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"We were like Zoom beings": Insider perspectives on student learning during the initial shift to online classes in Sweden at the outbreak of the COVID-19 pandemic

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Abstract: Universities worldwide transitioned to online learning during the COVID-19 pandemic, leading to a digital revolution in higher education. The aim of this study is to give a unique insider's perspective of how students experienced the shift to online learning within a Qualitative Methods course at the beginning of the pandemic. Our data is comprised of a thematic analysis of three focus group discussions (FGDs) with the Master's in Public Health Sciences programme students at Karolinska Institutet, Sweden, on their experiences of learning and applying qualitative methods online. The findings showed different processes of adaptation to the learning environment at the early stages of the pandemic. Use of digital technologies for online education were learnt and re-embodied by students, to the point they eventually defined themselves as "Zoom beings". An overarching theme describes the process of students' re-embodiment of their student-researcher role in a dematerialized online classroom. The adaptation to the learning process resulted in growing pains, but also enabled student to foresee complementarity of online and physical worlds. Understanding the students' experiences of the sudden switch to online learning can guide the adaptation for potential future disruptions of campus-based teaching.

1. Introduction

The COVID-19 pandemic triggered a digital revolution in higher education, forced by rapid migration to online teaching in many countries (Bentata, 2020). In Sweden, following a recommendation by the Public Health Agency of Sweden, all universities had to suddenly shift to online learning in the spring semester of 2020 as a COVID-19 mitigation measure. On 16 March 2020, Karolinska Institutet (KI) announced that teaching would continue online. Shortly after, our class of 39 Master's in Public Health Sciences (MPH) programme students at KI started a five-week Qualitative Methods course (Karolinska Institutet, 2021b). This course was developed for in-person teaching using learning materials about in-person qualitative research but had to be rapidly transitioned to online video-based distance learning.

Online teaching brings unique dynamics and challenges to the table for all parties involved, more so due to the rapid pivot toward online platforms in the early stages of the COVID-19 pandemic (Gelles et al., 2020). One unique challenge for teachers is to build a social and teaching presence within the virtual classroom (Carrillo & Flores, 2020; Castle & McGuire, 2010). This challenge requires that the teachers create a collaborative environment that also mimics in-person interaction (Carrillo & Flores, 2020; Castle & McGuire, 2010). Within this presence the teacher has to manage the roles of simultaneously designing and organizing the learning of students, as well as alternating the prompting and guiding of class discussions with direct instruction (Anderson et al., 2001). Other challenges for teachers include managing the expectations of students with varied experiences and adopting a flexible stance with regards to expected outcomes (Rifkin & Hartley, 2001). Issues in accessing technology such as computers and the internet are significant barriers to online learning for students, as are anxiety, lack of motivation, difficulty concentrating, and lack of social interaction with colleagues (Akhter et al., 2022; Dost et al., 2020).

The integration of information and communication technology with daily life has also challenged people's perceptions and integration of the tangible, physical reality with the disembodied, dematerialized presence when engaging, for example, on social media and telemedicine platforms (Stanghellini & Sass, 2021). Van Campenhout et al. (2013) argued that dematerialization takes place when a physical object is incorporated into the digital world. Whereas dematerialization refers to the transformation of objects from the physical to the digital, a different transformational process—re-embodiment—occurs with the users of technology. According to Seymour (1998), re-embodiment refers to "*the reconstitution of self-identity in relation to the person's new bodily state*" (p. 107). This re-embodiment process is mediated by a shift from using perceptual-motor skills to purely cognitive skills when interacting with a dematerialized object, for example, when reading an electronic book. Van Campenhout et al. (2012) indicated that this shift poses many challenges as immediate feedback, perceptually-simulating interactions, and intuitiveness cease to exist in the digital world. Instead, the interaction is carried out through abstract and complex cognitive processes and skills. In learning environments, the disembodied, "*quasi-presence*" (De Preester, 2011) of students on the Zoom online video conferencing platform has been associated with a lack of engagement in the learning process (Wellner, 2021; Yanto et al., 2021). Research fields and methods that demand engagement or information exchange between researcher and participant had also to be adapted to the new online world (Torrentira, 2020). This was the case of qualitative method studies.

