A Thousand-and-One Eye

A postphenomenological analysis of University teachers' experience of the classroom after the COVID-19 pandemic lockdown's normalisation of the camera

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Abstract

A mass normalisation of cameras in classrooms occurred because of the COVID-19 pandemic's imposed digitalisation of education. Yet, little is known about the effects cameras have on the experience of teachers. This thesis explores the research question "How has the teacher's experience of the classroom been affected by the pandemic-imposed normalisation of the camera in the classroom?" This exploration is compromised in part by a literature review contextualising the impact the pandemic-imposed digitalisation of education has on the classroom, concluding that early stage pandemic literature presents the teachers were overburdened by the introduction of new technologies and rushed expectations of technological expertise. The second part of the exploration consists of seven portraits of semi-structured interviews with University of Groningen teachers about their experiences of returning to the classroom after the normalisation of cameras in these spaces. The portraits are analysed using the postphenomenological framework to gain insight into the mediating role that the camera has in teachers experiencing the classroom. Findings from the analyses show that some teachers experienced an increased sense of emptiness of the classroom with the camera's normalised presence. The interviews deliver starting points for further research, in particular: longitudinal research on the camera's 'magnetic' power to create empty classrooms.

Samenvatting

De camera is genormaliseerd in het klaslokaal door de, door COVID-19 pandemie versnelde, digitalisering van educatie. Er is nog weinig bekend over de effecten die camera's in lokalen hebben op ervaringen van docenten. Vandaar wordt er in deze these de onderzoeksvraag gesteld "hoe worden de ervaringen die docenten van het klaslokaal hebben beïnvloed door de pandemie genormaliseerde aanwezigheid van de camera in het lokaal?" In dit onderzoek wordt deze vraag verkend middels een literatuuronderzoek en een postfenomenologische analyse van interviews met docenten aan de *Rijksuniversiteit Groningen*. Deze interviews worden gehouden in de klaslokalen van de desbetreffende docenten voor de belichaamde ervaring van het lokaal. De bevindingen in het literatuuronderzoek beschrijven hoe de digitalisering van educatie heeft geleid tot een gehaaste introductie van technologieën in het klaslokaal, wat voor een overbelasting op de docent zorgt. Uit de interviewanalyses blijken een aantal docenten een opmerkelijke leegte van het klaslokaal te ervaren die, in hun beleving, door de camera geconstitueerd wordt. Met deze bevindingen wordt gesuggereerd

om vervolgonderzoek te doen naar de 'magnetische kracht' van de camera in relatie tot het leeglopen van klaslokalen.

3

Table of Contents

4

1. Introduction

Teachers at the University of Groningen had to abandon the physical classroom when the first lockdown was announced by the Dutch government, back in March 2020 (De Rijksoverheid, 2022). During spring and summer, everyone had to work from their homes. Both teachers and students expressed the wish to return to the physical classroom as quick as possible, a wish granted in September 2020 (De Rijksoverheid, 2022). However, this return to the physical classroom was unlike the teachers' prior experience of classrooms and lecture halls. Everyone still had to stay 1.5 meters apart. When moving through the university buildings they had to wear protective masks, and only a marginal maximum number of students were allowed per educational space. Lastly, cameras were installed in the educational spaces that did not have them yet, with the purpose of making hybrid education and course recordings possible (Rijksuniversiteit Groningen, 2020). A degree of normalisation of the camera in the classroom is established by the online education during the pandemic and the post-lockdown mass introduction of cameras in classrooms. With this camera, in most cases, being pointed at the teacher, their experience of the classroom as educational space has changed. Hence, this thesis explores the effects that the normalisation of cameras in classrooms may have on teachers' experiences of the classroom at the University of Groningen.

1.1 Theoretical Framework

Physical space plays a central role in educational practices (Alerby et al., 2014; Mulcahy & Morrison, 2017; Kolb & Kolb, 2005; McGregor, 2004; Ellis & Goodyear, 2018). Just as a person influences their physical educational space – their classroom – by virtue of their presence and interactions, so does the classroom inadvertently influence its occupants, i.e., students and teachers, and consequently their learning. The incremental increase of information and communication technology in educational institutions, and the abrupt pandemic-imposed digitalisation of education in 2020, has significantly changed the classroom, its occupants, and education as a whole (World Economic Forum, 2020; Carrillo & Flores, 2020; Crawford et al., 2020; Müller et al, 2021). Likewise, these same technologies change the way a person experiences the classroom (Rosenberger & Verbeek, 2015; Adams & Turville, 2018; Aagaard, 2017).

In *The Embodied Classroom*, Alerby, Hagström and Westman (2014) describe the importance of embodiment in the educational setting through the lens of Merleau-Ponty's phenomenology; to understand that 'the body is not in space, but *of* it' (p. 13). It is in the

phenomenon of the teacher experiencing (or being intentional towards) the classroom (noted as teacher–classroom) that another element is introduced: the camera. The *Postphenomenological Investigations* (Rosenberger & Verbeek, 2015) expound the mediating role of technologies in the phenomenological experience. This *post*phenomenology provides an analysis framework with tools to examine how a subject's experience of the world is mediated, constituted, shaped and changed by technologies. This framework is expanded upon by a growing interdisciplinary community (Aagaard, 2017; Aagaard, 2018; Aagaard et al., 2018; Hardley & Richardson, 2021). The same principle of embodiment as previously discussed, predicts that the normalisation of the camera in the classroom influences the teacher as an experiencing subject.

1.2 Problem definition

The mass normalisation of the camera in higher education is a new phenomenon, which consequential influence we are yet to understand. However, we do know that the digitalisation of education and educational spaces influences the bodily experience (Bolldén, 2016; Burnett, 2011; De Groot et al., 2021), and we know that the bodily experience and embodied spaces are facets of the educational experience (Alerby et al., 2014; McGregor, 2004). As such, it is assumed that the pandemic-imposed digitalisation of education affects the teacher as an embodied subject and the classroom as an embodied space, which in turn has consequences for the educational experience of the teacher.

More research needs to be done before claims on the impact of pandemic-imposed mass-digitalisation can be accepted, but as Breslin pleas,

> continue to capture the story of the lockdown, wherever in this power elite you sit. We need to do more than identify and apply 'solutions'; we need to listen to, and trust, the various professionals active in the educational landscape and we need to continue to capture the stories of those who have lived through lockdown (Breslin, 2021, p. 177).

This thesis aims to capture the stories of teachers in the post-lockdown phase by examining how they experienced their classroom with the normalisation of the camera's presence and the consecutive hybridisation of education. At the same time, questions pertaining to privacy, accessibility, digital (in)equality, policy, technological agency[1] and (work) ethics arise

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[1] How much control a person has in their technologically mediated action.

(Carrillo & Flores, 2020; Crawford et al., 2020; Williamson et al., 2020; Müller et al., 2021; Bormann et al., 2021; Grimaldi & Ball, 2021; Xhelili et al., 2021).

It is unclear what the impact of the normalisation of cameras in classrooms at the University of Groningen will be. There is too little understanding of how cameras affect the teacher's experience, their teaching, and the way they perceive educational spaces. Current research focuses on the effects that the digitalisation has on embodied experiences of digital space (Willatt & Flores, 2022). Instead, this thesis aims to find out how the digitalisation of education affects the teacher's experience of physical educational space.

1.3 Research questions

The research is approached according the following research question:

> How has the teacher's experience of the classroom been affected by the pandemic-imposed normalisation of the camera in the classroom?

To answer this, the following sub-questions will be explored and answered.

i.   What is the impact of the pandemic-imposed digitalisation of education on the classroom?

ii.   What is the teacher's experience of the classroom after the normalisation of the camera into this educational space?

Sub-question (i) is answered through a literature review. Sub-question (ii) is answered through a postphenomenological analysis of a small sample of in-depth interviews with teachers from different faculties of the University of Groningen.

In these research questions the word 'classroom' refers to contemporary educational spaces that were used for either lectures or seminars of varying sizes, and can, in this instance, also be read as 'lecture hall', or 'seminar room.' These rooms may be 'hybridised', implying an infusion of technology for virtual participation in the physical space.

2. Methodology

2.1 Literature review

The aim of the literature review is to present sources on how educational space has been affected by the COVID-19 pandemic, and how teachers experienced the subsequent changes. This forms the basis for answering the research question: *What is the impact of the pandemic-imposed digitalisation of education on the classroom?* By answering this question a context

is established for the contemporary role of technology in education, and educational experiences during the pandemic.

2.1.1 Sampling and procedure

Three methods of corpus acquisition are used. The primary acquisition is a categorical keyword approach conducted within the search engines ERIC, Jstor and Google Scholar. The second method is network-acquisition. I consulted fellow students, a PhD student, and a number of teachers and professors. The third approach is an informal snowballing method.

The conducted categorical keyword approach uses three categories, each with a set of keywords that were combined to find different forms of overlapping articles. The categories are: postphenomenology, educational space, and the pandemic.

The first category of postphenomenology includes the search terms: *phenomenology*, *postphenomenology*, *technology*, *philosophy of technology*, *transparency*, *perspective*, *embodiment*, (*embodied*) *experience* and *teacher experience*. This category encapsulates the philosophy of technology and experiential part that the research focuses on.

The second category is educational space, which contains the search terms: *classroom*, *educational space*, *educational environment*, *educational technology*, *digitalisation of education*, *eLearning*, *distance education*, *online education*, *online teaching/learning*, *online pedagogy*, (*synchronous*) *hybrid education/learning*, *Hyflex*, *blended education*, *camera* (*lens*), *webcam*, *recording/recorded*, *higher education* and *university*. This category encapsulates the educational space and digitalisation of the educational space.

The third category is the pandemic, and includes the terms: *pandemic*, *COVID(-19)*, *SARS-CoV-2*, *Corona*, *coronavirus* and *lockdown*. This category encapsulates the context of the research in and after the corona pandemic lockdowns.

