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### A close-up of teachers in higher education and how they experience teaching online

Jensen, Lise

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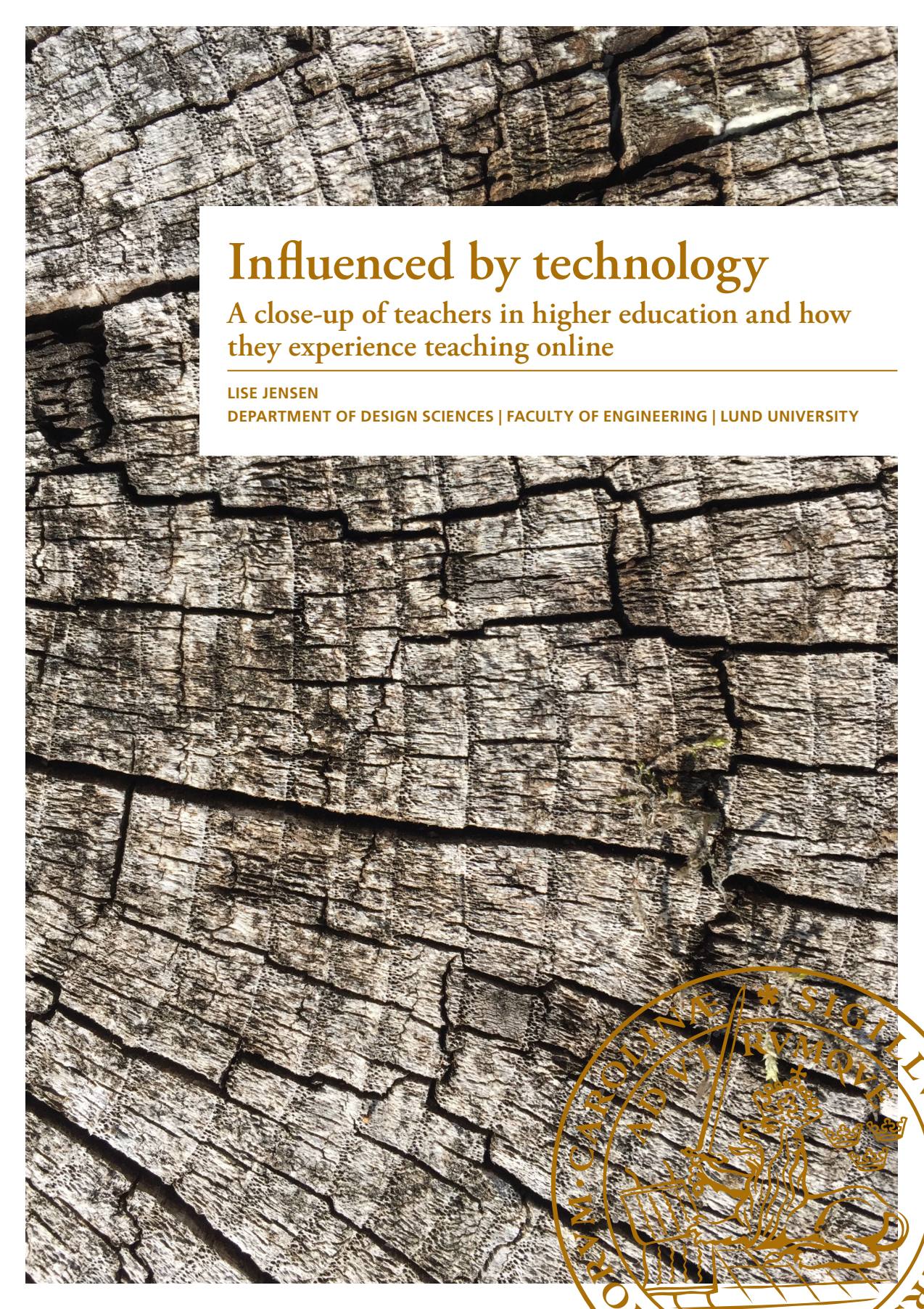
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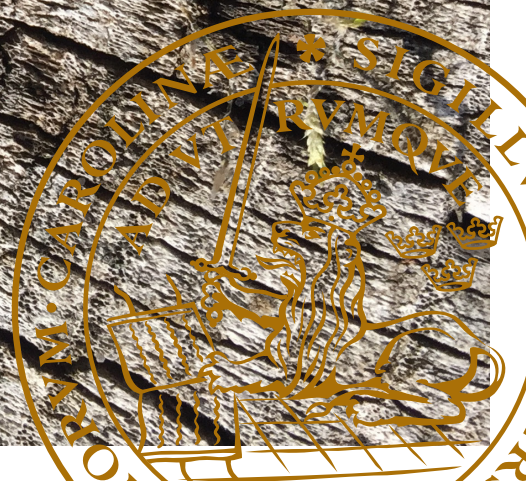
# Influenced by technology

A close-up of teachers in higher education and how they experience teaching online

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LISE JENSEN

DEPARTMENT OF DESIGN SCIENCES | FACULTY OF ENGINEERING | LUND UNIVERSITY





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A close-up of teachers in higher education and  
how they experience teaching online

Lise Jensen



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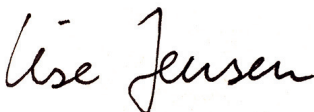
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# Influenced by technology

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how they experience teaching online

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# Table of Contents

|                                                            |           |
|------------------------------------------------------------|-----------|
| Acknowledgements .....                                     | 7         |
| Abstract .....                                             | 8         |
| Appended papers .....                                      | 9         |
| <b>1 Introduction .....</b>                                | <b>11</b> |
| 1.1 Research problem.....                                  | 12        |
| 1.2 Research purpose and research questions .....          | 13        |
| 1.3 Demarcations and use of terms .....                    | 13        |
| <b>2 Methodology and research design.....</b>              | <b>15</b> |
| 2.1 Positioning and research strategy .....                | 15        |
| 2.3 Reflections on research quality .....                  | 16        |
| 2.3.1 Size .....                                           | 16        |
| 2.3.2 Selection strategies .....                           | 17        |
| 2.3.3 Bias .....                                           | 18        |
| 2.3.4 Reliability, validity, and generalisability.....     | 19        |
| 2.4 Research process .....                                 | 20        |
| <b>3 Frame of reference .....</b>                          | <b>23</b> |
| 3.1 Views on online teaching .....                         | 23        |
| 3.1.1 Online education as a result of change .....         | 23        |
| 3.1.2 Technology as a social construct.....                | 25        |
| 3.1.3 Distance education – a unique form of teaching ..... | 26        |
| 3.2 Point of departure .....                               | 28        |
| <b>4 Summary of appended papers.....</b>                   | <b>31</b> |
| 4.1 Synthesis of the appended papers.....                  | 31        |
| 4.2 Paper 1 based on an interview study .....              | 31        |
| 4.3 Paper 2 based on an autoethnographic study.....        | 32        |

|                                                              |           |
|--------------------------------------------------------------|-----------|
| <b>5 Discussion of research findings .....</b>               | <b>35</b> |
| 5.1 Teaching-learning activities and the role they play..... | 35        |
| 5.2 Small versus large groups of students .....              | 39        |
| <b>6 Conclusions and future research.....</b>                | <b>41</b> |
| 6.1 Concluding remarks .....                                 | 41        |
| 6.2 Contributions .....                                      | 42        |
| 6.3 Future research .....                                    | 43        |
| <b>References .....</b>                                      | <b>45</b> |

# Acknowledgements

There is a false idea abroad in the West that the human being is an isolate who decides on his or her path and presses forward alone. In fact, we are always somewhere and that somewhere is always in us.

*Siri Hustvedt*

Context matters. Structures, actions and people have influenced the way I approach my work and have helped shape my understanding of what it means to teach on and off campus. Nothing much happens in isolation and I would like to thank *my students* for all they have taught me over the years, *my colleagues* for trusting me with their experiences and insights, and *my organisation* for providing me with the time and wherewithal to explore what it means to teach in an online context.

I especially want to thank Torgny Roxå, supervisor par excellence, whose inspiration and unflagging support have been essential for my learning process.

## Abstract

This thesis discusses how teachers' experiences of teaching online is related to how they chose to teach. Previous research has shown that contextual factors can influence how teachers go about their teaching, and when university courses leave the physical campus and move to an online environment, this entails a change of context. The research presented here focuses on teachers' experiences and choices in an online context.