Qualitative methods are a relatively new research approach in global public health (Tang & Dos Santos, 2017), which traditionally was based on quantitative and epidemiological research methods. Within qualitative health research, online interviewing was considered an emerging interviewing method (Lo Iacono et al., 2016), but has since the onset of the COVID-19 pandemic become a prominent qualitative data collection method (Torrentira, 2020). Ethical, practical, and interactional advantages and shortcomings of online qualitative interviewing have been reported in research (Archibald et al., 2019; Dost et al., 2020; Gray et al., 2020), many centering around the rapport building process. Salient advantages such as convenience for both participants and researchers, accessibility and cost-effectiveness compared to in-person interviewing have been reported (Archibald et al., 2019; Dost et al., 2020; Gray et al., 2020). Contradictory evidence, however, around online qualitative interviews and the quality of rapport-building was found. Rapport building is facilitated when interviewer and interviewee have to collaborate to overcome technical challenges (Archibald et al., 2019). Difficulties with reading non-verbal cues due to poor audio and video quality and connectivity problems, however, challenges the quality of rapport building and maintenance (Deakin & Wakefield, 2014; Weller, 2015). Weller (2015) reported that the online platform therefore may be less suitable when covering sensitive or traumatic topics. On the other hand, Jenner and Myers (2019) found that the online interviewing environment from the privacy of their homes facilitated intimacy and disclosure of sensitive information like sexual behavior. Familiarity and comfort-level with online platforms is another important factor that influences the ability to build and maintain rapport (Deakin & Wakefield, 2014).

Adams-Hutcheson and Longhurst (2017) asserted that online technologies are not necessarily good or bad, but the rhythm and atmosphere of qualitative interviews are changed when conducted in an online environment. When transferring qualitative interviewing from the physical environment to the cyber-space, communication methods are then mediated by that technological environment (Hine, 2020). Adams-Hutcheson and Longhurst (2017) reported that their study participants commented on challenges posed by this mediated environment, particularly referring to difficulties with rapport-building and affective atmosphere during online interviews. The authors' (Adams-Hutcheson & Longhurst, 2017) participants described it as "awkward" as they were not able to use their "*bodily senses to ease the interactions*" (p. 153).

Students attending online qualitative methods courses described the role of teachers as laying the foundation for their expectation of qualitative research in an online setting, and also sensitizing them to potential challenges technology can pose to the data collection process (Gregory, 2018; Snelson, 2019). Moreover, the interviewer and interviewee perspectives of online qualitative interviewing have been documented (Archibald et al., 2019; Deakin & Wakefield, 2014). This research has shown that consideration of ethical issues, rapport-building challenges and interview guide design adaptations are essential to accommodate the needs and medium of the interview to facilitate the interviewing process for the interviewee. More recent research has captured student experiences of online learning during the COVID-19 pandemic, indicating that students perceived online learning as increasing miscommunication between students and faculty, and creating inconclusive learning environments (Dost et al., 2020; Gelles et al., 2020; Torrentira, 2020). However, students' experiences of learning and applying qualitative methods online at the beginning of the pandemic have not yet been described. A deeper understanding this adaptation process can be of use to educators when preparing for and managing any future rapid transitions to online learning.

2. Aim and objectives

The broad aim of this article is to present an insider's perspective of students' experiences of the shift from in-person to online learning within a Qualitative Methods course in public health at the beginning of the COVID-19 pandemic. The objectives of this article are:

(1) To explore and describe opportunities and challenges encountered by novice qualitative student-researchers while planning and conducting online interviews during the COVID-19 pandemic.

(2) To explore how novice qualitative student-researchers experienced online teaching as a tool to prepare them for online qualitative interviewing.

