participating students were registered on a range of modules including computing, finance and accounting, business administration, mathematics, economics, and marketing. Despite the discrepancy in the number of full-time and part-time students participating in the study (37 full-time and 6 part-time students), the numbers reflect the actual ratio of students in the respective modes of study at the studied HEI. Special attention was also placed on gender equality and inclusivity by ensuring a comparable number of female and male students is represented in the study (22 and 21, respectively). The age range was between 18 and 47 years (information gathered from students' public profiles).

Data collection

Students' perspectives were gathered through in-depth, semi-structured interviews with an average duration of one hour. Official approval was initially granted from the institution and individual informed consent was subsequently invited from each participant. Student interviews took place during the Covid-19 lockdown period (April-May 2020), thus contact was initiated through social media. Students the researcher had previously taught were approached first, and in turn, using the snowballing technique more students were invited to participate. Teaching at the studied HEI (at the time the study was conducted) facilitated access negotiation and student engagement. The relationship between participants and researcher is critical to establishing a trusting space for students to share their experiences and building a clearer understanding of students' perceptions (Kahu et al., 2020).

Having established initial contact, an invitation explaining the aims and objectives of the research was sent in writing, via a private message on Facebook Messenger. An interview was subsequently scheduled with each student at a mutually convenient date and time. All interviews were conducted online through the video-conferencing platform employed by the HEI for delivering online lectures during the lockdown (GoToMeeting). Each participant was invited to express a preference over audio recording or video recording the interview. Three interviews were audio recorded whilst the remaining were captured on video. The fact that all participants gave their consent to record the interviews permitted a more natural flow of conversation and helped the participants feel more comfortable since there was no need to keep detailed notes during the interview. A semi-structured interview agenda was utilised to facilitate the discussion and the flow was adjusted to follow students' leads and explore emerging views. Additional questions and probes were also used when appropriate. Interviews were arranged until data collection was no longer revealing new patterns or themes and saturation was achieved (Twining et al., 2017).

Data Analysis

Preliminary analysis involved transcribing interviews and reading the transcripts several times. Subsequent analysis involved identifying emerging themes, grouping them into categories, and creating summaries of student narratives. Colour-coding was used to facilitate the investigation and refinements were made in each coding iteration. During thematic analysis (Clarke and Braun, 2017) similar codes were grouped together forming thematic categories, and prominent patterns and interrelationships between themes were identified.

DISCUSSION OF THE FINDINGS

The findings from the thematic analysis are grouped under three main themes: (i) the multifaceted role of social media in keeping students engaged during emergency distance education; (ii) students' positive experiences with using mobile computing devices to support their learning under lockdown; and (iii) the frustrations from learning at a distance with mobile technologies. Verbatim quotes are provided in the text to communicate students' stories and meaning making in their own words. Aliases are used to refer to individual participants, but demographic information is preserved (i.e. gender, year, and mode of study) to provide a more pragmatic and contextualised representation of individual viewpoints.

Role of social media during emergency remote education

Social media (especially Messenger, Viber, and Facebook) played a significant role in supporting student learning and nurturing learner engagement. The role of these applications goes beyond just supplementing the formal educational technologies (such as the LMS and the video-conferencing platform) utilised for supporting online learning. Students leveraged the role of social media in relation to the quarantine and the restrictions enforced because of Covid-19 pandemic: "*Before the lockdown, we could visit our lecturers at their offices for questions or clarifications, or just to say hi. I miss that. […] It was so nice when some lecturers invited us to join their social networks or created group chats. It's not the same, but it's something*" (Mia, Y1, FT). "*What I miss the most now [in the lockdown] is those 5-minute breaks we had between lectures or those 5 minutes at the end of the lecture where we could walk up to the lecturer's desk and ask a question. Exchanging messages on Messenger is a great alternative given the circumstances*" (Vicky, Y3, PT).