The network approach started during the research proposal phase and continued on throughout the research process. The sources acquired were *Postphenomenological Investigations: Essays on Human-Technology Relations* (Rosenberger & Verbeek, 2015) from a philosophy and media studies postgraduate student. A selected bibliography was provided by a contact from the research supervisor focused on the conceptualisation of the embodied classroom and the affordances (Zembylas, 2008; Withagen et al., 2012; Rietveld, 2012; Van Dijk & Rietveld, 2017), and a PhD-candidate that proffered four articles, *A*

systematic literature review on synchronous hybrid learning: Gaps identified (Raes et al., 2020) being the most notable.

The informal snowballing method started from *Postphenomenological Investigations: Essays on Human-Technology Relations* (Rosenberger & Verbeek, 2015), and used https://www.connectedpapers.com/.

The three approaches together compiled a corpus of $n = 75$ including the sources present in the theoretical frame. The abstracts of this corpus were screened, or in the case of missing abstracts, the introduction and conclusion were read. Articles were included based on their relevance in answering the research question. This screening resulted in 40 sources. A secondary reading was performed to conclude the review with seven core sources.

2.1.2 Research instruments & analysis framework

The reliability of the literature review for future research is negatively affected by the nature of contextualising a global event, i.e., the pandemic while still undergoing it. In a month's time the academic literature may have radically changed interpretation of- and perspective on the pandemic imposed digitalisation of education. The validity of the articles is enhanced by being peer reviewed and by the reliability of certain publishers (e.g. Springer), as well as the expertise of the professors, PhD-candidate and the postgraduate.

2.2 Interviews

The second part of the research consists of interviews with teachers from the University of Groningen. The leading question in this section of the research is as follows: *what is the teacher's experience of the classroom after the introduction of the camera into this educational space?* The aim of the interviews is to gather different experiences of teachers from different academic fields represented at the University.

2.2.1 Sampling and procedure

The sampling consists of seven ($n = 7$) participants, each picked from one of the faculties at the University of Groningen: Economics and Business, Behavioural and Social Sciences, Theology and Religious Studies, Arts, Medical Sciences, Law, and Philosophy. Time constraints made it impossible to gain willing participants from the faculties of Spatial Science, and Science and Engineering. Each participant is required to, first, have taught a course during a pandemic lockdown in an online environment. Second, they have taught in a physical educational space during the pandemic, after a lockdown. The educational space had a camera present to provide a form of hybrid or blended education. Diversity was taken into

consideration for the process of selection. The teacher is not required to have a doctorate. Different amounts of teaching experience are represented, ranging from 'started during the pandemic' to '30 years in higher education.' Non-native teachers and different genders are also represented. However, the specificities of the latter two factors will not be documented for the sake of privacy. Hence, the use of pronouns may not represent the preferred pronouns of the participants portrayed.

The teachers were approached in two ways. First, five of the teachers were approached directly as the primary researcher either knew them from personal connections or had, prior to the research, a formal student relation with the teachers in question. One of the teachers is a friend, however the bias associated with such a relationship aided in the phenomenological account of their story, as they were more easily willing to open up about personal feelings and perspectives. Second, the two remaining teachers were contacted by email on basis of the hearsay of their educational reputation within their faculty, or through referral by teachers emailed in the previously stated manner.

2.2.2 Research instruments

The interviews used a semi-structured design to see how the teachers' subjective theories on educational technologies and educational space, and their accompanying presumptions and assumptions, have been affected by the pandemic-imposed digitalisation (Willig, 2013; Flick, 2014). In the interview the three leading themes were *teacher experience*, *the classroom*, and *the camera*. The camera functions as the focal point for the subsequent postphenomenological analysis of the teacher's experience of the classroom.

The interviews were planned as conversations of 45 minutes, with most of them finishing around the 50 minute mark. They were held in the period from 25 April 2022 to 31 May 2022. For the sake of added immersion and embodiment in educational space, six out of seven interviews were held in the educational space (or one near identical) that the teachers taught in after the lockdown. The remaining interview was held in the participant's office. Fortunately, the researcher is familiar with the lecture hall that this teacher lectured in during the pandemic. Only one of the interviews had to be cut short, but still provided a recording of 48 minutes. All planned questions were asked, but there was no time left for the concluding open question of 'are there any other experiences, ideas or remarks about the subject matter that you wish to share?'.

The first questions are designed to establish the context of the teacher; their field, their teaching experience and their (post-)lockdown experiences. Following this, the questions aim to extrapolate the post-lockdown experience, the relation between the teacher and the classroom, and the influence of the camera[2].

The researcher was the interviewer at every interview. They recorded the interviews using the software Audacity. All interviews were in-person and one-on-one. Depending on the participant the interview was in Dutch or English.

The research, including the collection, preservation, and analysis of data, are held in accordance with the codes of conduct as established in the guidelines and legislation of the Faculty of Behavioural and Social Sciences (2022)[3]. All participants have agreed to the pseudonymisation and anonymisation of their respective portraits.

2.2.3 Analysis framework: Postphenomenology

Built upon the foundations laid out by Don Ihde (1990; 2012), Rosenberger and Verbeek wrote and curated a comprehensive guide to postphenomenology, its framework, and method, titled *Postphenomenological Investigations: Essays on Human-Technology Relations* (2015). Like its phenomenological equivalents, the postphenomenological analysis framework approaches the relations between humans, the world, and technologies from the perspective of the human experience of the world (the titular *phenomenon*). However, unlike its phenomenological equivalents, these relations are examined as mediated through the technologies that humans are surrounded by and interact with.

How these relations exist, are mediated, and constituted, according to the principles of postphenomenology, can be illustrated by the following example (Rosenberger & Verbeek, 2015, p. 14): a bespectacled person experiences the world around them through their glasses. The phenomenon is different from that same person experiencing the world without those glasses; both the subject and the world are changed by the presence and the interaction with the glasses. The glasses constitute the subject as a person-with-glasses and the world as a world-seen-through-glasses. Taking this example and applying it to this thesis' subject matter, one would acquire the following question: *in what manner does the camera constitute the teacher and classroom in relation to each other?* As such, the analyses aim to establish

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[2] See appendix I for interview guideline.
[3] See appendix II for participant consent form.

what kind of different manners the teachers' experience of their classroom are mediated by the normalised camera.

The main reasons this research uses the postphenomenological analysis framework are as follows. First, the framework highlights the mediating presence of technologies in the human experience, which contrasts with the interpretative phenomenological analysis (Willig, 2013). Second, the postphenomenological method has already been applied to educational and pedagogical research (Aagaard, et al., 2018). With the rapid increase in digitalisation of education during the COVID-19 pandemic, it is apt to apply this framework to the investigation of the teacher's experience during the pandemic.

The analyses consist of examining the human–technology–world relations presented in the interviews, in this case teacher–camera–classroom relations. The framework's concepts function as tools for the analysis of the effect that the mediation of technology has on the human experience (Rosenberger & Verbeek, 2015). The most recurring concepts used in the following analyses are *(multi)stability*, *transparency*, *field of awareness*, *outside-in presences*, and *magnetism*. To continue with the example of glasses, using the glasses to see the world differently, is one of its stabilities[4], another stability could be using glasses to concentrate light to start a fire. This shows that stabilities are reliant on their materiality, as the glasses have to be sculpted in a way that focuses light and not spreads it. The transparency of a device indicates how perceptible it is. A devices transparency can change by many different factors, like by sedimentation[5]. Glasses become transparent to its user, in that they tend to forget their presence while perceiving the world. How and what a person perceives is described by Rosenberger as their field of awareness, some presences are phenomenologically more perceptible than others, and technology can change these perceptions.

Aagaard introduces with his research, alongside Sørensen's *Spatial imaginaries* (2007), the concepts of moving presences *outside-in* and *inside-out* into the postphenomenological terminology (2017). They illustrate how devices, like a laptop, can change the spatial experience of a subject. Other presences can be invited into a space, or a user's presence can

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[4] The underscore will be used to emphasise the use of the postphenomenological definitions in contrast to their common uses.

[5] Continued repetition of habituation. Habituation as understood from Merleau-Ponty's phenomenology (Rosenberger & Verbeek, 2015).

be <u>moved outside</u> of the physical space they occupy. Aagaard also adopts the use of *magnetism* as an invitational power in the *affordances*[6] of educational technologies (Withagen et al, 2012; 2018). These concepts are applicable when analysing the human experience mediated by cameras[7].

The analyses were done by reviewing the collected data: the interview recordings and the notes made during the interview. An analytical summary of the conversation was made, highlighting the described experiences with notes referring to relevant key concepts. The summaries were split into portraits and accompanying postphenomenological analyses of the teachers' described experiences.

3. Findings

3.1 Literature review

3.1.1 Data

From the corpus of 75 sources, 40 sources were scanned for their relevance in describing the impact of the pandemic-imposed digitalisation of education on the classroom. From them seven core sources[8] were selected to answer the question *What is the impact of the pandemic-imposed digitalisation of education on the classroom?*

3.1.2 Analysis

The majority of the screened articles that mentioned a pandemic-imposed digitalisation of education kept this digitalisation to the online education during the lockdowns. The remaining seven either made direct references to the pandemic-imposed digitalisation of educational spaces (Schatzki, 2021; Bülow, 2022), referenced the pandemic-imposed digitalisation of educational institutions (Crawford et al., 2020; Bormann et al., 2021; Breslin, 2021), or made predictions about the near future developments of digitalisation of education in the classroom (Raes et al., 2020; Müller et al., 2021).

Schatzki reinforces the importance of space in socio-educational endeavours (2021). His essay illustrates the contrast experienced in the move from classroom education to at-home lockdown education. In its conclusion, the essay mirrors this move; hoping for a return to the classroom, expressing that appropriate physical spaces are required for stable and effective

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[6] Affordances are action possibilities, based on Gibson's ecological psychology (Gibson, 2015).
[7] See appendix III for an expanded postphenomenological concepts guideline.
[8] See bolded titles in appendix IV.

educating (2021, p. 14). Bülow supports these claims stating that a physical classroom's uniformity is broken with the introduction of the hybrid classroom (2022).