3. Methods

3.1. Study design

A qualitative design was utilized to achieve our aim and objectives. Within this design, the authors of the article took the position of "participant as observer", as described by Gold (1958). This position means that the researchers are part of the group being studied and have non-research related access (Green & Thorogood, 2018), similar to the current case in which the authors were participants in the Qualitative Methods course. We present the findings of thematic analysis (Braun & Clarke, 2013, 2019) of focus group discussions (FGDs) with MPH students.

The timeline of the study is shown in Figure 1.

3.2. Study setting

The first case of the novel coronavirus was recorded in Sweden on January 30th, 2020 (Krisinformation, 2020), while community transmission was confirmed in March 2020 (Folkhälsomyndigheten, 2020). No lockdown was imposed in the country, but the Swedish Public

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Figure 1. Milestones of the study in 2020.
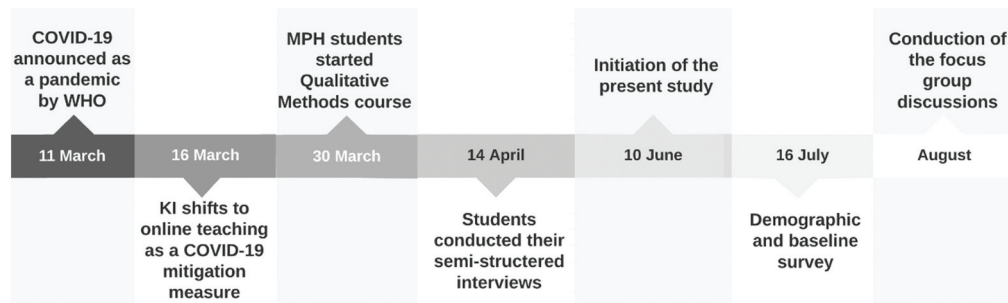
Health Agency issued a series of recommendations for transmission control; among these, that university teaching should be conducted online (Karolinska Institutet, 2021c).

The MPH program at KI has two tracks: Epidemiology, and Health Promotion and Prevention. The program is founded in delivering and strengthening methodological concepts in public health (Karolinska Institutet, 2021a, 2021b). The diverse curricula, English delivery and the two tracks attract students with a variety of professional backgrounds from across the world (Karolinska Institutet, 2021b; Sakakibara, 2020; Wiebe, 2019).

The Qualitative Methods course is a five-week joint course simultaneously taken by both tracks (Karolinska Institutet, n.d.). The course assignment consists of conceiving, conducting, and analyzing a semi-structured qualitative interview on a topic of choice. Specifically, students are asked to devise a research question and develop a related interview guide in groups, conduct two semi-structured interviews following the guide, transcribe at least one of them (individually), and perform a qualitative content analysis of the chosen transcript (in the initial groups or individually; Karolinska Institutet, 2020). In 2020, due to COVID-19, interviews were conducted online. All students chose to work on COVID-19 related topics. The course was taught by eight teachers of which some were residing in Sweden while others were abroad.

This study was mentored by the Qualitative Methods course leader and co-author Helle Mölsted Alvesson. The other co-authors were students enrolled in the course. We have since then defended our master thesis in June 2021 and graduated.

3.3. Data collection

All MPH students were invited to participate in this study on the 18th of June 2020 via a message on the class's WhatsApp group. They were notified about the study aim, data collection methods, and type of data collection. Two forms of data were collected: a) MPH students' demographic and baseline information; b) data from FGDs.

3.3.1. Baseline information

Thirty–eight (97.4%) of the 39 MPH students filled out the demographic and baseline online survey, including the authors of this paper. The survey was anonymized, and the MPH students were given the choice to answer some or all questions. Table 1 summarizes the results of the survey.