Some students even felt 'closer' to their lecturers because of social networking during Covid-19 lockdown. Although this might seem like an oxymoron, the fact that social media interactions were neither monitored nor structured/formalised, helped students feel more comfortable to ask questions, which in turn helped their learning process. The informal nature of social media apps made students feel less intimidated compared to using more formal means of communication such as emails, the online platform, or LMS discussion groups: "*I definitely prefer asking a question on Messenger or Viber, you don't have to use 'Dear' or use formal formatting as you do with emails. I know how to write emails, we use them at work all the time; but when it comes to my courses, I want to ask a question quickly and get the answer immediately so I can proceed with my assignment*" (Mark, Y3, PT). Using social media apps like Messenger, Viber, and Facebook helped students stay in touch with their lecturers and peers almost instantly: "*In the traditional classroom the lecturer can easily see if we do not understand, if there is something wrong, or if they need to explain something again. I think they can see it from our expression if we are lost (laughs!). But during the online lectures […] this was not always possible. So, every time I have a question, I just send a private message to my lecturer on Messenger after class. All of them reply almost instantly which is great!*" (Nick, Y4, FT). The ways students talked about their experiences, highlight the importance students attributed to the lecturer's caring and supportive approach which extended beyond delivering the online lecture (Ferguson et al., 2019). Maintaining continuous communication through social media was highly appreciated by most students but was expressed more intensively by part-time students and students with family and other obligations, most probably due to the limited time they had to address certain challenges related to their studies. Official technologies such as learning management systems and online meeting platforms are often associated with formal, academic interactions, and therefore may disengage learners. On the contrary, interactions through social media may constitute a viable tool for increasing learner engagement by enriching interactions with fellow students and lecturers, hence creating a sense of belonging within a community (Camus et al., 2016; Schindler et al., 2017). Further research is required to explore what the 'right' balance between formal and informal learning through social media is.

In many occasions, interaction on social media contributed towards re-establishing learner engagement which was challenged during the unforeseen circumstances caused due to Covid-19 pandemic: "*This lockdown experience makes me feel demotivated sometimes and I don't want to study. It feels like time has stopped. Thankfully, we have our group chats and it is the only way for staying in touch with our studies, for staying in touch with reality, by sharing our experiences. […] Messenger definitely helps me. It keeps me on track*." (Anna, Y2, FT). Indeed, social media are commonly associated with improved learner engagement (Bahati, 2015; Bowman and Akcaoglou, 2014; Camus et al., 2016; Clements, 2015; Cochrane, 2010; Naghdipour and Eldridge, 2016; Schindler et al., 2017).

Positive experiences with using mobile computing devices for distance learning

The student participants described many advantages in which mobile devices assisted their learning: quick and easy accessibility to learning material and information, convenient remote access to online lectures, concurrent use of multiple mobile computing devices offering supplementary screen space or audio features, instant communication through social media apps, as well as paced and self-regulated interaction with learning content.

A distinctive advantage which mobile devices afforded the undergraduate students participating in the study, was the ability to access information and course material efficiently and effortlessly due to constant connectivity to the Internet. This was true for accessing information from the LMS, institutional email, and the Web: "*With a few clicks on my smartphone all relevant information was available, no hassles in turning the pc on, or re-entering usernames and passwords […] With your smartphone you are connected all the time anyway, it's just there!*" (Iris, Y1, FT). Convenience was also evident when connecting to the scheduled online lecture: "*To connect to the online lectures, I didn't download the app. I connect directly through the browser on my smartphone in a few seconds*" (Irene, Y3, FT). "*Most of the times I get home from work just a few minutes before my lecture started, so convenience is key for me*" (Tom, Y3, PT).

On several occasions, students demonstrated aptitude in concurrently using multiple mobile devices to augment their learning experiences during the lockdown: "*Most of the times I got connected on the online lecture through my smartphone but I used my laptop to type notes during the lecture or display the PowerPoint slides on a bigger screen. Once I even joined the online lecture with both [laptop and smartphone] and it worked!*" (Marilia, Y3, FT). "*I did not have a headset to connect to my laptop, so I joined the online lecture both through my smartphone so I can use my headphones, and also through my laptop so I can see my lecturer's shared screen better*" (Tina, Y2, FT).

As discussed above, in relation to the first theme, social media mobile apps played a key role in students' learning. A significant observation is that in all cases where student referred to social media, they were referring to the use of mobile apps (i.e. they used Messenger mobile app rather than visiting Facebook through a Web browser). Social media mobile apps were used to access their network of friends, share files with their peers and lecturers (e.g. screenshots of handwritten notes such as solutions to exercises they needed feedback on, or just a photo of the cake they baked earlier), coordinate and negotiate task allocation regarding group projects, ask questions to group chats or privately, or just for checking who is still online (hence assuming they were available to chat). All these opportunities made possible through their mobile devices, helped students maintain instant and close communication with their peers and lecturers.