Bormann et al., provide insight in both political action, emergency policy-making on educational and governmental level, and the social inequalities present in education during the pandemic (2021). They assume "mid-term effects of the short-term measures in education are likely to result in institutional changes." (p. 628). This assumption is realised at the University of Groningen with the installation and normalisation of cameras, hybrid and blended education. However, the majority of the faculties chose to go back to mostly physical education the moment they were permitted (Rijksuniversiteit Groningen, 2022), the Faculty of Law being the exception.

Breslin presents a series of recommendations throughout his book (2021): The most notable being, 3.3 "The practicality of remodelling school campuses as multi-service community hubs should be explored, with the community hub model informing new build projects wherever practical" (p. 44), and 10.2

> In due course, and within an agreed time frame, schools should be required to develop and periodically update a blended learning strategy that clearly outlines how digital and online technologies support learning in and beyond the classroom, assessment and liaison with parents. (p. 174).

He expresses the need for the permanent accessibility to quality-assured blended learning in all schools and for all students. Likewise, a standardised digital literacy of student and teachers is required, as indicated by the recommendation 8.2 "Initial and continuing teacher education providers need to be enabled to capture the lessons from lockdown for teachers' initial training and professional development, and enabled to innovate in so doing" (pp. 125-129, 153).

The systematic literature review by Raes et al. serves as a capstone overview of the pre-pandemic perspective on hybrid and blended learning (2020)[9]. They summarise the pedagogical and technological challenges that hybrid learning spaces face. The biggest challenge is the quality assurance of audio, which is needed for a successful uniformity of the

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[9] The version accessed was released in the journal *Learning Environments Research* volume 23, which was finalised in October 2020. However, the article was published online before the pandemic, on 28 November 2019.

classroom. The classrooms adapted for hybrid education promote different pedagogical approaches and learning designs than the practices the teachers are familiar with, requiring them to learn new approaches, while simultaneously maintaining comparable learning standards (2020).

The impact of the pandemic-imposed digitalisation of education on the classroom is summarised as an increase in technologies in the educational space, and an increased load of pressure experienced by teachers and students alike. The teachers were burdened by rushed expectations of technological expertise. They had difficulty with experiencing the classroom as a uniform space, with the split student presence between on-campus and online. However, the crisis response was also quickly adapted into considering the future potential of hybrid education and how educational spaces would need to change accordingly.

3.2 Interviews

3.2.1 Berhane – Teacher at the Faculty of Behavioural and Social Sciences

Portrait

When I ask her about her relationship with cameras and the classroom, Berhane explains that she uses cameras to introduce the presence of children into the classroom. This defined her relationship to the camera and the classroom before the pandemic. She describes the use of recordings as a safe learning practice for students on how to observe child-behaviour, for example how children communicate.

Communication and, in particular, (micro-)interaction is the red thread to Berhane's educational experience during the pandemic. To Berhane, micro-interactions are the tiny, short, and minimal actions that change a teacher's lecture from a monologue into a dialogue. For example, how students in a classroom would ask a teacher questions akin to 'could you go back a slide?', 'how does this relate to the topic we discussed earlier?', or non-verbal cues like raising a hand or laughter. The camera's normalisation in the classroom seemed to cut off a majority of the micro-interactions she used to have with all of her students.

The number of students that showed up on-campus were severely reduced during her initial hybrid courses. She mentions that it felt like some of her students misused the option of hybrid/recorded education to not come to class. A sizable amount did not show up to the seminars, even if they weren't symptomatic or ill. Yet, she kept imploring her students to join the course physically.

When asked why she implored her students to come to class, she explains that the indirectness of interaction and contact, which the camera gives access to, limits the online student from seeking interaction on the minute level. A student would not mail a teacher during the lesson to ask if they could go back a slide in an asynchronous hybrid educational setting. As a teacher, she missed these small interactions – it reduced or even removed the opportunity for communication. She explicates, "that 'oh by the way, I have a question' is part of constructing your own learning process, and […] that does not happen online." She believes there are viable options of distanced learning or education, but that this interaction is fundamental in development. "That's how humans learn, that's how babies learn, that's how children learn […], and that is how students learn."

Her focus would be on her on-campus students, amplifying her feelings when they were absent. Only by sporadic realisation would she remember the online attending students, resulting in a quick glance at the camera, wondering if she should adapt her teaching behaviour. Instead of changing her behaviour, the thought would pass just as quickly and she would resume her regular teaching. She explains the difficulty she had in splitting attention between the physical and online students, making her turn to the physically present as it provided more engagement and interaction. However, she wonders,

> the emptier the classroom, the increase in presence and importance of the camera. […]. For example, I hosted two guest lectures with barely any students [appearing]. There were 300 enrolled students and about 10 to 15 showed up. It was a massive lecture hall. I think that you are a lot more aware [of the camera] in that situation.

At the end of our conversation Berhane corrects herself pertaining earlier asked questions about her movement in relation to the classroom and camera; her movement was affected. She describes staying closer to her desk, aware that it is a more neutral position for the camera, she expresses the limitations she experienced with the following realisation, "Yeah there was a moment, while I was walking around with the camera sweeping back and forth, were I thought 'oh, what if they get really nauseous at home?'." Her movement through the room felt limited.

Analysis

Berhane experiences two <u>stabilities</u> associated with the camera in the classroom. Its use for hybrid education and recording lectures. With both these stabilities the camera takes on a <u>background relation</u> in her experience of the classroom. It is part of the space she

experiences, but her <u>intentionality</u> is rarely directed towards the camera, it being mostly <u>transparent</u>. The high degree of the camera's <u>transparency</u> seems to uphold as long as the absence of on-campus students is not too apparent. Notably, she expresses that this <u>transparency drops</u> when the classroom emptiness becomes more obvious. The teacher's <u>field composition</u>, normally fixated on the on-campus students, is now drawn to the camera. This illustrates that the camera might not just influence the way the teacher experiences space, but that the space seems to <u>affect her perception</u> and experience of the camera as well.

Lastly, Berhane's adjusted remarks about her movement behaviour are an indication of how the presence of the camera in the classroom <u>reduces</u> her experienced <u>ability to move</u>.

3.2.2 Vanya – Teacher at the Faculty of Arts, department of Media Studies

Portrait

Vanya and I sit in the seminar classroom that she predominantly taught in after the lockdowns. The space could barely fit all of her students at the same time. Vanya's experience of the post-lockdown classroom starts with the positioning of the camera. The camera, a Poly Studio, is shaped like a large black horizontal beam with a camera in the middle and rectangular shaped speakers extending from it. It is either situated on a table near the teacher's desk or on a tripod. She experienced the device as too big, taking up too much space when on a table, and the cords are too short. She adds,

> Especially in this room, I couldn't really find a good spot for it, the room would be completely filled with students, so I couldn't put it in the middle of the classroom. It would have either been pointed at me or at the on-campus students. If it was pointed at me, [the online students] couldn't see their fellow students.

I ask Vanya how the strange positioning of the camera affected her movement, position and posture in the classroom. She describes how she would sometimes move away from the interactive whiteboard so that it would be visible for her on-campus students, but would unconsciously move in front of the camera, blocking the online students' vision of the classroom. Those students would still be able to see the digitally shared presentation, yet she still felt the need to correct her positioning when she realised she was blocking their vision of the classroom. Moreover, she tells that even before the pandemic, she was already conscious about her movement and posture while teaching. After the lockdowns this was still the case, but she specifies that this bodily consciousness is mostly in relation to her awareness of being perceived by her on-campus students. The exceptions being certain postures, like leaning on

the desk. These would sometimes trigger a corrective response, making her think that the posture might look peculiar in the classroom, but especially on camera. She would also not sit down during her seminars if there were online students present, "I absolutely did not do that with the camera on – sit. It really felt like people could see what I was doing. It gave me the feeling that I had to be observing or moving around."

Vanya was in this sense affected by the presence of the camera and how she would move about the classroom. She consciously chose to hide the camera's monitoring feed behind her presentation, to reduce the distractions created by the camera. However, this made it more difficult to see if she was muted or if there were technological troubles.

When Vanya is asked about at what moments her focus on the camera would be more pronounced, to which she responds,

> Yes, at the start and during the breaks I think. During the breaks, I would have students approach me for more informal talk or questions. In these moments, it felt like I was affecting their privacy if I didn't mute it, I don't know why. However, sometimes I would forget to mute it. […] there are also just other people in the room that could be listening in on the conversation, but for some reason I still found it vexing if it was unmuted or if the camera was still on.

Continuing with, "It really feels like someone is listening in on a conversation that is not meant for them. And because those online are alone at home, it will be the only thing that they will hear." As such, the camera affected how Vanya experienced the classroom as safe. For example, it felt like she could immediately react if an on-campus student started filming her with their smartphone. However, as a teacher she had no perception of what an online student could be doing in that regard. She explicitly notes that she did not expect her students to do any such thing, but the "what-if" was an intrusive thought she experienced. Though, she believes that the thought did not alter her behaviour.

When asked if it felt like the online students were also part of the class, Vanya expresses that it wasn't really a case of online versus offline, but rather a case of active or passive students. However, a boundary between online and offline was felt in her experience of personal conversations with students. It was impossible to have a truly personal conversation with an online student, especially during a course. She elaborates via example: during a break a student could approach the teacher for a quick private conversation. They could lower their voice or could move to a more private place within the building. That's impossible for an

online student. The Poly Studio would produce audio, explicitly made for everyone in the class to hear. Vanya expresses that she then would need to plan a meeting with this person, but the formalisation of the conversation might create more barriers for the student to approach Vanya, and the planning of the private meeting also takes up more of her time and energy than the informal approach during the break.