3.3.2. Data from FGDs

Three FGDs with MPH students were conducted online by three co-authors (AA, AvdW and FZ), with ten students representing both tracks participating. FGDs lasted between forty and ninety minutes. Each FGD was moderated by a different co-author, following a nine-question semi-structured interview guide with probes developed by the team. The interview questions covered barriers and facilitators of online interviewing, such as rapport-building ("*How did the absence of physical interaction influence your establishment and maintenance of rapport?*"), issues related to research ethics ("*How did you take ethical considerations regarding conducting interviews in an online setting*

Table 1. Demographic and baseline information of participating Master's in Public Health Sciences students		
Students' information	**No.**	**%**
Age		
20–30	30	81.1
31 and above	7	18.9
Total	37	100.0
Sex		
Female	27	73.0
Male	10	27.0
Total	37	100.0
Track		
Epidemiology	18	50.0
Health Promotion and Prevention	18	50.0
Total	36	100.0
Educational background		
Health and Healthcare Related	30	81.1
Social Sciences	7	18.9
Total	37	100.0
Previous qualitative online interview experience		
No	27	71.1
Yes	11	28.9
Total	38	100.0
Years of experience in qualitative interviewing		
None	20	52.6
Less than 1 year	9	23.7
1–2 years	4	10.5
More than 2 years	5	13.2
Total	38	100.0
How interviews were held		
In person	2	5.3
Online synchronous	36	94.7
Total	38	100.0
Continent the MPH student was in during the interview		
Africa	1	2.6
Europe	34	89.5
North America	3	7.9
Total	38	100.0
Continent the interviewee was in during the interview		
Asia	4	10.8
Europe	25	67.6
North America	8	21.6
Total	37	100.0

into account?"), role of online teaching ("*How did the online teaching approach prepare you for planning and doing the qualitative interviews?*"), and the recruitment process ("*How did you experience the process of recruiting the participants?*").

Once the interview was conducted, the voice and/or video recording was uploaded to KI's secured cloud server that is password protected. Only the co-authors had access to the files and the other copies of the recordings were deleted from local servers. Transcriptions were done by the three co-authors (AA, AvdW and FZ).

3.4. Data analysis

FGDs transcripts were analyzed using Braun and Clarke's six-phase inductive thematic analysis process (Braun & Clarke, 2013, 2019). After individually coding the transcripts using Nvivo (QSR International Version 12), the co-authors AA, AvdW and FZ met over joint meetings to discuss individually identified codes and iteratively search for, review and define themes across the entire data set. Disagreements over themes or their definitions were dealt with by reviewing all the codes included in the theme and discussing the final interpretation until it was as close as possible to primary data. This iterative process was conducted online and in-person with all co-authors.

3.5. Ethical considerations

As recommended by the International Committee of Medical Journal Editors, this study was conducted in accordance with the ethical principles of the Helsinki Declaration as revised in 2013. Consent from students to participate in the study was obtained through a dedicated question in the baseline survey. Informed consent was also obtained from all participants before starting the FGDs. To facilitate confidentiality, FGDs' video and voice recordings were transferred to KI's encrypted and password protected cloud service with access to the co-authors only. These recordings on the cloud server were the only copies available. Transcripts were pseudo-anonymized: the identity of each participant was given a unique identifier that was known only by the co-authors involved in the analysis.

4. Results

The thematic analysis with the overarching theme of "*Becoming Zoom beings: Dematerialization and re-embodiment during learning process in the COVID-19 pandemic*", themes and subthemes are shown in Figure 2 and presented below.

Students experienced that their classroom and research setting transferred from the physical to the non-physical world, which is the dematerialization process. This transition, triggered by COVID-19 pandemic, elicited adaptation of students to their new dematerialized learning environment. Adaptation involved an active process of re-understanding their roles as students and novice