The first of two studies is an interview study in which the participants described their experiences of teaching online in relation to previous experiences of campus teaching. The findings suggest that teachers' perceptions of their relationships to online students are related to how they prioritize different types of teaching-learning activities. Two types of such activities are discussed: ones that involve *student-content interaction*, and ones that rely on *social interaction* between teacher and students. The second study took an autoethnographic approach to describing one teacher's experiences when her course moved from a physical campus environment to an online context. The findings highlight the interaction between the teacher's intents, on the one side, and her experiences of teaching with technology on the other. The outcome of this interaction was that teaching-learning activities were divided into two, non-overlapping types: one involving social interaction and dialogue between teacher and students in small groups, and one to stimulate student-content interaction in the whole class.

The two studies draw attention to the role teaching-learning activities play in online contexts. Such activities can be described in terms of *teaching* presence and *teacher* presence, where *teaching* presence encompasses design, facilitation, and direct instruction. *Teacher* presence is associated with interaction and personal involvement. Teaching-learning activities involving student-content interaction often rely on teaching presence. In these types of activities, teaching can be represented by the structures and artefacts the teacher has created to support student learning, when the teacher is not present. This is in contrast to activities involving social interaction between teacher and students. This latter type of teaching-learning activity involves the teacher's personal participation and accordingly, can be associated with *teacher* presence. I propose that it is useful to discuss teaching-learning activities in terms of *teaching* presence and *teacher* presence because, as exemplified by the results of the studies, activities that rely on teaching presence may take on a very different form than those that rely on teacher presence.

## Appended papers

### **Paper 1**

Jensen, L., Price, L., Roxå, T., (2020) Seeing through the eyes of a teacher: differences in perceptions of HE teaching in face-to-face and digital contexts. *Studies in Higher Education*. 45, 1149–1159.

### **Paper 2**

Jensen, L., Roxå, T. (submitted to *Higher Education Research and Development*) Will technology allow me to be the teacher I want to be? An autoethnographic study of how technology influences a teacher's decisions.



# 1 Introduction

For centuries the physical university campus has been home to higher education. Seen from this perspective, teaching online is a relatively new phenomenon. The teaching practices we rely on today have come into being within the walls of university buildings. Likewise, the interactions between teachers and students have been studied in these surroundings, and this has provided raw material for theories of teaching and learning. However, university buildings with their lecture halls, classrooms, and meeting spaces are not neutral. Like all architecture, they play an active role in shaping our actions and should not be seen as simple backdrops against which we enact our teaching and learning.

In his seminal work, Jan Gehl (1996) demonstrated how physical surroundings influence not only how we move, but also how we interact with each other. The relationship between an environment and its inhabitants is often described in terms of “affordances”. The term denotes the range of actions that are (or are not) made possible by the surroundings (Gibson, 1977; Norman, 2002). The premise is that the interaction between an environment and its inhabitants results in certain behaviours and as such, it describes “the complementarity of the animal and the environment” (Gibson, 1977, p. 56). Likewise, our moods and physical well-being are affected (Jelić et al., 2016; Leatherbarrow, 2009). From a psychological point of view, it has also been shown that contextual factors can have an immediate influence on the decisions we make (Kahneman, 2011). Together, this research makes clear that context matters. It has the potential to influence our behaviour, actions, and the decisions we make. Teachers are no exception; how they go about their teaching is influenced by the context.

However, it is no longer a given that the physical campus is the only or even the main venue for higher education. Online education was becoming mainstream even before a pandemic brought on rapid changes to higher education. Courses were and are being moved from a physical context to a digital one and teachers, move with them.

Any new or changed context would influence our experiences, decisions, and the way we shape our teaching; this is also true for the online context. Research conducted on traditional campus environments has identified different types of contextual factors that can influence approaches to teaching. Teachers’ working situation is one such area, including factors like teachers’ workload, degree of control over what and how they teach, and organisational support (Kember and Kwan, 2000; Postareff and Lindblom-Ylänne, 2008; Prosser and Trigwell, 2014). It

is apparent from the results of recent studies that these types of factors also influence teachers in online contexts (e.g. Damşa et al., 2021; Sailer et al., 2021). Another area of influential factors involves the affordances of the environment. Kember and Kwan (2000, p. 487) specifically mention teaching rooms and whether or not they are conducive to the type of teaching preferred by the teacher. In other words, based on their preferences, teachers will develop teaching practices in dialogue with the teaching rooms where they meet students. However, when teaching moves from the physical campus to an online setting, teaching rooms cease to exist and teachers need to reorient themselves in a fundamentally different context. The way teachers interact with their students changes from face-to-face to mediated communication; the shared space becomes multiple, separated spaces; and teachers as well as students have to interact with technology. Kember and Kwan draw attention to how the interaction between teaching rooms and teachers' preferences influences their approaches to teaching. In an online context "teaching rooms" are replaced by the mediating technology. Accordingly, one way to gain insight into what it means to teach in an online context is to explore the interaction between the mediating technology and teachers' preferences.

## 1.1 Research problem

Studies that have explored the interaction between teachers' approaches to teaching and technology have found that although their approaches can be influenced, they are generally stable across different contexts (e.g. Englund et al., 2017; Lamerás et al., 2012; Scott, 2016). This confirms Kember and Kwan's (2000) previous assumption that teachers have a preferred approach to teaching, although they may adopt an alternative approach if they feel that the teaching environment does not support their intents. This clarifies that in order to understand how the online context influences teachers and their teaching, it is not sufficient to study the online context as such. Although it is obvious that it is fundamentally different from a physical campus environment, just listing the differences between the two will not provide a full insight into how teaching in an online context differs from teaching on a physical campus. The crucial question is not how different the contexts are, but which of the differences are *meaningful* seen from the teachers' point of view and how these interact with teachers' intents to shape their teaching.

## 1.2 Research purpose and research questions

The overriding purpose of the research presented is to advance understanding of the interaction between teachers and the online context. In order to do so, the research objective is to gain insight into how teachers experience teaching in an online context and how this can influence their decisions about teaching practices.

Based on this, the following two research questions were formulated:

RQ 1: How do teachers' perceptions of teaching online differ from their perceptions of teaching on a physical campus?

RQ 2: How does one teacher experience the interaction between her intents and an online context, and how does this influence the decisions she makes about teaching practices?

## 1.3 Demarcations and use of terms

The research presented focuses exclusively on teachers in higher education, their experiences of teaching online and how this can influence the decisions they make about teaching practices. Students, student learning, and student experiences are not included in the studies. The choice to exclude students was made in order to focus on the interaction between teachers and the online context, and to allow for a clear view of the teachers without qualifying or evaluating their experiences and decisions by including a student perspective. This deliberate priority of teachers and their experiences is in line with Biesta's claim that "What is distinctive about education is not learning—which can happen anywhere, with or without education—but teaching" (2020, p. 2). However, I am aware that leaving out students and their experiences limits the research, and that a focus on teachers and their experiences would be of little interest if not for the fact that students and the way they approach learning are influenced by teachers and their decisions (Gow and Kember, 1993; Trigwell et al., 1999). Accordingly, even though the student is not represented here, the thesis should be read with the student in mind; although unseen, the student is present throughout as an invisible companion.

Context is a concept that can include vast areas. In the research presented, I explore contextual factors with an immediate connection to teaching situations. Accordingly, the term "context" is used to describe factors that relate to the affordances of the physical or digital environments, and to the participants' reactions in or with a direct relation to teaching situations.

Technology permeates all parts of our society. This includes education both on and off campus. In this thesis, the term "technology" is used to describe a limited

part of the ubiquitous technology found in today's society. I use the term to refer to the *mediating technology* used to bridge the distance between teachers and students who do not meet face to face. Before the advent of interactive, digital technology, the geographical distance between teachers and students could be mediated, for instance, by physical letters, teleconferencing, or at later stage emails. I use the term "technology" to include these forms of mediating technology as well as the interactive, digital technology in use today.

In this thesis, the term "campus" always denotes a university campus with its physical spaces, buildings, and rooms. I am aware that the term "digital campus" is used frequently to describe an online context. However, I try to avoid an exaggerated use of physical metaphors to describe technology and the online context, as this can result in blurred distinctions between what is truly physical space and what is in fact interaction with technological artefacts.

The term "teacher" is used in the European tradition, including responsibility for course design, decisions about teaching-learning activities, and the actual teaching.

## 2 Methodology and research design

This chapter positions the research and presents the methodology that frames and supports it. The research design and strategy are described in relation to the methodology. Following this, the scientific challenges linked to the methods are discussed. These include the problem of size, selection strategies, bias, reliability, validity, and generalisability. The chapter concludes with an overview of the research process.