Analysis

The camera's <u>stability</u> that Vanya seemed to experience was one defined by creating connection between her on-campus course and her online students. In this relationship the camera <u>constitutes</u> the teacher subject: Vanya as the unifying focus of both the online and offline students. During the lecturing segments of the seminar, the relation between student and teacher took precedent over the connection between the two students groups. The prior relation being asymmetrical and the latter symmetrical. The most prominent relational mediations the camera provides are the <u>hermeneutic</u>, <u>background</u> and <u>immersive relationships</u>. In the hermeneutic relation Vanya's visual, dynamic and auditory presence in the classroom is made accessible (i.e., 'translated') via the camera. The hermeneutic and background relations happen simultaneously as Vanya could focus on the on-campus students, placing the camera and the online students outside her <u>field of awareness</u>, making the camera more <u>transparent</u>. The immersive relation takes precedence when the stability of the camera shifts from the previously mentioned asymmetrical stability to a stability that supports a symmetrical relation between Vanya and her online students. The camera, in conjunction with an online student's feed, provides the ability to <u>invite</u> the online (<u>outside</u>) student <u>into</u> the classroom. The shift between these stabilities reduces the transparency of the camera. Likewise, the bulkiness and clunkiness of the camera and its positioning, disturbed its <u>transparency</u>. The camera made Vanya even more <u>aware</u> of the educational space's <u>limitations</u>. To heighten the <u>transparency</u> she chose to hide the reflective monitoring feed behind her presentation sheets. This also made her less aware of her own positioning in relation to both camera and classroom.

A returning underlying subject in the interview was feelings of safety and privacy. The camera gives the possibility for students to physically distance themselves from her reach, it removes Vanya's <u>actionability</u> of immediate responses, which reduces her feelings of safety. At the same time, the online student can increase their anonymity or invisibility while retaining the ability to perceive the course, granting the online students <u>more autonomy</u> and making the teacher feel less in control.

In contrast, the symmetrical stability would normally amplify the presence of the online student in the classroom. However, the camera reduces the student's and teachers' ability to engage in informal or private matters. The Poly Studio's integrated audio system is explicitly designed to engage in group conversation, so the moment an online student wishes to talk private matters with the teacher, their voice is amplified for all on-campus to perceive.

3.2.3 Noel – Teacher at the Faculty of Religion Studies

Portrait

Noel describes that the camera was easily forgotten as their course went on, as it was fully automated. They were required by their faculty to record the lectures, and exactly on the full hour the camera would turn on to record. The automation of the recording camera did cause Noel to have a more strained awareness at the start of the individual courses. It felt like a loss of control over the shifting between informal and formal actions. If the camera turned on, it would prompt them to portray themselves more formal. However, with each session this faded more into the background.

Noel wanted to keep an eye on the functionality of the equipment, keeping them close to their desk, which had a screen installed on it providing technological monitoring. They felt this restricted their movement through the classroom. However, they also indicate that their movement into the room was limited because of the preventive measures instigated against the pandemic; they believe that both played a factor in how they felt limited in their movement.

When asked: *How does the return to the classroom contrast with your experience during the lockdown?*, Noel first responds with the sense of reduced digital perception in their return to the classroom. they continue to respond with, "Experientially you sort of have to reorganise yourself. […] Embodiment-wise, [teaching physically in a classroom] is definitely a different feeling… even with you as a person; you feel different, you are doing things different." Emphasising a sense of importance for the physicality of the classroom.

Though Noel expresses the limitations of the technologies used in the current situation, they are not against their use, even expressing a degree of excitement with the normalisation of the camera in a more general sense. Namely, video-calling allows them to more easily invite experts over from all around the world, to have speak in their courses.

Analysis

For Noel the camera's stability was predominantly defined as a recording device. However, the automation described by them is quite remarkable. It severely increases the transparency of the camera, but also affected Noel's to be more conscious of their behaviour right at the start of the course, limiting their ability to act informal, and reducing the fluidity of shifting between formal and informal stances. Likewise, did they feel like the camera's presence restricted their movement through the classroom, though they also remark that the anti-pandemic measures were enacted. The automation seems to heighten their senses of embodied presence in relation to both the camera and the classroom, being made aware that the camera will turn on any minute. However, as the course went on, Noel adjusted to the automated recording and would sediment the formal behaviour at the start of a lecture. This consequently increased the camera's transparency, and simultaneously established a background relationship between Noel, the camera and those that would watch the recordings. The transparency would only drop whenever Noel chose to keep an eye on the functioning of the equipment, which also kept them closer to their desk, but also granted more control in contrast to the automation.

Noel's description of the normalisation of the camera is a clear-cut case of processes of sedimentation taking place, not just on a microperceptive level, but also on a macroperceptive level. The normalisation changes how physical distance as a variable is perceived and act upon. This is illustrated by Noel's plan to invite physically-distanced experts into the classroom for educational purposes via video-calling. This is simultaneously exemplary of inviting an outside presence into the classroom and of increased actionability facilitated by the camera's presence.

3.2.4 Makena – Teacher at the Faculty of Philosophy

Portrait

At the start of the interview Makena was asked about the contrast between education during the lockdown and after it, and whether her teaching after the lockdowns had changed in comparison to her teaching style or teaching experience before the pandemic. She highlights the role that recordings played in her online teaching experience and the subsequent contrasting sides of it. She refers to how easy the recordings can be ripped and edited in such a manner where anything she has said can be designed against her. She doesn't expect her students to actually do any of those things, but the fear is conjured by the ease that such a "leaky quote" can be constructed. On the other hand, Makena explains that recording courses

felt fine and it even gave her the idea that, "maybe this could be useful! I can just play the recording, I don't even need to do it [a hybrid lecture]"

However,

> But then I remembered how much I do actually like lecturing and do actually like interaction with students, and kind of the performance of teaching as an activity. Having at least some responses from the audience, even if it is just a person nodding one time."

She liked seeing the responsiveness of her students in the class again, even during the lectures that were less focused on interaction. A student cracking a smile at a quick-wit joke, helped in distinguishing between feelings of teaching versus dry recitation.

During the first post-lockdown period of hybrid and blended education the recording of courses was mandatory. The students were given the option of physical education, asynchronous hybrid education, or a recording. The first week of the course had an exemplary on-campus attendance, but this was not the case for the second week. The first lecture was at 9 on a Monday morning, "It was kind of disheartening when there were eleven people here out of 72." She expresses that it gave her thoughts like "why am I bothering here?", continuing, "I think that did affect my teaching in a way it wouldn't have before the pandemic." Expressing that it felt unfair to the students who bothered to come in. It made her less enthusiastic to talk about the material, more aware of what she was doing, and was kind of preoccupied with that there weren't many people in the room. Especially in contrast to the positive experiences from the previous week. Though fortunately the attendance did return with the very next lecture. She explains that there were likely a large number of factors that caused the shrink in attendance for that lecture, separate from the option of hybrid and blended education, but it did made her think that the option means that people will not show. She chose to opt out of recording her courses when the mandatory recording was lifted.

Before this portrait is continued, the soliciting conversation for the interview needs to be discussed as it resulted in a retroactive change of Makena's experience. During the soliciting conversation I asked her if the participation criteria applied to her. At first, she stated that she believed that she had no hybrid or blended education after the lockdowns, yet an uncertainty set in. After a short investigation it turned out that her course, which was not meant to be recorded, was in fact fully recorded without her knowledge, and accessible by her students.

Because of this, teaching during that specific course was under the assumption that the camera was off. To Makena it felt like she was teaching a regular physical course. Her retroactive experience seemed mostly one of astonishment as a result of the lack of indication of its act of recording.

Analysis

For Makena the camera's stabilities were predominantly its use for asynchronous hybrid livestreaming and her retroactive awareness of its stability as a recording device.

The camera was extremely transparent for Makena. This can partially be attributed to her assumption that it was turned off in her latter courses. The roll of automation is highlighted by Makena's experienced transparency of the camera. Automation in the sense of automated recording, and the automation of movement tracking and the camera's accordingly smooth moving. The transparency did seem to falter when a disproportionate group of students were absent on a Monday morning. A near empty class agitated her, but also made her more aware of the inviting power of the camera (Aagaard, 2018). The camera offers possibilities for actions and behaviours to both the teacher and the students. It offers the teacher the reusability of recorded courses. This is inviting in the sense of ease it suggests, as previously noted by Makena. On reflection, she realised what this option undermines: the interactions with her students, which she deems important for her experience and quality of teaching. This emphasises the role the physical educational space plays in her teaching

3.2.5 Kaanan – Teacher at the Faculty of Economics and Business

Portrait

Kaanan has been a full time teacher at the University of Groningen for 30 years. In the second half of those years he started experimenting and integrating different forms of digitalisation in his educational practices, like his use of pre-recorded videos or the recording, segmenting and uploading of his lectures. This prior experimenting turned out useful when adapting to the (post-)lockdown education. Yet, he wished to keep improving in regards to his online hybrid students.

He noticed that it was still easy to forget the presence of the online students in synchronous hybrid education. Kaanan introduced other technologies and techniques than the Poly Studio to keep his online students engaged during his seminars. The Poly Studio would still be in the classroom, in some cases mounted beneath a mobile TV screen, though Kaanan expresses that he did not notice the camera mounted beneath it at first. Instead, Kaanan used a small

flexible desktop camera, which he pointed at a notebook that he used as a whiteboard for his online students. He expresses that he finds it more important that his students see how the calculations are done than that they see his face.

In the hybrid education, he had to first write it down for the online students and then move towards the actual whiteboard to write it out for the on-campus students. Doing this by himself was too taxing, he explains, "it was a peak [concentration] moment, after it, I would be completely empty." This was one of the major reasons he got a second teacher, a teaching-assistant or an enthusiastic student to help with the course. This aide would be focused on the online students. Kaanan expresses that one of the things that made hybrid education difficult was this split attention, the aide lightened this burden.