Figure 2. Thematic map of the (i) overarching theme, (ii) themes, and (iii) subthemes depicting the findings of the focus group discussions.
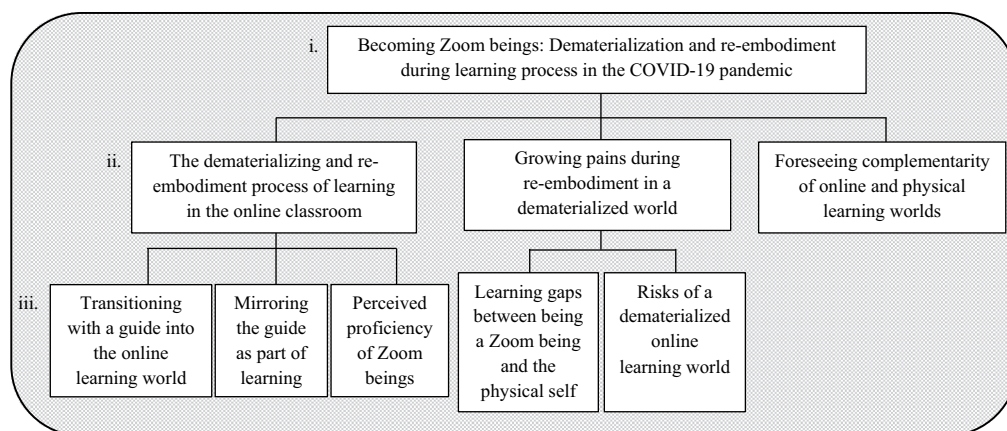
qualitative researchers in this new online learning world. It also required that students learn to naturally engage and function as their own re-embodied selves using technology to complete learning tasks as students and novice researchers. The successful re-embodiment of student-researchers in the dematerialized world is what we conceptualize as Zoom beings, a term one of our study participants coined.

4.1. Theme 1: The dematerializing and re-embodiment process of learning in the online classroom

This theme describes challenges the MPH students faced at the beginning of the online Qualitative Methods course in April 2020. The classroom shifted to an unfamiliar online platform, which students had to navigate. It seemed as if the physical classroom has dematerialized, and students were challenged to adopt new rules of engagement. Consequently, they adapted to the demater-ialized classroom by re-embodying their student role; not only to learn about qualitative methods, but also to conduct online qualitative interviews as part of the course.

4.1.1. Transitioning with a guide into the online learning world

MPH students struggled to adapt to daily online lectures. The online lectures were initially described as formal, risky, dehumanized, and a barrier to their learning. They realized at later stages that their teachers led the way in dematerializing the classroom by closing the distance created between students using digital platforms by creating "*an open and accepting environment*" (FGD3_Female). Feeling psychologically safe within the dematerialized online learning environment was important to students. One student felt that teachers created a safe virtual learning environment by following a predictable structure for lectures and by creating a sociable atmosphere:

> She [teacher] has also a structure which was always the same which was really making you feel safe and it always started with a little chit-chat and make sure on a personal level everybody is good. [...] it gives you kind of a safe perception of the room. (FGD4_Female)

Creating this safe, personable atmosphere encouraged student participation:

> I also felt safe when [teacher name] was speaking [...] she always praised us whatever question, whatever comments we made, so it was quite easy to speak up. (FGD5_Male)

4.1.2. Mirroring the guide as part of learning

Even though the course material did not specifically focus on conducting qualitative interviews online, MPH students found that their experiences during online lectures did prepare them indirectly to conduct online interviews. Teachers' guidance increased their confidence to conduct online interviews:

> Online classes really helped to gain confidence, like OK... I think I'm ready now to conduct it online through Zoom. (FGD7_Male)

They could also imagine how successful interviews should be conducted. Re-embodiment was kick-started when they began to mimic their teachers' communication style to transcend the formal, rigid communication atmosphere of online communication to create an engaging and interactive atmosphere during the interview:

> [Teacher name] encouraged us to speak up in the classroom, although it was on Zoom. We could have a lot of discussion among us and also with her. The discussion itself encouraged me to speak without hesitation so I think this was quite useful for us to be interactive with the interviewees. (FGD5_Male)

On the other hand, MPH students also learned from less successful online teaching strategies:

> [...] we were able to see some of the mistakes they were doing. And could do it differently in our interview. (FGD8_Female)

4.1.3. Perceived proficiency of Zoom beings

MPH students were surprised to realize the extent to which they had been forced to integrate the online world into their daily lives and yet, how natural their integrated re-embodied reality had become:

> I was going to say it felt normal to me… there was no other option. (FGD9_Female).