### 2.1 Positioning and research strategy

I set out to search for meaningful interactions between teachers and the online context. My ambition was to explore how teachers experience these interactions and how this can influence the way they go about their teaching. The research is based on the premise that neither actions, objects, nor people can be understood in isolation. Rather, they are parts of larger systems and we need to include contexts and relationships when we observe and describe them (de Oliveira and Nisbett, 2017). This means that activities are fundamentally interactive in character; even what we do when we are alone is influenced by society and our context (Francis and Hester, 2004). By its nature, research in this tradition is situated and involves everyday life concerns and cultural features (Brinkmann and Kvale, 2015).

One way to make sense of a social activity (like teaching) is to gain access to the participants' world of understanding (Burrell and Morgan, 1979). Barr Greenfield distinguishes between objectivist and subjectivist approaches to studying social reality (1975, overview provided in Cohen et al., 2011). A subjectivist interpretation of social reality maintains that although the world as such exists, it is construed differently by different people (p. 8). According to this approach, research calls for data linked to specific situations and to the participants' experiences of these situations (Burrell and Morgan, 1979). This type of data is understood to be more relevant than "objective" measurements and descriptions. In other words, how the participants see the world is more important than what the world is "really" like (Brinkmann, 2013). This point of view entails a focus on the local, the individual, and the specific (Jameson, 1991 in Cohen et al., 2011). It aims to offer "multifaceted images of human behaviour as varied as the situations and contexts supporting them" (Cohen et al., 2011, p. 18). In alignment with this position, I set out to study

how a number of teachers *experience* teaching in an online context, rather than studying the context as such. Methodically, this implies that it would serve my purpose well to get access to teachers who had experienced online teaching and who could put these experiences in perspective. One way to do this was to *get so close* to a number of teachers that I was allowed to look at the world through their eyes and become party to their experiences. Another way was *to be* one of these teachers.

The research presented consists of two studies and the resulting two papers. Each study addresses a dimension of the research question (see Figure 1).

|                                   |                                                                                                                                                                                                |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Research purpose:                 | To advance understanding of the interaction between teachers and the online context.                                                                                                           |
| Research objective:               | To gain insight into how teachers experience teaching online and how this can influence their decisions about teaching practices.                                                              |
| Paper 1<br>Interview study        | Research question:<br>How do teachers' perceptions of teaching online differ from their perceptions of teaching on a physical campus?                                                          |
| Paper 2<br>Autoethnographic study | Research question:<br>How does one teacher experience the interaction between her intents and an online context, and how does this influence the decisions she makes about teaching practices? |

**Figure 1.** Research design. Both of the studies aimed to gain access to teachers' experiences of teaching in an online context. This was done so in the first study by interviewing 15 teachers. The semi-structured interviews were designed to allow the participants to share their experiences and dwell on what they felt to be significant. To put their experiences into perspective, they each used their experiences of teaching on campus as a baseline. In the second study, the author used her own teaching process as raw material. The ambition was to get as close as possible to experiences of teaching online as a source of data. To this end she documented the process when her course moved from campus to an online context.

## 2.3 Reflections on research quality

A number of challenges are associated with qualitative methods such as interview and autoethnographic studies. Specifically, questions of size, selections strategies, bias, reliability, validity, and generalisability need to be considered.

### 2.3.1 Size

The nature of interview studies sets practical limits for their size (Brinkmann and Kvale, 2015). This is true both in terms of how many interviews a researcher (or a research team) can realistically conduct, and how long each interview should be. Likewise, there is a limit to the amount of rich data that can realistically be analysed (Cohen et al., 2011). The question I faced was how this premise would influence my ability to explore the research questions. Or in other words, just how many interviews were needed for my purposes?

One way to approach the problem of size is to use a gradual selection which involves a sequential selection of cases (Teddlie and Tashakkori, 2009). I did so in

the interview study by adding interviews until I started to recognise certain traits in the stories told. In practical terms, this meant that I started out by planning and conducting 10 interviews. After that, I added one interview at a time. By the time I reached interview 15, I found that the return from the interviews started to diminish with each new interview increasingly repeating what had already been said before.

However, this approach is not without its risks. Interviewing 15 participants (as I did) and finding their stories similar, does not guarantee that the subject is exhausted (Persson and Sahlin, 2013). In reality the participants could be a special subgroup sharing a skewed or partial understanding (Tuckman and Harper, 2012). This highlights the importance of a sound and transparent selection strategy.

### 2.3.2 Selection strategies

In the interview study, I needed a sampling strategy that would allow me to gain access to teachers who had experienced online teaching and who could put these experiences in perspective. To this end I chose a purposive selection strategy (Teddlie and Tashakkori, 2009). This is a method that relies on my personal ability to make sound judgements about whom to select for the interviews. Purposive selection is a type of non-probability sampling. A characteristic of non-probability sampling is that it includes certain members of the population, while it excludes others; thus, every member of the population does not have the same chance of being included (Cohen et al., 2011). As a consequence, non-probability samples represent themselves or identical units in similar contexts. They do not represent the wider, undifferentiated population. This is in contrast to probability sampling where every member of the population has an equal chance of being included in the sample, that is, the selection of participants is random (Marshall, 1996).

In practical terms, the purposive strategy used in this interview study was representative (Marshall, 1996), meaning that the participants were selected by key informants on the basis of a list of criteria. This served two purposes: that the selection process became more transparent by using explicit criteria; and that the strategy ensured that the participants had extended experience and in-depth knowledge of online teaching. The selection strategy resulted in a group of participants with specific sets of characteristics; in other words, the sample was not representative of the population (teachers in higher education in Sweden). For instance, the participants all taught courses at a university faculty of engineering and all of them displayed characteristics associated with a student-learning approach to teaching. However, as these characteristics together with the selection criteria are openly acknowledged in the study, the reader can view the results in light of this.

### 2.3.3 Bias

The notion of bias differs between the methods employed in the interview study (Paper1) and the autoethnographic study (Paper 2), respectively. Each is discussed separately in what follows.

*Interview study.* In interview studies, both the researcher's and participants' biases should be considered (Cohen et al., 2011). *Researcher's bias* includes a tendency to concentrate on aspects the researcher finds interesting and to ignore other aspects. During the interviews, I strove to employ a receptive style of interviewing (Brinkmann, 2013) where the aim is to empower the participant, and which involves active listening on the part of the researcher (Wengraf, 2001). In the analysing phase, I applied a formal coding strategy based on Braun and Clarke's (2006) guide to thematic analysis, and Graneheim and Lundman's (2004) coding strategy. This aimed to make the process transparent and to reduce the influence my personal preferences and blind spots could have on the outcome.

Another potential source of bias in interviews lies with the *participants*. The risk for bias includes a tendency for participants to edit their stories to please the interviewer or to appear in a flattering light (Tuckman and Harper, 2012). One way to counteract this is to secure a good rapport between participant and interviewer (Oppenheim, 1992). I recognised the interview as an interchange between two people (Brinkmann, 2013), and during the interview I strove to establish a collegial atmosphere without compromising the interview protocol. This approach was supported both by the fact that I came with a recommendation from the key informant, and that I was a fellow teacher who shared the participants' interest in online teaching-learning. In addition, the participants did not offer views of happenings outside of their own immediate sphere of experience.

*Autoethnographic study.* The question of bias should be seen from a different angle in the autoethnographic study. Autoethnography offers a method for articulating personal experiences and explicitly builds on partial and situated, personal stories (Adams et al., 2017; Douglas and Carless, 2013). Autoethnographic stories are by nature biased and do not pretend to be otherwise. However, this does not mean that "anything goes". I used a structured process in this study consisting of discrete steps. Each step was articulated and recorded making the process transparent. Step 1 consisted of a selection process, where I decided what to include and what to exclude from the personal story. The instrument used was my emotions: situations that had elicited strong emotional responses were included in the personal story and all other situations were left out. In step 2, the identified situations were connected to course activities and documented material (including teaching materials, teaching-learning activities, notes and course structures). These data were included in the analysis. Step 3 involved a fellow researcher who represented an outside view and supervised the analysis. While the personal story is biased, it is so openly. Each step of the process was recorded to make it accessible to outside scrutiny.

However, in spite of the strategies employed to reduce and reveal bias during the different steps, it should be kept in mind that these strategies do not eliminate bias and the results of the studies should be seen in light of this.

#### 2.3.4 Reliability, validity, and generalisability

*Reliability.* One value of qualitative studies is that they allow us to examine unique situations and specific circumstances. While reliability is often understood to describe whether or not a similar study in similar circumstances would yield the same results (Cohen et al., 2011), a qualitative study's reliability can be construed as its degree of dependability (Bogdan and Biklen, 1997). This is understood to be a "fit between what they record as data and what actually occurs in the setting under study" (Bogdan and Biklen, 1997, p. 36).