Another tool that Kaanan used to ease the split attention, was Mentimeter. Both online and on-campus students joined a Mentimeter at the start of a seminar. It would give an indication of the persistent active students and who they were. Having a split group became more manageable for him when both the online and on-campus students used the same avenue for questioning.

When asked about how he experiences the live feed of his online students, Kaanan expressed that he felt no need to see them, it felt distracting and even somewhat invasive to see the students in their private environments. He felt that there were better ways to garner a feeling of engagement with his online students, like the Mentimeter. He did note that, while he never asked any of his students to turn on their cameras, some still did.

One thing did remain quite jarring and even demotivating: a loud audio signal would play from the Poly Studio whenever an online student left, even when they were right in the middle of the seminar, he says "Imagine if that would happen on-campus, that a student seems to think 'what a waste of my time' and just up and leaves. That really leaves a mark."

Analysis

The camera's <u>stabilities</u> present in Kaanan's experience are as a recording device. Second, it is a device that connects his online students, not with the on-campus classroom, but explicitly with the course material that both student groups need to focus on. Kaanan chooses to have the educational material be the centre point of the seminars focus. As such, the students are more <u>intentionally</u> directed towards the material than their peers.

The use of the desktop camera over the Poly Studio seems to <u>enhance</u> the student's <u>field of awareness</u> narrowing their <u>field composition</u> to just the course material. For Kaanan, the classroom seems to be more of a distraction for his online students than a visual aide that elevates their engagement with the course.

Kaanan's experience of hybrid teaching was more streamlined by the use of Mentimeter as a tool for increasing the engagement of the online and on-campus students. Mentimeter seems to place the whole student body in a more unified <u>spatial imaginary</u>. Instead of inviting the online students into the classroom, the on-campus participants (including Kaanan and his aide) were elevated to a unified digital space through Mentimeter.

3.2.6 Hong – Teacher at the Faculty of Medical Sciences

Portrait

Hong instantly noticed that only a meagre amount of students would show up physically to the seminars after the first lockdown. One of the first things Hong remarks about how his classroom experience had changed, was that the focus of his seminars became more between him and his students versus his course previously being driven by interactive discussions between students. Hong still considers the interactive discussion of great import in his course, but pursuing an interactive setting in the classroom went with greater difficulty than before the normalisation of the camera and the use of hybrid education. His response to a question pertaining experienced contrast between prior-pandemic and post-lockdown teaching exemplifies this lack of interaction,

> The most apparent difference is: I want them to contemplate, and I want to see them contemplate. When I ask a difficult question, offer an example, or – I or a student – offer a solution, then I can read it on their face when someone disagrees. Those are the moments I want to respond and give that person the space to enter the discussion […] to give that contrast. I can't do that well with online students, because I can only respond to what is explicitly being said, or in most cases, being typed.

Another example he gives is on his use of polls. When using polls the online students could only answer 'in favour' or 'against' through Blackboard Collaborate. At the same time Hong would also ask his on-campus students to raise their hands. A student can then raise their hand with a degree of hesitation, one that indicates they might say yes, but also aren't too sure. These moments Hong considers essential for his teaching as those signs of hesitation or contemplation can be great starting points for discussions. That hesitation is very difficult to

track from the online students. It can only be done through their explicit expressions, like typing in chat or unmuting and speaking up.

At times Hong explicitly switched the primary feed to the camera pointed at him and the classroom, hoping that it the visual representation of the classroom would foster an easier engagement between the online and on-campus students. He believes that seeing the feed of the classroom and the preparations being made at start the seminar can help the online students get in the mind-set of occupying an educational space. However, Hong retorts,

> An issue with current hybrid education is that you try to simulate the classroom, you have people on-campus and people at home. They aren't equals of each other. Those at home can be sitting in their garden enjoying the sun and drinking a beer. There is no equal policy for these parallel student groups and we can barely enforce anything through the camera in this setting.

Another clearly identified change by Hong is the reduced on-campus attendance since the use of hybrid education. He explicitly states that the classroom feels emptier than before the pandemic. Partially because the majority of his students were more likely to use the hybrid option, though also because of the preventive healthcare measure implemented against the spread of COVID-19 in and near the hospital.

The 1.5m rule had two consequences in Hong's experience. First, they were assigned massive educational spaces (i.e., maximum of 300 seats), able to house a maximum of 75 students. Second, the on-campus attending students were spread out across the whole lecture hall to fulfil the required save distance, creating "a few tiny islands with nothing in between". Making it difficult for Hong to find a comfortable centre group to speak towards. He did notice that he was more likely to look at the camera in these massive near empty lecture halls, but to Hong it felt like the online students wouldn't be able to register that he was looking at them and that the camera was too far away for him to feel like he could make a connection, a sense of 'nearness' or propinquity with them.

Analysis

With the majority of the students being online Hong felt that the opportunities for interactive discussion were severely limited. In his experience the bodily, and non-verbal communication of his online students was reduced to only explicit communication. In turn changing the relational structure between him, his students, and their interrelation,

consequently dropping a significant part of the students interrelation, making Hong the focal point of his seminars at times.

The on-campus students were scattered across the lecture hall. This made Hong's <u>field of awareness</u> spread outwards to encompass all students, but it also made it spread <u>thin</u>. Not finding a singular point of focus among the scattered students made him look towards the camera (a reduced <u>transparency</u>), knowing that a larger group of students were watching along. Hong was not able to establish a relation with the camera in which it could be approached and interacted with as if it was one of his students, denoting a lack of an <u>alterity relation</u>. In addition, he felt that the ceiling camera was too far away for him to gain a <u>sense of being perceived</u> (diminished <u>microperception</u>) by the online students, making it difficult to get a sense of <u>outside-in</u> presence of the online students into the classroom. Hong's distance to the camera accidentally <u>reinforced</u> the feeling of their physical and <u>spatial-imaginative distance</u>.

3.2.7 Nick – Teacher at the Faculty of Law

Portrait

Nick has about 25 years of teaching experience, with the last four years being at the faculty of Law. Before this, he primarily taught at departments of computer science. He specialises in information technology and has expanded his expertise to its emergent role in systems of law.

Nick made clear that he did not feel like his actions were influenced by the presence of the camera. It did not affect his speech and movement in, or his perception of, the large lecture hall that he predominantly lectured in. This was neither the case for the experimental hybrid seminar room in which a course was held that he assisted on. Nick explains he is quite experienced with speaking in front of cameras and being broadcasted to a large public audience. This made him barely think of the cameras, nor see or focus on them in the educational spaces he occupied. He states, "The very first few times, I wasn't even aware things were being recorded,".

Interaction with the camera was harder to miss in the experimental hybrid seminar room, but even then he would be more focused on perceiving his online students than considering how he was being perceived by them. Nick acknowledges the presence of a personal feed, but its size is so tiny that it barely serves its monitoring purposes, and is easily forgotten in his experience. I ask him whether he does not pay attention to it, he explains "No, everything [all the interactions/communication] goes by audio. You ask a question, you listen. Just that.

That's the interaction," I continue questioning, to which Nick responds "Like I said, half of them have their camera turned off, and with the rest, their feed is so tiny that you can barely perceive any notion of non-verbal communication." In addition, he later states that the video feed is also lacking in minimum quality required to have non-verbal communications.

Nick recalls a strange occurrence when his students would be divided into groups for a quick assignment. Nick would walk around the room and check-in at the tables to see how the students were faring. Likewise, he would approach his computer to check-in on the break-out rooms of the online students. He got the impression that, on some occasions when entering a break-out room, he would see the small group of students have their cameras on, but quickly turn them off whenever they noticed him joining the room. He admits that this did disturb his behaviour during these seminars somewhat.

Analysis

Nick's interaction and experience with speaking and working in front of cameras that broadcast publicly, sedimented a particular strong transparency of the camera, appearing near invisible in his experience of teaching post-lockdown. The camera was not only outside his field of awareness but also at the actual edge of visual perception, being mounted to the very high ceiling in the lecture hall. The asymmetry of interaction that is common in lectures (it being more of a monologue than a dialogue) seems to reinforce the transparency of the camera as well. Moreover, it explains the exception of the camera's heightened transparency for Nick. The exception happening during the synchronous hybrid seminars when he sought direct, symmetrical contact with the online students.

Unfortunately, these students seemingly did not favour the symmetrical interaction. The camera provided the students control over their own presence in the classroom, visually removing themselves at an instant's notice, by turning off their camera, and audibly removing themselves via muting. Instead becoming participants of the seminar's classroom they turn themselves into an audience. However, they keep the ability to witness whatever happens in the classroom. By reducing their own presence, they reduce Nick's ability to seek interaction with them.

The camera is constituting Nick and the classroom mostly as a background relationship, the camera's presence being so transparent, that he quite literally forgot about it. However, Nick does also describe the suggested potential of an immersive relationship through which Nick can interact with his online students. Yet, this immersive relation is not established with the

lacking quality of audio-visual representation provided through the camera and digital platform.

4. Conclusion

The literature review illustrates that early research and observations show that *the impact of the pandemic-imposed digitalisation of education on the classroom* is seen in the increase of technologies in the educational space. This increase supplied synchronous and asynchronous digital educational options and changed previously physical classrooms into hybrid educational spaces, for example, by installing a camera and adding additional screens. The hybridisation of the classroom did increase the pressure on both teachers and students alike, as they were burdened by rushed expectations of technological expertise. The hybridisation was also met with difficulty. Teachers experienced not a unified classroom of online and on-campus students. Instead, felt like they were teaching two different groups of students, with two different educational methods, simultaneously; the classroom was split in two. This strenuous experience was amplified by the pressure of expected expertise.