Their sense of self shifted from being anchored in the physical, in-person interaction, into a space where electronic perceptions of the self and others became as "real" as it would be in the physical world:

> We were like Zoom beings. I wasn't able to interact rather than on Zoom. It was just a part of myself this response, it was twelve hours on Zoom, you know, natural. (FGD9_Female)

4.2. Theme 2: Growing pains during re-embodiment in a dematerialized world

Even if students eventually felt they were "proficient Zoom beings" during online learning, when conducting the interviews, they grappled with the demands of re-embodiment, which they experienced as overwhelming, frustrating, and even threatening.

4.2.1. Learning gaps between being a Zoom being and the physical self

Re-embodiment required that MPH students be comfortable with virtual ways of relating to their participants. Mirroring the MPH students' guide was a successful method, but some still felt chafed by their need for familiar ways of communicating in the physical world. Rapport in the online environment was a salient dilemma for MPH students. One student who had never conducted any qualitative interviews struggled to adapt to the interpersonal distance that the online environment creates and how it affects the rapport building process:

> The fact that it is online makes it more formal. If you were to meet [in person], there would be a bit of chit-chat, and there will be rapport building already. […] But if you go online […] there is a bit of pressure to get serious immediately. […] Because it was online, there was literally more of a distance and maybe I kind of felt that during the interview. (FGD6_Male)

Another aspect of rapport building was understanding non-verbal communication in the online environment. Lack of access to body language strained online rapport building:

> It is not the same as face-to-face with the participants. […] You just see part, which is the head of the participant, and not the posture and the gestures the participant is making. (FGD6_Male)

4.2.2. Risks of a dematerialized online learning world

MPH students also highlighted other factors that devalued the online dematerialized world. Connectivity problems due to unstable internet connections are a major risk as they interfere with the flow of the interview, the rapport maintenance process, and the quality of information that can be gathered. One MPH student described the effects of technical difficulties on one of his interviews:

> It was difficult to build rapport, and it [technical difficulties] made it even more difficult. There were interruptions the whole time […] and you have to repeat what you have said the whole time. It's just annoying for you as an interviewer and annoying to the interviewee. […] People become more closed and less willing to talk and answer questions. (FGD6_Male)

A significant issue for MPH students revolved around data security as everything in the online world can be reduced to the movement, recording, and storage of data. Audio and more specifically, video recording, can be a threat to participants' privacy or safety, depending on their beliefs and context:

> When I tell them that I have to record your voice or maybe your body language or some-
> thing they would be, get a little nervous. (FGD2_Female)

These challenges that the MPH students experienced during their online interviews made some of them question their online interviewing skills so that they were hesitant to fully embrace re-embodiment in dematerialized environment and preferred to do in-person interviews in the future:

> I would rather do it face-to-face with that person. I don't think I developed enough research skills now on doing interviews, and I think it would've been more important for me to learn how to do it in reality with a person. (FGD1_Male)

4.3. Theme 3: Foreseeing complementarity of online and physical learning worlds

Despite the challenges they faced with online learning and interviewing, MPH students reached a point of comfort in the online world that made them reflect on how the dematerialized world could complement physical reality in the future. Online interviewing was described as more time and cost saving. Moreover, there is a big convenience factor related to online interviewing for participants and MPH students as *"you can just sit in your regular workplace and just click on a link and then you are there ... "*. (FGD3_Female)

> Due to the convenience factor, some MPH students indicated that they may prefer online qualitative interviewing in the future:

> I don't have to go out and find a place that are quiet. [...] Really save me a lot of time. [...] I think it's a very nice way to do an interview. Though it has some disadvantages but in total I think it's a better way. (FGD2_Female)

5. Discussion

Our study aimed to provide insider perspectives of how students experienced the shift from in-person to online learning within a Qualitative Methods course in public health at the start of the COVID-19 pandemic.