*Interview study reliability.* In order to increase dependability in the interview study, all interviews were recorded and subsequently transcribed in full. This was done to create a dataset that was consistent with what had been said during the interviews. The transcribed interviews were stored in *Nvivo* to ensure that all data could be traced back to the originals. This also made the large dataset manageable, which decreased the risk that data were lost or relevant bits of information overlooked in the flow of data.

*Autoethnographic study reliability.* Here, reliability specifically refers to the narrator's credibility (Ellis et al., 2020). By openly acknowledging positive as well as negative emotions, my story allowed readers to access my personal reality. Likewise, less flattering situations, where I as a teacher did not succeed, were included in the story. By offering different nuances, the person behind the text was allowed to take on human proportions. This should add to narrator credibility.

*Construct validity* means that an instrument (like an interview) actually measures what it claims to be measuring (Cronbach and Meehl, 1955).

*Interview study construct validity.* When data are collected using interviews, it is important that the terminology makes sense to the participants and that they understand the questions in the same way (Silverman, 2015). Prior to conducting the interviews in the study, I constructed an interview protocol. To ensure that the protocol was in keeping with prior research, it was based on two well-established inventories in the field of educational research (Prosser and Trigwell, 1997; Trigwell and Prosser, 2004). The resulting protocol was then reviewed by two fellow researchers and a pilot interview was conducted. During analysis, I used the explicit coding strategy defined by Graneheim and Lundman (2004), which involves coding in several iterative steps. The aim of this approach was to make the analysing process transparent and repeatable.

*Autoethnography study construct validity* more specifically refers to how believable the story is from the reader's point of view. Relevant questions are: Is the story lifelike, believable, and possible? (Ellis et al., 2020). The story should also

enable the reader to form a connection (Kawalilak et al., 2020). By recording teaching-learning situations that most teachers will have experienced (lectures, discussions and supervision), the setting of my personal story should be immediately recognisable. Certain minutiae from the different situations (students' coats, name tags, etc.) were included in the descriptions. This was done to anchor the situations in their actual setting and allow them to be reminiscent of parallel situations. Likewise, changes in the course were documented and the decision process recorded to allow the reader an inside view of the process.

*Generalisability.* External validity refers to a study's generalisability (Tuckman and Harper, 2012). However, Moisander and Valtonen (2006) argue that in qualitative studies, after all, the notion of generalisability is misplaced because the point of small qualitative studies is not to produce generalisable results. They suggest that in qualitative studies it is more relevant to consider transferability. Transferability refers to the degree to which readers of a study can transfer its results to situations with which they are familiar. This view entails that readers can learn much that is general from single cases (Ellis, 2004; Stake, 1995), and the question becomes whether or not the study speaks to the reader (Adams et al., 2017; Douglas and Carless, 2013). Both of the studies have direct connections to teachers' everyday teaching realities. The aspects of interaction and decision making that they describe should be familiar to most readers. The analysing processes in both studies are structured in discrete steps, which allows readers to agree or disagree with the conclusions drawn.

## 2.4 Research process

The research process was iterative rather than linear and included four iterations. What started out as a general interest in teaching in an online context gradually became more and more focused during the iterations.

The first iteration consisted of a literature study where online education was seen through the lens provided by literature on teaching and learning in higher education. This iteration resulted in the formulation of a tentative research question: What characterises teaching in an online context?

During the second iteration the literature was revisited and expanded with a specific focus on teaching and learning in online contexts and views on technology. This served to frame and support the interview study which resulted in Paper 1. During this iteration the tentative research question was narrowed to focus on how teachers experience teaching online. The outcome of the iteration was a more pronounced focus on how the interaction between an online context and a teacher's preferences can influence teachers and their perceptions. It also served to formulate the question: How does an online context interact with one teacher's intents to

influence the decisions she makes about teaching practices when her course moves to an online context?

The third iteration examined this question by means of a deep exploration of one case (the autoethnographic study). During this iteration, the literature was also revisited and expanded to relate my research to different ways of understanding distance education. This served to underpin a discussion of teaching activities in online contexts.

The fourth and final iteration included revisiting all prior work. The outcome is this licentiate thesis, which strives to describe and discuss the outcome of the first three iterations.



# 3 Frame of reference

This chapter presents different perspectives on online education and technology. It concludes with a short description of my point of departure.

## 3.1 Views on online teaching

Today's understanding of online teaching is framed by two different ways of thinking. One is anchored in the tradition of higher education, the other in correspondence courses (Richardson, 2000). The former is concerned with change. From this point of view, campus education is considered to be the norm and online teaching is the result of a process where traditional campus education is changed through the introduction of technology. Discussions within this tradition concern how technology and online teaching can change the way we teach and think about teaching in higher education (Major, 2015).

The second way of thinking originates in traditional distance education, first established as correspondence study. Within this tradition, distance teaching (of which online teaching is an example) is viewed as being inherently different from campus teaching and should be understood as a distinct academic discipline (Keegan, 1996). A main concern for theorists from this tradition is the question of how to bridge the distance between teacher and student (Saba, 2016).

These two ways of thinking about online teaching complement each other and form the basis for my research. However, as I will argue in section 3.1.2, they both have a blind spot when it comes to understanding technology. Thus, my research relies on an alternative understanding of technology, one that comes from the field of sociology. Within this tradition, technology is understood as a social construction (Pinch and Bijker, 1984), a point of view which includes social aspects of creating and using technology.

### 3.1.1 Online education as a result of change

Campus environments have framed teaching and learning for a very long time and practices have been developed in relationship to these environments. Likewise, much of our understanding of teaching and learning is based on studies that take place in these environments.

Student learning is often described in terms of how students approach their learning (Biggs, 1987; Marton and Säljö, 1976). Their approach can be influenced by contextual factors (Biggs et al., 2001), and from the student's point of view, teachers and their teaching make up one such factor. This is why it is relevant to study teachers and how they go about their teaching. Teachers' approaches to teaching are generally concerned with either conceptual change with a student-learning focus, or with information transmission with a teacher-content focus (Trigwell and Prosser, 2004). A student-learning approach is associated with better student learning, where students adopt a deep rather than a surface approach (Gow and Kember, 1993; Trigwell et al., 1999). In short, how teachers approach their teaching can influence students' approaches to learning.

Likewise, teachers are influenced by contextual factors (Lindblom-Ylänne et al., 2006; Norton et al., 2005; Prosser et al., 2003; Prosser and Trigwell, 1997; Ramsden et al., 2007). How they perceive their teaching environment as well as their emotions have been found to influence their approaches to teaching (Trigwell and Prosser, 2020). Consequently, a change of context, such as a move from a physical campus to an online context, has the potential to influence teachers and their teaching. When campus-bound education is seen as the norm, online education becomes either a promise or a threat to the well-known state of things.

A persistent question has been whether or not technology would disrupt higher education (e.g. Altmann et al., 2018; Blin and Munro, 2008; Conole et al., 2008; Flavin, 2016). From this outlook, technology is seen as a force that can potentially disrupt economic models of higher education, organisational structures, as well as teaching and learning. How technology influences teachers and their roles has also been explored. Different aspects have been studied including teachers' acceptance of technology (Martin et al., 2005; Potts, 2008; Tamim et al., 2011; Teo, 2011; Yu et al., 2005), how teachers prefer to use technology in their teaching (González and others, 2013; Kanuka and Rourke, 2013; Khan and Markauskaite, 2017; Lamerás et al., 2012), and how the change process influences teachers and their approaches to teaching (Englund et al., 2016; Scott, 2016). Despite their differences, these studies view online education in the light of practices and theories developed on or in relation to the traditional campus and its educational practices. From this position they examine the changes that are enforced or made possible by technology.

One of two views on technology is generally adopted: deterministic or instrumentalist (Hamilton and Friesen, 2013). From a deterministic view, technology possesses inherent, essential properties that have certain consequences. Technology is seen as an autonomous driver of change (Selwyn, 2012; Surry, 1997). Selwyn exemplifies this view as follows: "A determinist way of thinking underpins the wealth of claims that video games *cause* violent behaviour, or that online tuition *enhances* learning." (2012, p. 83). From a deterministic view, teachers adapt their teaching to the technological developments and online teaching is the result of this adaption process.

In contrast, the instrumentalist view is that technology is a utility, consisting of sets of neutral, purposive tools. Accordingly, technology is considered to be value neutral and “if technology is sometimes used improperly and causes harm, the fault lies with its human operators and developers, not with the technology” (Tiles and Oberdiek, 1995, p. 14). From an instrumentalist perspective, the outcome of teaching online depends on teachers’ approaches to teaching and their capabilities vis-à-vis technology, while the characteristics of technology are largely ignored (Kirkwood and Price, 2006).