These findings support the analysed experiences shared by the teachers at the University of Groningen. The limitations on non-verbal communication imposed by the camera's presence, as described by Berhane and Nick, show the dissociation between the online and on-campus educational practices. Nearly all of the teachers expressed feeling reduced freedom of movement as they all stayed closer to their desk, partially for monitoring purposes, decreasing the dynamic interactions that a classroom can provide. In addition, the monitoring implies a constant stress factor at the back of the teacher's mind. The teachers dealt with this increased technological burden in several different ways. The most common practice for lectures was to focus on the students that were physically present, trying to establish a classroom uniformity with those students, unfortunately leaving the online students benched. Remarkably, Kaanan did manage to create a sense of hybrid classroom uniformity by the application of other tools like Mentimeter and a specialised camera that worked better for a uniform hybrid educational practice. The focus being not to invite the online students into the physical classroom, but to move the on-campus students outside of the classroom into the digital Mentimeter environment.

The tools provided by the University of Groningen did not seem to suffice in providing the quality or practicality needed for the educational styles practiced by the participants. The ceiling mounted cameras seemed to have a very high degree of transparency in the

classrooms, in particular when holding lectures. However, this sometimes resulted in completely forgetting its presence and the accompanying students. The bulky Poly Studio, intended for seminar style education, had a very different effect, exemplified by the problems that Vanya encountered with the device, in particular how the device affected feelings of safety and privacy within her classroom.

Three of the teachers experienced a particularly curious phenomenon as an effect of the pandemic-imposed normalisation of cameras in the classroom. Berhane, Makena and Hong each described feeling an emptiness of the classroom. These feelings seem to stem from the following process: with the presence of the camera in the classroom the students were given a choice of either participating online or on-campus. However, this choice is not neutral according to the non-neutrality of technology and the magnetism of technological affordances (Aagaard, 2018). The camera invites the students to choose for online participation, reducing the physically attending students significantly. Moreover, the combination of the pandemic preventive measures and needing the ability to house all students of a course in a physical space most courses were held in educational spaces that were far larger than previously required. A course of 70 students had to be hosted in a room that could facilitate hundreds, while only twelve would show up. Both the number of on-campus students reduced and the physical educational space enlarged, creating a lot of emptiness in the classroom, sincerely affecting the teachers' perception of their educational space. Most remarkably, it affected these three teachers' perception of the camera. Knowing that the majority of their students might be participating online, paired with the perceptively empty classroom, made the camera's transparency drop. The teachers were more likely to start focussing on integrating their online students, as jarring and split as the experience was. This also put more emphasis on the camera mediating an immersive relationship between the teacher and the online students over a background relationship.

To conclude, *how has the teacher's experience of the classroom been affected by the pandemic-imposed normalisation of the camera in the classroom?* The camera's presence changes the teacher's experience of the classroom, but the changed classroom also embodies a changed relation to the camera, as the camera is, together with the teacher, the students (on-campus and online), the interior and furniture, part of the embodied classroom.

4.1 Discussion

The postphenomenological analysis of interviews of teachers at the University of Groningen, which (most) took place in their respective dominant classrooms, highlights in what way the teachers' experience of the classroom during the post-lockdown period took shape, and what role the camera plays in changing the teacher's experience of the classroom. However, the postphenomenological framework requires an in-depth understanding of fundamental phenomenological titles (i.e., Heidegger, Merleau-Ponty) and philosophy of technology (e.g., Latour). This limits its reach within the educational academic sphere, and it also requires more of the research's time for the interdisciplinary translation, depleting the time for the accompanied methodical practices and analyses. In addition, the interview method provided obstacles for the documentation of sub- or unconscious behaviour, as interviews demand a certain degree of consciousness of observations from the participants.

In return, the postphenomenological framework provides nuanced tools for analysing technologically mediated phenomena. It grants ample space for the narratives of educators. These narratives deliver representation of how personal experiences are and shaped and changed by the ever increasing technologies present in human lives. These unique experiences provide grounded perspectives of educational professionals that taught during the tumultuous times of the pandemic, and need to be shared for their insights, as Breslin implored (Breslin, 2021, p. 177; Flick, 2014). This value is strengthened by the fact that this research is performed during the pandemic it describes, granting it a historiographic attribute. The research may be more biased by taking place in the continuation of the period it examines, but this provides a mirror for 'post-pandemic' research on teacher phenomena. Likewise, having held most interviews inside the teachers' dominant classrooms emphasised the teachers embodied experience of the classroom, reaffirming the importance of educational space in the teacher's experience (Alerby et al., 2014; McGregor, 2004; Schatzki, 2021).

This research provides yet to be documented observations of the teacher's experience of the classroom during the pandemic: the sensed emptiness of the classroom, and the camera's amplification of the sensed emptiness. With the increased normalisation of cameras in classrooms, this experienced emptiness may become more pronounced in contemporary educational spaces. As such, my recommendations for following research would be a dedicated longitudinal observational research on the experienced emptiness of the classroom as mediated by the camera's presence. This way the subconscious experiences can be observed second hand instead of retroactive. I would also suggest good delineations of the

type of course (e.g., lecture or seminar) and what type of hybrid or blended education is present. As it is yet unclear whether these factors play a role in the experienced emptiness.

The emptiness of the classroom may suggest a bleak future for the physical educational space, but innovation and creativity thrive when people wish to overcome bleakness.

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6. Appendix

Appendix I: Interview guideline

<u>Main research question</u>

How has the pandemic-imposed normalisation of the camera lens in the contemporary physical classroom affected the teacher's experience in this post-lockdown hybridised contemporary classroom?

<u>Directed research question</u>

What is the teacher's experience of the contemporary classroom after the introduction of the camera lens into this classroom?

<u>Preliminary steps</u>

Sign consent form / Test mic / affirm the recording / withdraw possible at any time / any questions?

<u>Questions</u>

Contextualisation

- Short **introduction** myself and respondent + specialisation + courses + teaching experience
- Had you ever taught a class with a live/recording camera **before the pandemic?**
- Could you try to recall your first experience of teaching after the pandemic lockdown?
    - o How does the return to the classroom **contrast** with your experience **during** the **lockdown**? And how does it contrast to **before the lockdown**?

Concrete

- What is **currently** your experience with the live camera like? Actively **present**, or is it something that **withdraws** from your perception?
- Has your teaching **changed** as of the lockdown? Has the camera affected your teaching?
- Has your experience of the educational space as something **spatial** changed since the pandemic?
- Is your **movement** (through the room) affected by the camera?
- Do you feel like the camera **connects** the teaching **space** and the students living space?

- In what way do the **online** students feel **involved** with the lecture/seminar?
    - o What about the **physically** present students?
- What **software** did you primarily use and in what ways did it affect you?
    - o Synchronous or asynchronous? Why?
- How has the presence of a live camera affected **your** feelings of **safety** and **privacy**?
    - o What about the privacy of your **students**?
- Did the room have to be **drastically changed** for the introduction of the camera?
    - o Would an even more drastic change to the room help with a better teaching experience?

Conceptual

- In what way is the education of your **discipline** influenced by **hybrid** education?
- Do you feel like your **academic expertise** has shaped your **education** or **perception of** education, during the **pandemic**?
- What would your preference of educational space be if there would come **another lockdown**?
    At **home**, at your **personal office**, or an **empty classroom**?

Concluding questions

Are there any other experiences, ideas or remarks about the subject matter that you wish to share?

Appendix II: Consent form

Groningen, 2022

Dear recipient,

Education has significantly changed since March 2020 by the effects of the Covid-19 pandemic and its sequential societal lockdowns. One of the more prominent changes witnessed at the Rijksuniversiteit Groningen (RUG) is the normalisation of what is called hybrid education or the hybrid classroom. This hybrid classroom is a physical classroom that also grants virtual access to students through the presence of a camera in the classroom.

This research, first, aims to gain a better understanding of how the experiences of teachers at the RUG might be affected by the presence and the normalisation of the camera lens in the classroom. Second, it aims to provide a diverse palette of experiences for the cultivation of new theories that may stimulate future research on hybrid education.

The research is conducted as part of the master thesis research project of the primary researcher (M.I. de Vries) for the master *Ethics of Education: philosophy, history and law* at the RUG. The supervisor of the research project is dr. A. Zuurmond.

Information on the research purpose(s), the data and the data processing
The participatory part of the research consists of a face-to-face interview of approximate 45 minutes, of which the audio will be recorded. If a face-to-face interview is deemed impossible, an online interview will be considered of which audio, or video and audio will be recorded. These recordings will be processed and saved on the protected computers of the RUG. The data shall be analysed with a postphenomenological analysis. This analytical method focuses the personal experiences of the participant, hence, though the participant shall be pseudonymised, their personal experiences may pose a risk of identification by an accidental reader. Only experiences deemed of importance for the research shall be mentioned in the finished research document.

Rights of the participant

The participant has the right to access the data pertaining their interview at any moment. They also have the right to rectify any of their statements, and they have the right of erasure of particular points of data or the erasure of the data pertaining them as a whole. This includes written copies, drafts and the analysed data pertaining their participation. They will be given an opportunity to examine and act on their rights as participants after the data has been analysed, before the end of June 2022.

The participation in this research is completely voluntary and the participant may at any moment indicate their unwillingness to continue participating in this research, and they may quit without prejudice, now or in the future. Their data will not be used in the finalised research document if the participant chooses to withdraw. They may also request a complete erasure of the data pertaining them.

The procedure of withdrawal is to contact the primary researcher (see contacts below) and request their withdrawal from the research project. The researcher will confirm this withdrawal and if affirmed by the withdrawing participant, the researcher will remove everything from the research pertaining the withdrawing participant.

The participant has the right to lodge a complaint with the research supervisor (dr. A. Zuurmond, see contacts). If the researcher and supervisor are unable to answer questions on the rights and privacy of the participant, or are unable or unwilling to comply with complaints, then the participant also has the right to contact the Data Protection Officer of the RUG: Mr. A.R. Deenen (see contacts).