An understanding of student experiences of sudden switches to online teaching is important as it could provide knowledge that can help prepare educators manage any future rapid transitions to online learning. As the findings highlighted, MPH students struggled with online lectures at first. A dematerializing environment was forced upon the students. Students described the online lectures to be dehumanized and formal, which hindered their participatory learning. This initiated a struggle to re-embody being student-researchers within this dematerializing environment. This struggle resembles Seymour's (1998) view in which self-identity and its bodily state are reconstructed as part of an active iterative process. Gallagher (2005) held that two aspects of the body that are affected by re-embodiment processes, namely the body image and the body schema. The body image is the result of an active conscious intentional process, while the body schema is an automatic process that does not require intentional reflexivity. Seymour applied Gallagher's theoretical concepts to conceptualize the integration of wheelchairs into bodily schemata of rehabilitation patients. Initially, patients had to actively and consciously reflect on how wheelchairs replaced their legs. In time, however, the wheelchair was successfully integrated into their own "being". Likewise, in our study, all students grappled with the active and intentional parts of re-embodiment. Only some students successfully re-embodied the student-researcher "being" in the new dematerialized world, which they called becoming a "Zoom being". The notion of the Zoom being is an interesting finding of our research that has not been found in similar studies on online learning and interviewing.

The students pointed to the essential role of the teachers in overcoming these difficulties, by actively creating a more sociable affective atmosphere and facilitating participative learning. This resonates with existing literature pointing to the importance of building a social presence in online

classes for learning effectiveness, as well as to the salience of the teaching presence in doing so (Anderson et al., 2001; Carrillo & Flores, 2020). In our study the teachers' presence not only contributed to creating the prerequisites for effective online learning, but it was also a teaching instrument in itself. In fact, by mirroring the teachers' ways of creating rapport online, MPH students eventually felt familiar with this virtual learning space and felt ready and confident they would succeed in conducting online interviews for their assignment.

Transitioning into Zoom beings was not a simple process, however, as students were still transitioning between the body image and the body schema process of re-embodiment (Standal, 2011). The MPH students were confronted with their novicey when they attempted to transfer their online dematerialized classroom experience into the course assignment: qualitative online inter-views. Uncertainty about qualitative interviewing summed up with uncertainties in rapport-building online, while MPH students struggled with the "risks" of the online world: connection disturbances, recording issues, threats to data security. While these challenges align with those identified in the literature (Dodds & Hess, 2020), they also made the MPH students realize how much they still relied on pre-dematerialized ways of communicating. The perceived difference between the digital and non-digital appeared to fade in the process of conducting the interviews, as most MPH students perceived they became more proficient Zoom beings.

From a sociotechnical perspective, Zoom beings might be considered examples of what Lupton theorizes as "digital cyborg assemblages" (Lupton, 2013, p. 2). With this dense concept, Lupton draws from Donna Haraway's work to describe how the daily use of technologies has blurred the distinction between digital and physical selves, creating cyborgs: hybrids of body and technology (Lupton, 2013). The author also draws from the sociotechnical theory to illustrate how the body boundaries are consequently expanded into dynamic configurations or assemblages of flesh, material objects, technology, practices and data (Lupton, 2013).

The students' failure to transition into fully fledged Zoom beings, can be understood as a function of Freund's (2004) "seams in the cyborg" (p. 273). These are moments in which technology and flesh chafe against each other, and the apparent smoothness with which technol-ogy and the human work together in digital cyborg assemblages fails. In these moments, the seams between the online and physical worlds reappear as learning gaps during the conduct of the online interviews.

These "seams in the cyborg" (Freund, 2004, p. 273), or learning gaps, were never completely addressed according to some MPH students. Eventually, student-researchers who became Zoom beings reached a level of comfort with the online world that allowed them to foresee a complementarity of online and physical worlds in the future. The MPH students who struggled more with learning and conducting interviews online rejected the complementarity perspective. Previous research on the incorporation of assistive devices in rehabilitation highlighted how re-embodiment might not happen (Standal, 2011). Our study aligns with this literature, as these students could not entirely re-embody the student-researcher Zoom being in the dematerialized online world.