The deterministic and instrumentalist views should be seen as the extreme endpoints on a scale, where studies of online teaching and learning generally tend towards one or the other (Hamilton and Friesen, 2013). However, critics argue that the deterministic and instrumentalist outlooks offer a limited view of technology as they both overlook technology’s social dimensions and as a result, tend to oversimplify complex human reactions and relationships (Hamilton and Friesen, 2013; Selwyn, 2012; Surry and Baker, 2016).

### 3.1.2 Technology as a social construct

An alternative view of technology comes from the field of sociology. During the mid-1980s a cluster of related theories set out to open the “black box” of technology. Despite their differences they all treated technical, social, economic, and political aspects as equally important (Bijker et al., 2012). They found that the borders between the social and the technical are not static and pre-given, rather, they are drawn by a variety of actors. This implies that technology is not neutral; any technological artefact is an expression of values existing in society (Pinch and Bijker, 1984). At the same time, a technological artefact is interpreted by the users. Its final role depends on how the user understands the artefact and how the user chooses to incorporate it into his or her world (Oudshoorn and Pinch, 2005). One way to understand the relationship between technology and the user is to view it as a network of actors. Actor-network theory (Callon, 1987; Law, 1987) defines both human and non-human actors as active agents and claims that the same type of analysis should be made for all components in a system. This point of view makes it equally impossible to see technology as a determining force or as a set of neutral instruments. Instead, it is a dynamic interaction between agents where the outcome is unknown at the outset.

From this point of view an online teaching environment is best understood as “a complex bringing together of people, text, images, sounds, locations, discourses, technologies, and modalities” (Bayne et al., 2020, p. 45). It is the interaction between these elements that serves to shape online teaching. From this perspective, when attempting to gain insight into the interaction between a teacher and an online context, the main questions are: What does the technology bring to the interaction? How does the teacher interpret the technology? The interaction becomes a meeting between the powers of technologies and the user’s meaningful activities and projects

(Bakardjieva, 2006). From the teachers' point of view, the technology has to be integrated into the structures, routines and values surrounding their teaching practices. In the words of Berker's (2006), the technology has to be "house-trained".

### 3.1.3 Distance education – a unique form of teaching

One way to understand online education is to view campus education as the norm and online education as either a deviation or a continuation of this norm. Another way to understand online education is to view it as a distinct form of teaching and learning. Theories of distance education represent the latter point of view. Distance education was established mainly to manage geographical distance and allow students access to education, even if they could not be physically present at school (Tait, 2003). Originally, it relied on correspondence with conventional postal mail. It also involved direct communication between student and teacher, where the teacher provided the student with individual feedback (Tait, 2003). Over the years, distance education made use of the available technology and has relied on a succession of mediating technologies ranging from physical postal letters, radio, TV, conferencing technologies, email to social and interactive media (Anderson and Dron, 2011). Despite the variation in the technologies, the pedagogical challenge has remained remarkably stable. The main question to solve was (and continues to be): How can one bridge the distance between teacher and student? Three distinct approaches have emerged, each offering a way to understand and negotiate the distance between teacher and student: Theory of Empathy, Theory of Transactional Distance, Communities of Inquiry.

Holmberg, active between the 1950s and 1990s, and arguably the earliest theorist to conceptualise distance education, found that the distance between teacher and student depended on the teacher's ability to show empathy and the student's possibility to share experiences with their teachers (Holmberg, 1999, 1995, 1980). In his *Theory of Empathy* (1995), Holmberg argues that the interpersonal relationship between teacher and student is a cornerstone in distance education. The teacher can communicate with the student in one of two ways, either in correspondence with the student, involving a two-way communication, or by distributing instructions and learning materials that rely on one-way communication. Holmberg found that both ways can be used to convey empathy with the student. While it seems obvious that this can be done in two-way communication, Holmberg argues that it is also possible (and essential) in one-way communication. By adopting a personalised and conversational style of address, the teacher can show empathy even in one-way communication and this can help bridge the distance between teacher and student (Holmberg, 1995). Where Holmberg built his theory in close relationship with the actual teaching, some decades later, Moore examined the distance between teacher and student from a conceptual point of view. In his *Theory of Transactional Distance* (1993) he redefined the concept of distance. He argued that the actual, geographical distance is of little consequence; it is the

psychological distance between teacher and student that matters. This *transactional* distance is constituted by two variables: structure and dialogue (Moore, 1993, 1973). The interaction between these determines how students experience the distance, although student characteristics can also influence the outcome. In contrast to Holmberg, whose understanding is that one-way and two-way communication complement each other, Moore views structure and dialogue as opposing elements. An increase in structure, for instance, will lead to a decrease in dialogue and vice versa (Saba and Shearer, 1994). In this respect, a third approach *Communities of inquiry* (Garrison et al., 2003, 1999), is closer to Holmberg's point of view in its understanding of distance education. Garrison and colleagues argue that the problem of distance can be resolved by establishing three types of presence: teaching, social, cognitive. These are complementary and each of them is needed to form a well-functioning learning environment. What distinguishes this approach from both Holmberg's and Moore's is the inclusion of a community. Holmberg and Moore both understand distance education to be a transaction between teacher and student, whereas Garrison and colleagues define it as a network of interactions in a community that includes both students and teachers.

The idea of a community of learning is not reserved for distance education. When Etienne Wenger (1998) explored communities and learning, he included a wide range of learning situations, from learning in professional contexts to formalised education. Wenger understands learning both as a social phenomenon and a practice; accordingly, learning is seen as being situated, socially defined and interactive. Central to Wenger's research is the concept of *negotiation of meaning*, which is "the process by which we experience the world and our engagement in it as meaningful" (Wenger, 1998, p. 53). Learning should be understood as an ongoing negotiation of meaning constituted by the duality of participation and reification. Participation describes relationships and activities within a community, while reification denotes artefacts that serve to represent experiences and practises within the community or field of knowledge (Wenger, 1998, p. 57). Although Wenger's conceptualisation is general and does not specifically include distance education, it is still relevant when discussing how the distance between teacher and student should be understood and how it can be overcome.

Despite the central role Wenger (1998) assigns to the process of reification, he does not discuss the technology used to support the process. Likewise, while the Theory of Empathy (Holmberg, 1995), the Theory of Transactional Distance (Moore, 1993), and Communities of Inquiry (Garrison et al., 1999) all deal with the distance between teacher and student, none of them problematises the technology that mediates the distance. In contrast, they share an instrumentalist view where technology is understood as a set of neutral tools, where a more advanced technology would simply serve to expand the teacher's range of action.

## 3.2 Point of departure

Teaching online can either be understood as the result of a change process in higher education where campus education is seen as the norm, or it can be understood as a unique way to teach students at a distance. These two different ways of thinking come from different backgrounds and each has its own distinct point of view. The first one views online education as a continuation and adaption (or disruption) of higher education. The second one views distance education as a specific type of teaching and learning; one, which stands apart from higher education and its traditions. However, a third view, which partly overbridges the distance between the first two views is presented by a group of teachers and researchers at Edinburgh University in their *Manifesto for Teaching Online* (Bayne et al., 2020; Ross et al., 2019). Although the authors' main concern is how higher education can be moved from a campus to an online setting, they argue that "Online education needs its own 'born digital' teaching methods" (Bayne et al., 2020, p. 110). This focus on specific teaching practices that are linked to a particular context brings them closer to the point of view represented by the three approaches where distance education is viewed as a specific type of teaching and learning (Garrison et al., 1999; Holmberg, 1995; Moore, 1993). The Manifesto for Teaching Online further rejects the idea that campus courses can be replicated in an online context, and argues that teaching practices only make sense in the context in which they have been developed. Because of the varied nature of the digital context, it follows that there are many ways to get it right online (Bayne et al., 2020).

This highly contextualised perspective on teaching serves as the point of departure for my own exploration of the interaction between teachers and an online context. While the Manifesto is visionary and intended to stimulate ideas about online teaching (Ross et al., 2019), in contrast, my research concerns itself with teachers' everyday experiences of teaching online. However, the Manifesto's uncompromising stance that online teaching is different from, but no less authentic than on-campus teaching, serves as a reminder throughout my research. In keeping with the Manifesto, my research builds on the premise that teaching is situated and is the outcome of complex interactions between teachers, students, and technology.

In order to avoid falling back on either an instrumentalist or a deterministic view of technology, social theories of technology are used to underpin the way I approach my research. No specific theory is used, rather I build on what is mutually accepted within this cluster of theories. Accordingly, I accept that objects and technological artefacts co-constitute social action. This approach serves to continuously query the interaction between teacher and context, where the pertinent question often is: How does the teacher interpret technology?