Data storage, archiving and reusability of data

The data (the recorded interviews, including written copies and drafts) will be stored for the duration of the research and one additional month after the publication of the research. During this month the data will be destroyed by the primary researcher. The data will not be reused for future research.

Data Controller and Primary Researcher

M.I. (Marius) de Vries

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Data Protection Officer (Functionaris Gegevensbescherming) Rijksuniversiteit Groningen

Mr. A.R. (Arjen) Deenen

Postal address: P.O. Box 72 9700 AB Groningen

Attn. Central Privacy Desk

E-mail: privacy@rug.nl | a.r.deenen@rug.nl

rijksuniversiteit groningen

Consent form

This form is used to agree to the willing voluntary participation in the research on the teacher's experience of the classroom after the Covid-19 pandemic lockdowns at the Rijksuniversiteit Groningen.

By signing the form you express:

- that you have read and understood the explanation of the research.
- that you are aware of your rights as a participant in this research.
- that you willingly and voluntarily participate in an approximately 45 minutes one-on-one interview of which audio, and contingently video, will be recorded by the researcher for the express purpose of this research.
- that you are aware that you can quit your participation and data collection at any moment before the publication of the research.

I, …………………………………………….,

a teacher at the Rijksuniversiteit Groningen,

agree to participate in the research on the teacher's experience of the classroom after the Covid-19 pandemic lockdowns. This includes my voluntary and willing consent to be interviewed, to have this interview be recorded, and the use of the interview and its recordings for the purpose of this particular research.

☐   Yes, **I consent** to participate in this research.

☐   No **I do not consent** to participate in this research.

Signature Participant   Place   Date

Note, as research participant you have the right to a copy of this (signed) consent form.

Appendix III: Key concepts guideline – analysis framework postphenomenology

The postphenomenological analysis framework is based on the key concept descriptions in *Postphenomenological Investigations: Essays on Human–Technology Relations* (Rosenberger & Verbeek, 2015) Jesper Aagaard's *Breaking down barriers* (2017) and *Magnetic and Multistable* (2018), with insights from Catherine Adams and Joni Turville for the framework's application to education (Doing Postphenomenology in Education, 2018) from *Postphenomenological Methodologies - New Ways In Mediating Techno-Human Relationships* (Aagaard, Friis, Sorenson, Tafdrup, & Hasse, 2018).

Postphenomenological studies have some characteristic elements in common:

1. They typically focus on understanding the roles that technologies play in the relations between humans and world, and on analysing the implications of these roles
2. This focus on human-technology relations implies that postphenomenological studies always include empirical work as a basis for philosophical reflection.
3. Postphenomenological studies typically investigate how, in the relations that arise around a technology, a specific "world" is constituted, as well as a specific "subject."

Multistability (Rosenberger & Verbeek, 2015, pp. 25-30)

How is technology both something we design and use for our own purposes, and also something that influences, restricts, leads, inclines, or controls us?

Multistability refers to the idea that any technology can be put to multiple purposes and can be meaningful in different ways to different users.

A technology cannot mean simply anything or be used to simply do anything; only some relations prove experientially stable.

A multistable technology has multiple "stabilities" or "variations."

Multistability of visual perception – the Necker cube, trained to recognise separate stabilities of the cube.

A technology that supports multiple stable hermeneutic relations is one that a user can potentially perceive and interpret in different meaningful ways, e.g. two doctors disagreeing about the implications of a medical image for a patient's diagnosis.

The brainstorming of a technology's multiple stabilities servers to highlight technology's very context-dependent and materially-situated relationality.

Non-neutrality of technologies

Technology has intentionality as well, it isn't a passive instrument. Its multistability invites different kinds of behaviours to act upon (Aagaard, 2018). Its multiple stabilities have different <u>magnetic</u> attractions.

When a camera is introduced into a classroom, it invites the student to consider choosing between going to the course physically, or watching it online live, or possibly even recorded. These options will be alluring to people in different ways for different reasons and feelings.

Field of awareness (Rosenberger & Verbeek, 2015, pp. 23-25)

Rosenberger's contention is that transparency should be understood as only one feature among many that could characterize a user's experience within a given human-technology relation. This raises the question: how do different technologies reshape a user's overall "field of awareness" in different ways?

Transparency (Rosenberger & Verbeek, 2015, pp. 14-16)

"Transparency" of a particular human-technology relation:

The degree to which a device (or an aspect of that device) <u>fades into the background of a user's awareness</u> as it is used. (Rosenberger & Verbeek, 2015, p. 14)

How well do we see it? "the degree to which a device recedes into the background of a user's awareness *as it is used*.

<u>*Double desire*</u>:

We want a technology to at once both optimally transform our relationship to the world, and at the same time we want the experience of the means of that transformation to itself remain as experientially transparent as possible (Ihde, 1990, 75; 2015, 14-15)

Field composition (Rosenberger & Verbeek, 2015, pp. 23-24)

What is it that we see? "… Its visual and audio content colonizing the user's field of awareness." (Rosenberger & Verbeek, 2015, p. 24);

"Put differently, through the technological mediation of the movie theater, the viewer and the world are co-shaped such that (at least in the most engrossing moments) the movie content

itself composes the entirety of the world as experienced." (Rosenberger & Verbeek, 2015, p. 24)

The users field of awareness is (re)organised by the technological device.

Sedimentation (Rosenberger & Verbeek, 2015, p. 25)

The notion of sedimentation is used throughout the phenomenological tradition to point to those past experiences settled in one's mind which actively contextualize present experience.

Sedimentation provides the pre-perceptive context that enables our current perceptions to occur with immediate meaningfulness.

A relation that is highly sedimented is one that is steeped in long-developed bodily-perceptual habits.

[layers of experience] force of <u>habit</u> associated with a given human-technology relation. Sedimentation provides the pre-perceptive context that enables our current perceptions to occur with immediate meaningfulness.

Magnification/reduction structure (Rosenberger & Verbeek, 2015, p. 16)

Non-neutral transformations rendered to user experience through the mediation of a technology, we not only receive the desired change in our abilities, but always also receive other changes, some of them taking on the quality of "tradeoffs," 'When using a hammer, our hand is occupied and less able to do other things.'

Microperception and macroperception (Rosenberger & Verbeek, 2015, p. 16)

Notions of body 1 and 2

- *Microperception* – refers to the individual bodily sensations articulated in the world of Husserl and Merleau-Ponty.
- *Macroperception* – refers to the cultural, historical, and anthropological dimensions of experience explored by figures such as Heidegger and Foucault.

Ihde holds that they remain **inextricable**:

There is no bare or isolated microperception except in its field of the hermeneutic or macroperceptual surrounding; nor may macroperception have any focus without its fulfilment in microperceptual (bodily-sensory) experience.

Relations

Relational ontology (Rosenberger & Verbeek, 2015, pp. 19-20)

Technologies are to be understood in terms of the relations human beings have with them, not as entities "in themselves."

When technologies are used, they help to establish relations between users and their environment …

Technologies help shape the "subjectivity" of their users and the "objectivity" of their world …

Subject and object are no pre-given entities, but get constituted in the technologically mediated relations that exist between them.

This relational ontology differs from the Actor-Network Theory ontology:
ANT approaches the world as networks of relations between "actants," which can be human and non-human. Latour emphasises that his approach is <u>symmetrical</u>: does not want to start *a priori* human subjects and nonhuman objects distinction, aims to make the continuity between humans and nonhumans visible. This continuity makes it possible to understand how nonhuman entities play a role in the material *<u>and</u>* <u>social world</u>.

Postphenomenology does explicitly ***<u>not</u>*** give up the distinction between human and nonhuman entities. Instead of symmetry it sees <u>interaction</u> and <u>mutual constitution</u> between subjects and objects. However like ANT, postphenomenology **also has no pre-given** subjects & objects; <u>subjectivity & objectivity</u> are always the *product* <u>of relations </u>(Rosenberger & Verbeek, 2015, pp. 19-20).

Postphenomenology studies engaged human-world relations, and their technologically mediated character from a first-person perspective.
Not separating humans and nonhumans, but *distinguishing* them.
The question is: **what kind of roles do objects play in agency?**

Intentionality (Rosenberger & Verbeek, 2015, pp. 11-12, 21)

'Human experience has an intentional structure: human beings are always direct toward reality. We cannot simply "see," but we always see something […] In all of the human–technology–world relations Don Ihde analyses, technologies mediate this intentionality.' (Rosenberger & Verbeek, 2015, p. 21)

perception is always the perception of something, a person is always with intent towards the world, never neutral.

"intentionality is not a bridge, but a fountain from which both subject and object emerge" (2015, p. 12).

Embodiment relations (Rosenberger & Verbeek, 2015, pp. 14-16)

With the notion of "embodied relations," Ihde points to the mediation of those technologies which transform a user's actional and perceptual engagement with the world.

"When a technology is "embodied," a user's experience is reshaped *through* the device, with **the device itself** in some ways **taken into** the **user's bodily awareness**" (Ihde, Technology and the Lifeworld: From Garden to Earth, 1990).

$$(I - Technology) \rightarrow World$$

Go-to example: a pair of eyeglasses.

A user looks *through* the glasses upon a *transformed world*, and the glasses can be conceived as a part of the user's perceptual experience. (p. 14).

Hermeneutic relations (Rosenberger & Verbeek, 2015, pp. 16-18)

Ihde uses the notion of "hermeneutic relations" to refer to technologies which are used through an act of perceiving and interpreting the device's readout.

The user experiences a transformed encounter with the world via the direct experience and interpretation of the technology itself.

$$I \rightarrow (Technology - World)$$

Go-to example: A wristwatch

A user looks at the watch's face, interprets its hands or display, and through this hermeneutic relation experiences a transformed access to the precise time of day.

One requires a degree of knowledge in the particular language that is presented through the technology: being able to read analogue or digital time, reading a thermometer, etc. one first has to be taught how to read a clock before it can translate the world, a more advanced example is how scientists use devices to register and present complex phenomena.