Using mobile computing devices students interacted with course content in a variety of ways. They downloaded the PowerPoint presentation slides and supplementary learning material uploaded by lecturers on the LMS, and some even used on-screen annotation features to take notes or highlight key points while studying or revising for the exams: "*I don't have a printer, and because of the quarantine I could not make hard copies of the slides. So, I downloaded all slides on my tablet and took notes or highlighted important things on the screen*" (Alex, Y2, FT). In addition, students used their mobile devices to upload content on the LMS when formally requested by the lecturers (e.g. uploading homework, coursework solutions and answers to quizzes) or when they wanted feedback on their draft assignment reports (e.g. sending a screenshot of their handwritten notes). Students also used another affordance of mobile devices, the screen capture feature. During the online lecture, while the lecturer was explaining an important concept (in a theoretical module) or solving a practical exercise (either in Microsoft Word, Excel, or on paper, for example in mathematics or accounting modules), many students took screenshots using the respective feature of their mobile devices. Some students used their smartphones to record part of the lecture or took photos using their smartphone camera. When asked why they did not use the build-in screenshot feature of the platform, many students explained they did not even know that option was available. The main advantage students could see was that they had all the relevant content and learning material in one place, and they could go through the material any time (before, during, and after the lecture) and at their own pace. This promoted self-regulated learning and facilitated their revision and preparation for their assessed coursework and exams.

Frustrations from learning at a distance with mobile technologies

The rapid and imposed shift from the familiar, on-campus learning context into the unfamiliar, remote education, along with the anxiety, uncertainty, and distress caused globally by the unfolding Covid-19 crisis, negatively affected learning experiences, particularly in relation to the online lectures. The participating students explained that the problem is neither 'learning how to learn' at a distance, nor learning with mobile computing devices as such; the real challenge was that changes in their education were accompanied by measures for restricted mobility and social distancing. The situation created various barriers for learning: failure to concentrate during the online lectures; increased distractions; technological challenges and connectivity issues; increased time and effort required to perform groupwork; inconsistency in instructional approaches used among lecturers; the fact that online lectures were recorded; and decline in learner engagement and overall academic performance.

A recurring issue discussed by students was the difficulty to concentrate during the online lecture. Joining the session on the online meeting platform through their mobile computing devices (rather than in the classroom) had a negative impact on their level of concentration: "*I am working full time and attending evening classes [as a part time student]. Sometimes I feel so tired I cannot concentrate throughout the online lecture. In the classroom it was much easier to concentrate because I could see my friends, we would chat and joke during the breaks. During the lockdown this is not possible. The lecture now is more formal and serious*" (Alice, Y3, PT). Lack of concentration was further hindered by additional distractions, which eventually led to student disengagement: "*I feel bored during the online lecture and I cannot focus. For how long can someone look at a screen without seeing anyone? […] At some point I start checking my messages on Facebook or chat with my classmates on Messenger […] my smartphone is the biggest distraction I think*" (Nick, Y2, FT). Gikas and Grant (2013), made a similar observation suggesting that the allure of social networking applications available to students potentially threatened their concentration. While overall social media contributed to student engagement, during the online lecture they were considered by students as a distraction. Students also talked about other aspects distracting them: "*Most of the times I got connected to the online lecture through my tablet while lying on my bed. I even fell asleep a couple of times. I feel really bad but, I mean, I couldn't focus"* (John, Y1, FT). "*I have been working from home throughout the lockdown and I feel very lucky I was given this choice. I work the same hours as before but the difficulty now, with coronavirus, is that my evening classes are not face-to-face. Looking at the computer screen for 8-9 hours a day for work and then 2-3 hours extra for online lectures is exhausting. I try so hard to concentrate, but sometimes I simply can't. Sometimes, I just join the session but leave my desk to have dinner or take a nap*" (Peter, Y3, PT).

Other sources of frustration with learning with mobile devices had to do with the technology itself. Poor connectivity occasionally leading to the session being disconnected, not being able to hear the lecturer clearly or the lecturer's pitch being too high, the image freezing when the lecturer's camera was on, background noise when students forgot to mute their microphones, and the small screen size of the smartphone which was constraining when the lecturer shared their screen or the PowerPoint slides. Some of these issues were resolved by lecturers (e.g. muting all microphones automatically), while others were dealt with by the students (e.g. connecting to the platform from their smartphone and the laptop at the same time, which enabled them to see the slides in full screen while also using the smartphone's headset for better audio quality).

These technological problems transpired in combination with students' frustration due to the lockdown. As a result, students described their overall experiences with the online lectures as tedious, boring, and exhausting.