While I accept the active role played by the context, I also respect the long tradition of teaching on campus. Obviously, a different context does not invalidate all the accumulated insights and knowledge from the campus context. Accordingly, I base the research on a well-established understanding of the relationship between

how students approach their learning and how teachers approach their teaching. Studies from campus environments have demonstrated that contextual factors influence teachers' approaches to teaching. I rely on these findings when I explore the interaction between teachers and the online context.

The online context is vast and varied and it interacts with teachers and students in a myriad of ways. In order to keep a clear focus, I relate my research to three established views on distance education (Garrison et al., 1999; Holmberg, 1995; Moore, 1993). They each offer a perspective on how to negotiate the distance between teacher and student when they do not meet face to face. In doing so, they help me never to forget that teaching, online as well as on campus, is all about connecting with the students. With this in mind, I focus my attention on the experiences directly linked to actual teaching and teachers' interactions with students.



## 4 Summary of appended papers

This chapter supplies a short summary of the two appended papers. Paper 1 is based on an interview study and Paper 2 on an autoethnographic study.

### 4.1 Synthesis of the appended papers

The appended papers explore different dimensions of the main research objective, which is to gain insight into the way teachers experience teaching in an online context and how this can influence their decisions about teaching practices. In both studies the participants were encouraged to focus on experiences they felt were specific for online teaching. When doing so, they used their own teaching on campus as a point of reference. This approach was chosen to identify areas where online teaching was experienced as being different from campus teaching.

The results suggest that how teachers perceive their relationships to online students is related to how they prioritise different types of teaching-learning activities. This draws attention to the role teaching-learning activities play online. Two types of teaching-learning activities are discussed: those that *involve student-content interaction* and those that rely on *social interaction* between teacher and students. The results further suggest that the interaction between a teacher's intents and the online context can influence decisions about teaching-learning activities. Technology was found to have both a direct and indirect influence on the teacher's decision process. The direct influence relates to how well the affordances of the technology correspond with the teacher's intents, while the indirect influence relates to how students react to technology in different social situations.

### 4.2 Paper 1 based on an interview study

The first study was designed to explore how teachers experience teaching in an online context seen in light of how they experience teaching on a physical campus. The purpose was to identify meaningful differences from the teachers' perspective.

### *The study*

This was an interview study. Qualitative interviews were used to access the participant's descriptions of personal experiences and interpretations. The participants described their experiences of teaching online while using their own experiences from teaching on campus as a point of reference. The raw data consisted of 15 unique stories, which were analysed using an iterative, thematic approach to identify themes.

### *Findings*

The study resulted in Paper 1, which showed that the participants varied in how the online context influenced their perceptions of their student-teacher relationship. Although the participants found that their student relationships online differed from those on campus, they did not agree on *how* they differed. One group perceived online students to be closer than campus students, while the other group perceived the opposite. This variation was related to preferences with regard to teaching-learning activities. While all participants displayed characteristics associated with a student-learning approach to teaching (as opposed to a teacher-content approach), they had different preferences when it came to teaching-learning activities. One group's priority was to stimulate their students' direct engagement with the subject (*student-content interaction*). In contrast, the other group prioritised teaching-learning activities, which involved *social interaction* between teacher and students. Participants who found their online students to be more remote than their campus students prioritised activities based on student-content interaction; conversely, those who found their online students to be closer than their campus students prioritised activities based on social interaction between their students and themselves.

### *Implications*

The findings provide insights into the interaction between teaching priorities and an online context. They show that while teachers can experience their student relationships to differ between contexts, the context does not decide the outcome. Rather, the findings suggest that this is a result of an interaction between the context and what teachers believe is the best way for students to learn their subject. The study specifically draws attention to the role played by teachers' preferences regarding teaching-learning activities in an online context.

## 4.3 Paper 2 based on an autoethnographic study

The second study aimed to gain insight into how teachers experience the online context and how this can influence the decisions they make about teaching practices. It was designed to identify points of interaction between one teacher's intents and an online context. It further explored how this interaction influences the choices the

teacher makes about different types of teaching-learning activities. The study advances the understanding of both the direct and indirect roles an online context can play in a teacher's decision process.

### *The study*

While the first study provided a *close-up* of a group of teachers, this second study provided an *extreme close-up* of a single teacher. In the first study, I attempted to "look through the eyes" of the participants; in the second study, I took one step closer to the data source and used my own experiences as raw material. An autoethnographic approach was used to collect detailed information about a teacher's emotional reactions and connect these to decisions about teaching-learning activities. The autoethnographic approach provides the researcher with direct access to emotions and interpretations. However, autoethnographic researchers also need to distance themselves from the experience in order to provide a relevant reflection and discussion of the data. I used emotions as a tool in this study to identify relevant parts of my own experiences. Reflection served to identify experiences of specific traits of the environment and link these to the decision process. The study resulted in Paper 2.

### *Findings*

Technology was experienced to influence the decision process both directly and indirectly. Direct factors related to technology's affordances: what teachers experience they can or cannot do with technology. Indirect factors described the influence technology had on student behaviour. This could vary with the social setting. Specifically, the size of student groups was found to matter. Small groups of students reacted in one way to specific technological features and large groups in a different way.

The teacher's decisions about teaching-learning activities resulted from the interaction between the teacher's intents on one side, and her experience of technological factors (direct and indirect) on the other. The outcome was that the teaching-learning activities were divided into two non-overlapping types: Type one involved social interaction and dialogue between teacher and students; these activities took place in the context of small groups. Type two aimed to stimulate student-content interaction and these activities involved all students in the class (a large group of students). Online, I experienced that I took on two parallel roles in relation to my students. In regard to small groups, I became a participant; in regard to large groups, I focused on my role as an organiser and instructor.

### *Implications*

This study offers insights into a decision process and describes a non-linear process. It serves to problematise the role technology plays in shaping online courses. It suggests that technology's influence cannot be understood by studying its functionalities; neither can it be fully explained as an interaction between beliefs

about teaching-learning and technology's affordances. Rather, technology's *indirect influence* also has to be taken into consideration. Practically, the findings highlight the fact that technology's influence on student behaviour can vary with changes in the social situation, such as student group size. This is relevant for teachers who move their courses from the campus to an online context.

## 5 Discussion of research findings

Findings in both Papers 1 and 2 cluster around teaching-learning activities. Paper 1 found that the participants' priorities regarding teaching-learning activities were related to how close or anonymous they perceived their online students to be compared to their campus students. The findings in Paper 2 provided an example of how a move to an online context led to fundamental changes in teaching-learning activities. These findings indicate that teaching-learning activities play a different role online than they do on campus. This chapter discusses how the two types of teaching-learning activities can be understood.

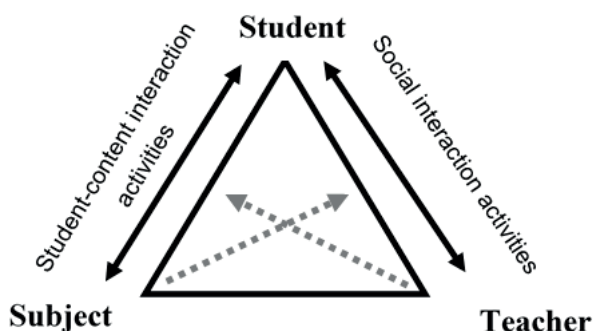
### 5.1 Teaching-learning activities and the role they play

One way to understand teaching-learning activities is to relate them to what is referred to as the didactical triangle (see Figure 2). This widespread figure is of unclear origin (Quennerstedt and Larsson, 2015), although it clearly belongs in the European didactical tradition building on the 17<sup>th</sup> century thinker Comenius' idea that didactics should include both the *what* and the *how* (Kroksmark, 1987). The triangle includes both aspects and is frequently used to describe the relationships between subject matter, student, and teacher. These three elements are involved in all aspects of teaching and the triangle describes the relationships that lie at the core of the instructional process (Meyer and Hudson, 2011).

Two of the relationships involve the student: the student-subject and the student-teacher relationships. From the teacher's point of view, these two relationships can be translated into teaching-learning activities. The teacher can prioritise the student-subject vector and decide to design teaching-learning activities that aim to motivate students to engage with the subject matter. Likewise, the teacher can concentrate on the student-teacher vector and include teaching-learning activities that involve the teacher's personal participation.

Although each type of teaching-learning activity prioritises two of the three elements in the triangle, the third element should not be overlooked. A teacher who designs teaching-learning activities aimed to engage students directly with the subject matter, still plays an indirect role in the activity. For instance, when students interact with the subject matter during an assignment, the teacher's design and instructions will influence how the students work and collaborate with each other.

This will be the case even if the teacher is not present during the students' work. In parallel, teaching-learning activities that focus on the student-teacher vector, for instance discussions, rely primarily on an immediate interaction between students and teacher. However, in a teaching situation the subject matter is not ignored as the discussion is framed and supported by it. How the three elements of the didactical triangle relate to the two types of teaching-learning activities is shown in Figure 2.