As a digital cyborg assemblage, the Zoom being has successfully incorporated new online-based digital education technologies, which are not only mastered as tools but taken up into bodily space (Standal, 2011), forming part of the body schema (Gallagher, 2005). Therefore, the proficiency achieved as Zoom beings blurs the differences between the online and physical worlds. This perspective of student learning in online environments can guide educators in the process of supporting students to become Zoom beings in online courses. The experiences of students suggest that online teaching can be maximized through the integration of few factors into the online classroom experience. Firstly, students who were most comfortable with the online class and interviewing experiences were those who actively and consciously were able to reinterpret their body image of a student-researcher in the newly dematerialized world. This perhaps points to

the need to adapt course materials to fit the needs and functionality of the dematerialized world. For example, how to deal with technological challenges during the interviewing process. Secondly, the students-researchers who felt confident to use researcher skills, mirrored skills demonstrated by the teachers in the online classroom. As an example, using chit-chat as a rapport building mechanism was first demonstrated by educators, then successfully imitated by the students. Thirdly, educators should be continuously reflective about their own dematerialization of the classroom and re-embodiment processes in the dematerialized world, to ease the students' process of re-embodiment. In our study, the teachers led the way for the students to undergo their process of re-embodiment, an approach valued highly by students.

5.1. Limitations

Most of the co-authors of this paper were MPH students who lived the transition to online education with their fellow colleagues. In order to minimize the risk of confirmation bias the team were trained and had a well-defined methodology to adhere to during data collection and analysis. To also mitigate the risk of over-subjective interpretation of data due to the author's participant as observer role (Takyi, 2015), the authors included several quotes obtained from the FGDs when reporting the findings. Quoting provided evidence that the researchers did not distance their findings interpretation from the original data (Sandelowski, 1994). Having the co-authors as part of the study group also constituted an advantage, as they had an in-depth, inner research knowledge of the learning and adaptation process the MPH students went through as a class.

The co-author HMA was the Qualitative Methods course leader and responsible for grading the students. To avoid hindering students' participation in the study, the research was conducted after grading was finalized and all MPH students passed the course. Furthermore, selection bias was minimized in the FGDs due to the fair distribution of participating MPH students across all demographics.

6. Conclusion

Insider perspectives of how students experienced the shift from in-person to online learning at the start of the COVID-19 pandemic illustrated how a process of adaptation to the pervasive use of online digital technologies took place in their learning process. By mirroring the teacher, students acquired confidence to build rapport online and embrace the new digital environment. However, this process was strenuous, as reflected in students achieving varying levels of student-researcher proficiency in online interviewing. Understanding of the mechanisms of how students can re-embody in the new online learning environments can contribute to building strategies that maximize learning during potential future disruptions of campus-based teaching. This study provided a student insider-perspective, but there is scarce evidence of teachers' insider-perspectives on easing their students' re-embodiment process, and their own re-embodiment in a dematerialized online environment. Moreover, this study captured a time-capsule at the beginning of the COVID-19 pandemic, and potentially different processes of adaptation could have taken place since. Research of later stages in the COVID-19 pandemic is needed to capture the evolution of these adaptations.

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Disclosure statement

The authors declare no conflict of interest.

Ethics and consent

This study was conducted in accordance with the ethical principles of the Helsinki Declaration as revised in 2013. It is in line with the ethical principles of no harm, autonomy, beneficence and justice. Consent from students was obtained through a dedicated question in the baseline survey and prior to the focus group discussion. All participations were voluntary. No sensitive data was collected. Data was kept confidential, transferred to the university's encrypted cloud service, and pseudo-anonymized. All the relevant GDPR rules were followed. This study is exempt from ethical approval, given it does not use sensitive personal data (SFS 2003:460, and ordinance, SFS 2003:615) and was conducted by students (government bill on ethical review of research 2002/03:50).

Authors contributions

Conceptualization: AvdW, AA
Data collection and transcription: AvdW, FZ, AA
Data analysis: AvdW, FZ, AA
Manuscript writing: APFC, AvdW, FZ, AA, SS
Review: APFC, AvdW, FZ, AA, SS, HMA
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