Student frustration was also evident when students talked about their experiences while working on group projects: "*Some projects required groupwork. We are familiar with group assignments and we still managed to complete the project. But the experience does not compare with how we normally work […] meeting at a coffeeshop with our laptops and getting the work done while relaxing at the same time. Due to social distancing regulations this was not an option*" (Maria, Y3, FT). Others attributed their negative experiences with working on a group project during the lockdown to the fact that getting things done was more time-consuming: "*Due to restricted mobility, everything was done online, and it took more time and effort to put everything together*" (Mike, Y3, FT).

Another aspect which was considered by students as a barrier during remote education was the inconsistency in the instructional approaches used by different academics. While some lecturers had the camera on, the majority switched the camera off and only shared their screen displaying the relevant MS Word, Excel, or PowerPoint files. Also, while most lecturers were reachable on social media, others expected students to use email or LMS messages to contact them. In addition, some lecturers allocated a few minutes before starting the recording, to brief the students on the learning objectives or make important announcements. Although appreciated by students, this was not a universal approach.

A further issue which was expressed as detrimental from the students' point of view, was the fact that the online lectures were recorded. With a few exceptions, the student cohort at the studied HEI consists of non-native English speakers. Although listening to English was not reported as a major problem, many (especially younger students) were feeling shy or reserved to ask a question, because they were conscious of the recording. As a result, students felt emotionally and cognitively disconnected during the lecture. The fact that lecturers did not have a visual during the online session (since students' cameras were off in most cases) meant they would not always know if students were following through or whether they were struggling with a certain concept or exercise. This contradicted students' habitual learning process where the lecturer can easily notice if there are questions or requests from students. Furthermore, the platform used does not have the typical 'raise hand' feature, which made it more difficult for students to interrupt the lecturer, or coordinate with other students during the lecture (e.g. when the lecturer asked a question either many students responded at the same time or nobody did). Overall, most of the students who participated in the study expressed a stronger preference towards conventional, face-to-face instruction. Recent findings show that, while seven out of ten students prefer face-to-face learning environments, specific demographic factors influence these preferences. Students who are married, with dependents, those who work 40 or more hours a week, students who are 25 years old or older, and individuals with disabilities, all demonstrate a stronger preference for classes that are mostly or completely online (Gierdowski, 2019).

These situations clearly raise issues of inclusivity in learning with mobile devices, learner engagement, disconnection from the learning process, and pedagogical considerations in delivering distance learning through mobile computing devices. When asked whether they feel their academic performance was affected while learning with mobile technologies, compared with their performance at the beginning of the semester before the lockdown, students' perceived decline in performance was evident: "*Having our classes online due to Covid-19 will negatively impact my grades, for sure. It's not the same feeling; it's a totally different experience*" (Mike, Y1, FT). "*If another lockdown is enforced next year, I will definitely take a gap semester, because I know my performance has dropped and it will show in my final grades*" (Nick, Y2, FT).

CONCLUSION

The utilisation of mobile computing devices during the emergency transition to remote education due to Covid-19 lockdown, has affected students' learning experiences in various ways. While the availability and flexibility of mobile technologies and social media helped students stay connected with their peers, lecturers, and the learning process at large, learning at a distance was associated with frustration and disengagement, especially in relation to the online lectures. A key observation is the fact that students could not separate their learning experiences from the broader social situation presented by Covid-19 pandemic. Students' experiences with learning at a distance through mobile technologies and learning under lockdown appeared to be inextricably interwoven. The anxiety and uncertainty spread due to the pandemic, along with measures for restricted mobility and social distancing made students feel disconnected during remote education. Students expressed the negative impact these experiences had on their engagement and overall academic performance. In this context, the role of social media was invaluable in re-establishing engagement and giving students an encouraging medium through which to endure the challenges.

As suggested in the Innovating Pedagogy report (Ferguson et al., 2019) "Pedagogies change and develop in response to changes in society. They open up new opportunities rather than reproducing what happened in the past" (pp. 6-7). This proposition has been evident during the emergency transition to remote teaching and distance learning due to Covid-19. Both students and educators had to adjust and respond to the changes brought by the pandemic. During the lockdown, the question was no longer whether or how we can blend mobile and social technologies into conventional teaching and learning approaches – the blend happened naturally. During such unique, unpresented contexts, considering students as agents can help explore their perspectives on the role of mobile and social technology in distance learning. Such explorations can enable a better understanding of the interactions between students and mobile computing technologies and social media. In turn, our enhanced understanding can help improve their university experience, reconsider the benefits of mobile learning in higher education, and identify ways to mitigate the frustrations resulting from learning through mobile

devices. Research exploring student voices needs to be accelerated so we can adapt quickly in the fast-changing mobile world.

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