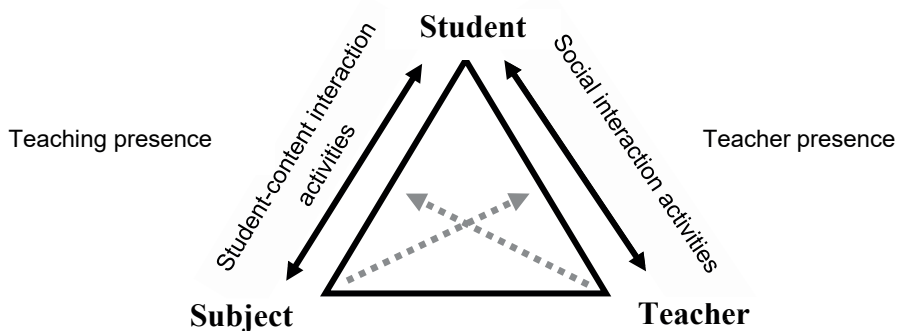
**Figure 2.** The figure illustrates how two types of teaching-learning activities relate to the three elements of the didactical triangle. To differentiate between the two types of teaching-learning activities, the term *student-content interaction* is used to describe teaching-learning activities where student-learning is supported by engaging students in direct interaction with the subject. In this type of activity, the teacher's interaction with students is indirect. Examples include exercises and problem solving. The term *social interaction* is used to describe activities relying on direct interaction between students and teacher. The word *social* is used deliberately to highlight the interpersonal element of this type of student-teacher interaction. Students and teacher interact directly with each other, while the interaction with the subject is indirect. Examples include discussions and supervision. It should be noted that this figure focuses exclusively on teachers and their teaching. It does not describe the students' learning situation.

Both types of teaching-learning activities are frequently encountered in the standard repertoire of teaching practices on campus as well as online. However, my results suggest that each type becomes more distinct online, and that this is related to the online context. This is in line with Meyer and Hudson's (2011) position that the didactical triangle should not be seen in isolation, but rather should be related to contextual features (2011, p. 7). A defining feature of the online context is that teacher-student interaction is mediated by technology. Mediated interaction is distinctly different from face-to-face interaction. It is therefore not surprising that the participants in the interview study should find that the online context influenced how they communicated with their students. Online they found that they communicated more frequently with individual students and less frequently with larger groups of students (the class) than they did on campus. Likewise, the autoethnographic study showed that the way I communicated with my students shifted when my course moved online; here I favoured two-way communication with small groups over large groups of students. When it comes to teaching-learning activities, communication plays a different role in each of the two types of activities.

While direct teacher-student communication is at the core of social interaction activities that involve both students and teacher, it plays a less prominent role in activities aimed at student-subject interaction. In the former, the teacher should ideally be present to engage in communication with students, in the latter the teacher's actual presence is not required.

The Community of Inquiry defines teaching presence as one of its three main constructs, the other two being social and cognitive presence (Arbaugh et al., 2010; Garrison et al., 1999). *Teaching* presence and *teacher* presence are frequently used interchangeably (e.g. Avery, 2018; Kuznetcova et al., 2021; Sheridan and Kelly, 2010; Themeli and Bougia, 2016). Richardson and colleagues (2015), though, argue that teacher presence is not synonymous with teaching presence, but rather it lies at the intersection between teaching and social presence. While *teaching presence* encompasses design, facilitation, and direct instruction (Garrison and Arbaugh, 2007), *teacher presence* is associated with interaction and personal involvement (Richardson et al., 2015).

I propose that it is useful to distinguish between the two and take each of them into account when we discuss teaching-learning activities. Activities involving student-content interaction rely on teaching presence, but do not necessitate the teacher's actual presence. Here, teaching can be represented by the structures and artefacts the teacher has created to support student learning and, as exemplified in the autoethnographic study, these can replace the teacher's immediate participation. This is in contrast to activities involving social interaction between teacher and students because this latter type of activity involves the teacher's personal participation and accordingly, can be associated with teacher presence (see Figure 3).



**Figure 3.** *Student-subject interaction activities* based on teaching presence do not require the teacher's immediate presence. In contrast, *social interaction activities* between teacher and students involve teacher presence. In the autoethnographic study, activities relying on teaching presence took place in the class (a large group of students), while those involving teacher presence took place in small groups of students. The results suggest that this outcome of the autoethnographic case was related to the online context.

There is a certain affinity between Garrison et al.'s (1999) and Richardson's (2015) ideas of teaching/teacher presence and Wenger's (1998) concepts of reification and participation. Wenger uses the term "reification" to describe how practices, tools and meanings are condensed into artefacts. Although reification is represented as an artefact, it is much more than a simple object. It denotes both an object and a process in that it can represent a community's experiences and abstractions in a congealed form (Wenger, 1998, p. 59). This can be exemplified by how a teacher goes about teaching when he or she is not actually present. His or her teaching presence can be expressed by means of reified structures and artefacts. When teachers create video lectures, quizzes, exercises, instructions, and the like, they select perspectives and procedures from their field of expertise and turn them into artefacts. The artefacts represent what are often complex concepts and practices and help shape the students' experiences. As artefacts they become part of the students' learning environment and serve to elicit reactions, initiate and guide actions. However, the teacher has little control over the artefacts once they are "out there". Students can interpret and interact with them in unexpected ways and as Wenger points out, they can take on a life of their own (Wenger, 1998, p. 62). In Wenger's perspective, participation complements reification. He uses the term "participation" in a conventional way to describe human relations involving both action and connection (Wenger, 1998, p. 55). This understanding of participation encompasses Holmberg's (1995) understanding of *two-way communication*, Moore's (1993) *dialogue*, and Garrison and colleagues' (1999) description of *teacher presence*. These concepts all include social interaction between teacher and student. However, Community of Inquiry stands apart in its exploration of *teaching presence* with its affinity to Wenger's concept of reification. Although the Community of Inquiry distinguishes between teaching and teacher presence, it does not problematise the relationship between the two; rather, teacher presence is simply seen as the connecting link between teaching and social presence and considered to be subordinate to the three main concepts of teaching, social and cognitive presence (Richardson et al., 2015). In contrast, Wenger defines reification and participation as a duality and argues that it is more important to understand the interplay between the two than to use them as classificatory categories (Wenger, 1998, p. 69).

Wenger's concepts of reification and participation can be applied to put the outcomes of my autoethnographic study into perspective. My study provided an example of how the move to an online context led to a change in teaching-learning activities. Online, the borders between activities involving teaching and teacher presence had been blurred; however, they were separated online into two easily identified types of activities: student-content interaction activities (relying on teaching presence), and teacher-student social interaction activities (relying on teacher presence). I propose that it is useful to see this change through the lens of Wenger's concepts of reification and participation. In contrast to the way the Community of Inquiry understands the relationship (with teacher presence being subordinate to teaching presence), Wenger's point of view enables us to see teaching

presence (relying on reification) and teacher presence (relying on participation) as equally important, complementary concepts. Because reification/participation form a duality, neither of the concepts can stand alone: reification implicates participation just as participations implicates reification (Wenger, 1998). When translated into teaching, this means that activities involving teaching presence as well as those involving teacher presence need to be considered as equal and complimentary concepts. Even if teachers may prioritise one type of activity over the other (as was the case in my interview study) neither type should be ignored. Rather, each type of activity should be designed with the other in mind and both be developed in dialogue with the context. Likewise, from this point of view it is irrelevant to ask if one type of teaching-learning activity is inherently better than the other. Rather, the pertinent question is: How can they be balanced so that they complement each other? Based on the results of my studies, I argue that this question moves to the forefront when teaching takes place in an online context. With a more pronounced distinction between activities involving teaching presence and those involving teacher presence, teachers will benefit from recognising the characteristics of each type of activity. Teachers not only need to balance the two, they also need to make sure that each enhances the other. Based on the results of my studies, I propose that this can present more of a challenge online than it does on campus, not only because of the clearer distinction between the two, but also because, as exemplified in my autoethnographic study, one type of activity may be associated with small groups of students, the other with a large group (the class).

## 5.2 Small versus large groups of students

When a specific type of teaching-learning activity works as intended in one social context, but not in another, this becomes an important factor when we design our courses. The autoethnographic study found that small groups of students (1-5 students) were experienced to create a social context where teaching-learning activities involving teacher presence were efficiently supported. In contrast, a large group of students (a class of 35 students) was experienced to create a social context that was detrimental to this type of activity. Based on this, I propose that it is relevant to discuss how we organise online courses and ask the question: Should online courses be organised around small groups of students (which in my study was experienced to support this type of activity) or large groups of students – like a class – where activities involving teacher presence were experienced to be more problematic?