The <u>transparency of a particular hermeneutic relation</u> will depend on the particular level of familiarity.

Alterity relations (Rosenberger & Verbeek, 2015, p. 18)

The notion of "alterity relations" refers to devices to which we relate in a manner somewhat similar to how we interact with other human beings.

A device as itself a presence with which we must interrelate.

$$I \rightarrow Technology - (-World)$$

Background Relations (Rosenberger & Verbeek, 2015, pp. 18-19)

The notion of "background relations" addresses those technologies that make up the user's environmental context.

It may be tempting at first to understand the lack of attention paid to background relations in terms of technological transparency, [...].

Technologies to which we share background relations stand back in our awareness not simply because we have grown accustomed to their usage, but because they quite literally form the backdrop of our experiences.

They shape our experiences, but do so in ways that do not require direct interaction.

Cyborg relations (Rosenberger & Verbeek, 2015, pp. 20-22)

Fusion relation

A relation of *fusion*, in which the physical boundaries between humans and technologies are blurred and technologies merge with our bodies.

$$(I/Technology) \rightarrow World$$

Somatechnologies (Dalibert, 2014): technologies that blur the boundaries between body and artefact (heart valves, pacemakers, cochlear implants that enable deaf people to hear better/again.

From this fusion relation a *hybrid intentionality* emerges: no longer human intentionality but a cyborg intentionality, both human and technological. Distinct from embodiment relations, no clear distinction between the human and nonhuman element can be made (in the intentionality?)

Immersive relation

A relation of *immersion*, in which a technological background interacts actively with human beings.

$$I \leftrightarrow Technology/World$$

Relation between human beings and <u>hybrid environments,</u> is interactive.

Smart environments "perceive" their users too and "act" upon them. A <u>bi-directional intentionality</u>.

It makes it possible for human beings to experience how technologies "experience" them → a "<u>reflexive intentionality</u>."

How does this differ from the *relation of alterity*? → the bi-directional intentionality.

Augmentation relation

A relation of *augmentation*, add an extra layer to our experience of the world.

$$(I - Technology) \rightarrow World$$
$$` \rightarrow (Technology - World)$$

A <u>bifurcated intentionality</u>, a split in the directedness at the world, (two) parallel fields of attention emerge.

Spatial imaginaries (Sørensen, 2007)

This kind of topological approach looks at space as a web of moving relations that may have nothing to do with geographic terrains or metric distances. [They] help us map out the complex relations between media, space, and bodies (Aagaard, Breaking down barriers: The ambivalent nature of technologies in the classroom, 2017, p. 1133).

Inviting presence (Aagaard, 2017)

Outside-in

technologies can invite the presences of others into its space, a screen can invite the presence of Marylin Monroe through a YouTube video, changing students into an audience of her performance.

Inside-out

"I have picked this particular situation because it showcases several important aspects of technologically mediated distraction. First, this distraction can be conceptualized as an inside-out movement that takes students away from their immediate educational circumstances. Just as laptops and tablets open up the possibility of bringing the outside world into the classroom, they also constitute a backdoor through which students may occasionally escape. As extensively described in the media multitasking literature, this

particular multistability presents a major challenge for the educational system (Aagaard, 2015b)." (Aagaard, 2017, p. 1137)

Appendix IV: Literature review list and themes

No.	Study	Title	Theme(s)
1.	Aagaard (2017)	Breaking down barriers: The ambivalent nature of technologies in the classroom	Technology, Education
2.	Aagaard (2018)	Magnetic and Multistable: Reinterpreting the affordances of educational technology	Technology, Education
3.	Aagaard, Friis, Sorenson, Tafdrup, & Hasse (2018)	Postphenomenological Methodologies - New Ways In Mediating Techno-Human Relationships	Technology, Education
4.	Adams & Turville (2018)	Doing Postphenomenology in Education	Technology, Education
5.	Adnan & Anwar (2020)	Online learning amid the COVID-19 pandemic: Students' Perspective	Technology, Education, Pandemic
6.	Ahmad, Sosa, & Musfy (2020)	Interior design teaching methodology during the global COVID-19 pandemic	Technology, Education, Pandemic
7.	Alerby, Hagström, & Westman (2014)	The Embodied Classroom - A phenomenological discussion of the body and the room	Education
8.	Bolldén (2016)	Teachers' embodied presence in online teaching practices	Technology, Education

9.	Bormann, Brøgger, Pol, & Lazarová (2021)	COVID-19 and its effects: On the risk of social inequality through digitalization and the loss of trust in three European Education systems	Technology, Education, Pandemic
10.	Breslin (2021)	Lessons from Lockdown The Educational Legacy of Covid-19	Education, Pandemic
11.	Burnett (2011)	The (Im)Materiality of Educational Space: interactions between material, connected and textual dimensions of networked technology use in schools	Technology, Education
12.	Carrillo & Flores (2020)	COVID-19 and teacher education: a literature review of online teaching and learning practices	Technology, Education, Pandemic
13.	Crawford, et al. (2020)	COVID-19: 20 countries' higher education intra-period digital pedagogy responses	Technology, Education, Pandemic
14.	Palmer, de Klerk, & Modise (2021)	Re-prioritizing Teachers' Social Emotional Learning in Rural Schools Beyond Covid-19	Education, Pandemic
15.	Decuypere, Grimaldi, & Landri (2021)	Introduction: Critical studies of digital education platforms	Technology, Education, Pandemic
16.	Dede & Richards (2020)	The 60-year Curriculum: New Models for Lifelong Learning in the Digital Economy	Technology, Education

17.	Ellis & Goodyear (2018)	Spaces of Teaching and Learning: Integrating Perspectives on Research and Practice	Technology, Education
18.	Firmin & Genesi (2013)	History and Implementation of Classroom Technology	Technology, Education
19.	Gil, Mor, Dimitriadis, & Köppe (2022)	Hybrid Learning Spaces	Technology, Education
20.	Bülow (2022)	Designing Synchronous Hybrid Learning Spaces: Challenges and Opportunities	Technology, Education, Pandemic
21.	Grimaldi & Ball (2021)	The blended learner: digitalisation and regulated freedom – neoliberalism in the classroom	Technology, Education
22.	Hardley & Richardson (2021)	Hardley, J.; Richardson, I. (2021) Digital placemaking and networked corporeality - embodied mobile media practices in domestic space during Covid-19	Technology, Pandemic
23.	Isaias, Sampson, & Ifenthaler (2020)	Online Teaching and Learning in Higher Education	Technology, Education
24.	Lee, Fanguy, Lu, & Bligh (2021)	Student Learning during COVID-19: It was not as bad as we feared	Technology, Education, Pandemic

25.	Cutri, Mena, & Feinhauer-Whiting (2020)	Faculty readiness for online crisis teaching: transitioning to online teaching during the COVID-19 pandemic	Technology, Education, Pandemic
26.	Mulcahy (2017)	Re-assembling 'innovative' learning environments: Affective practice and its politics	Education
27.	Müller, Goh, Lim, & Gao, (2021)	COVID-19 Emergency eLearning and Beyond: Experiences and Perspectives of University Educatiors	Technology, Education, Pandemic
28.	Pettersson (2021)	Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept	Technology, Education
29.	Raes, Detienne, Windey, & Depaepe (2020)	A systematic literature review on synchronous hybrid learning: gaps identified	Technology, Education
30.	Rosenberger & Verbeek (2015)	Postphenomenological Investigations: Essays on Human–Technology Relations	Technology
31.	Rye & Støkken (2012)	The Implications of the Local Context in Global Online Education	Technology, Education
32.	Rye (2014)	The educational space of global online higher education	Technology, Education
33.	Schatzki (2021)	Spatial troubles with teaching under COVID-19	Technology, Education, Pandemic

34.	Schneider (2018)	Learning effectiveness in hybrid and classroom instruction: College student and faculty perceptions	Technology, Education
35.	Skulmowski & Rey (2020)	COVID-19 as an accelerator for digitalization at a German university - Establishing hybrid campuses in times of crisis	Technology, Education, Pandemic
36.	Van Manen & Adams (2009)	The Phenomenology of Space in Writing Online	Technology
37.	Ward (2018)	What's Lacking in Online Learning: Dreyfus, Merleau-Ponty and Bodily Affective Understanding	Technology, Education
38.	Willatt & Flores (2022)	The Presence of the Body in Digital Education: A phenomenological approach to embodied experience	Technology, Education, Pandemic
39.	Williamson, Eynon, & Potter (2020)	Pandemic politics, pedagogies and practices: digital technologies and distance education during the coronavirus emergency	Technology, Education, Pandemic
40.	Xhelili, Ibrahimi, Rruci, & Sheme (2021)	Adaption and Perception of Online Learning During COVID-19 Pandemic by Albanian University Students	Technology, Education, Pandemic

Appendix V: Vignette

"Welcome everyone." I glance around the lecture hall. 300 seats, most of them empty. On the first five rows a meagre 14 students sit. Spread thin, like tiny islands. "It's great to see that some of you were able to make it. I hope that all at home are doing good as well, but please do try to come if you aren't showing symptoms." First, my attention dodges around the faces of the students in front of me, but I end up staring at the camera hanging from the ceiling as I finish my sentence. I should just focus on those here. I start the lecture. However, my focus keeps drifting. That single Eye stares at me, yet can those thousand eyes at home see me stare back at them? Are there even a thousand eyes? Maybe they are grabbing a cup of coffee right now, or their roommate is asking them about lunch later today. A student cautiously raises a hand. I halt my monologue and let them speak. I answer – no wait, I need to repeat the question. "Let me repeat that for those at home first." Then I answer. Another student turns toward their inquisitive peer and responds in agreement. "DING." My vision darts to an empty chair, the Eye, the monitor nestled in the desk. Someone was watching! I go to the chat and repeat the online students' response to those in front of me.

– A vignette based on the shared experiences of the teachers interviewed in this research.