The small versus large group discussion is widespread and controversial. Looking at learning outcomes, van Lehn (2011) in his meta study found that tutoring in small groups showed limited improvement over traditional teaching in bigger classes in terms of student results. Similarly, Hattie (2015) concluded from his meta meta

study that class size had little impact on student learning. In contrast, Bloom's research showed that students who were tutored in small groups (1-3 students) achieved significantly better results than students taught in traditional classes of 30 students. When measuring their final achievement, students in the small groups were about two standard deviations above the average of students taught in traditional classes (Bloom, 1984). Based on this, Bloom formulated his often cited "2-sigma problem", which asks how a class of students can be taught in order to attain levels of achievement comparable to those taught in small groups (Bloom, 1984, p. 4). Despite the fact that these studies neither focus on higher education nor teaching-learning activities, they still have inspired scholars to consider the 2-sigma problem in relation to these areas. Discussions have ranged from specific pedagogical approaches, to analysis of patterns, to automated feedback (see, for instance, Barrows et al., 1986; Corbett, 2001; Essa and Laster, 2017). Recently the thread has been picked up by Friesen (2020) who addresses the issue from a different point of view. He argues that the importance we assign to dialogue and tutoring small groups of students is based on a myth becoming truth by its repetition over centuries. He traces its origin back to Socrates and finds that it is part of our shared educational "imaginary" and thus serves to skew the discussion by inducing a perhaps irrational a priori belief in the educational benefit of small groups. Instead of taking one or the other side in the discussion, Friesen suggests that the question itself has taken on exaggerated proportions.

Obviously, my results do not presume to resolve this schism. However, they serve to draw attention to the question of how we organise students when teaching online. Much in the same vein as Friesen, I question the relevance of a general small-versus-large-group-discussion. This position is in line with Trigwell and Prosser's (1997) view on class size. In their exploration of how contextual factors influence teachers' approaches to teaching, they identify "class size" as one of five influential factors. However, they adopt a relational view of "size" by specifying that class size becomes an influential factor when classes are so large that teachers are prevented from engaging in interaction with their students (p. 29). In other words, what is important is not the size of the group as such, but whether or not teachers feel able to communicate with their students. My results suggest that the size of a student group that the teacher feels comfortable with will vary with the context and the type of activity. My autoethnographic study provides an example of how teaching a class online was experienced to be very different compared to teaching a class on campus. One of the factors influencing the size of the student group preferred by the teacher in this study was the type of teaching-learning activities. Small groups were preferred for activities relying on teacher presence, large groups (the class) for activities relying on teaching presence. Based on this, I propose that it is relevant to discuss different types of teaching-learning activities and their respective reliance on *teaching presence* and *teacher presence* when planning and organising online education.

# 6 Conclusions and future research

This chapter provides a short description of how the research presented contributes to the discourse and to practice. It concludes with suggestions for future research.

## 6.1 Concluding remarks

A physical campus and a digital online environment represent two very different contexts. If we accept the premise that an environments' affordances interact with the social practices taking place within the environment, it is not surprising that teaching online should be different from teaching on campus. We have no guarantee that a teaching practice developed in dialogue with one context should work satisfactorily in a different context. However, it is not an easy task to disentangle the aspects of a teaching practice that are stable across different contexts from those that are closely linked to a specific context and therefore susceptible to change. One way to do this is to explore how teachers experience the different contexts, and how this can influence their practices.

Teachers are at the forefront of this exploration process, not least during the current pandemic. In order to be the kind of teacher they want to be and fulfil their teaching goals, they need to understand how well their established practices will hold up when moved online. The number of reports from the frontline of this exploration is rapidly growing. The challenges include how to develop best teaching practices (Alamri et al., 2020; Cavanagh et al., 2020), design courses in an online context (Greer and Harris, 2018), and how to establish purposeful interaction between teachers and students (Mehall, 2021; Neuwirth et al., 2020; Padgett et al., 2021; Wang and Wang, 2021). These studies together with other contributions offer a variety of perspectives of what it entails to teach online. However, the attempts to conceptualise online teaching are still relatively few. One such attempt is the Manifesto for Teaching Online (Bayne et al., 2020; Ross et al., 2019), which aims to identify the defining traits of online teaching. The Manifesto represents a call to rethink teaching in an online context. It voices a warning that we need to approach the online context as a specific teaching context and judge it on its own merits, rather than consider it a second-best version of campus education. The research I present here is aligned with the Manifesto's declared need to "reimagine some of the orthodoxies and unexamined truisms" surrounding online teaching (Ross et al.,

2019, p. 22). By analysing how a number of teachers describe their experiences of teaching online compared to on campus (Paper 1), my research adds to the understanding of how similar and different they think the two contexts are. Likewise, the exploration of how one teacher's decisions can be influenced by a change of context (Paper 2) draws attention to the interaction between a teacher's teaching intentions and his or her experiences of the online context. Together, this represents a contribution to untangle the "unexamined truisms" surrounding online education. In the following section I present an overview of the different ways in which my research contributes to practice and to the discourse.

## 6.2 Contributions

My research contributes to practice by drawing attention to different types of teaching-learning activities. When teachers move from campus to online teaching they face the task of replicating, changing, or replacing the teaching-learning activities they have relied on in the campus environment. The challenge lies in distinguishing between the activities that will work satisfactorily in an online context and those that need to be redesigned or replaced in order to meet the teacher's intents. My conclusions represent a step towards describing the roles different types of teaching-learning activities can play online. By distinguishing between *teaching* presence and *teacher* presence, it becomes possible to categorise teaching-learning activities regarding these two aspects. I propose that this will be useful because, as exemplified by the two studies presented, the differences between the two can become more distinct online, and activities that rely on teaching presence can take on a very different form than those that rely on teacher presence.

My research contributes to the discourse by drawing attention to the work done by Holmberg (1995), Moore (1993), and Garrison et al. (1999), and by discussing the relevance this can have for contemporary online teaching. Despite the fact that these approaches were all formulated at times when technology differed from what we take for granted today, I try to show that they offer useful insights into the nature of today's online teaching. Interestingly, certain conclusions drawn by contemporary theorists bear an affinity to these older views of distance education. Notably, the insistence of the *Manifesto for Teaching Online* that online education is a unique form of education (Bayne et al., 2020; Ross et al., 2019), calls to mind Holmberg's (1995) definition of distance education as standing apart from and being different from traditional education. When the authors of the Manifesto highlight the temporal and affective aspects of distance and state that it is the "felt", not the physical distance that matters (Ross et al., 2019), this resonates strongly with Moore's (1993) concept of Transactional Distance. These examples serve to lend credence to my claim that the older approaches with their conceptualisations of distance education can add useful perspectives to contemporary online education.

My research further contributes to the discourse by discussing teaching and teacher presence in relation to two different types of teaching-learning activities and viewing these in light of Wenger's (1998) Communities of Practice theory. While my findings draw attention to the two types of activity, Wenger's (1998) concepts of reification and participation provide tools for discussing their respective characteristics and how they relate to each other. Defining reification both as a process and an artefact provides insight into the complexity of activities based on student-content interaction. It helps answer the question of what it means to establish a *teaching presence* as opposed to a *teacher presence* in an online context. Likewise, the duality of reification and participation serves to highlight the equal importance of each type of teaching-learning activity, making apparent that neither can be a substitute for the other.

Finally, my research represents an argument for the position that when we discuss online teaching, it will do well to state our view of technology. Technology plays a significant role in online teaching in that it mediates the interaction between teacher and student. Consequently, how we interpret technology and which role we assign to it will influence the questions we ask and the answers we find when researching online teaching. In my research I take for granted that technology is socially constructed and socially interpreted. This point of view serves to highlight the dynamics between technology and humans. The findings using this approach suggest that both direct and indirect technological factors can influence the decisions teachers make about their courses. In the autoethnographic study the direct factors were found to relate to the affordances of the technology, while the indirect factors were found to relate to how students react to technology in different social situations. These results provide an example of how social aspects of the learning environment can influence the way technology is interpreted and used.

## 6.3 Future research

The research presented is based on small, qualitative studies. This means that while the results and conclusions may resonate with readers and be reminiscent of similar experiences, their main contribution lies in drawing attention to certain aspects and opening these up for discussion. Both of the studies explore the local, the individual, and the specific and the findings should be seen in light of this. For instance, all participants in the two studies displayed characteristics associated with a student-learning approach. When exploring teaching/teacher presence and teacher/student relationships from the teacher's point of view, it is reasonable to believe that the outcome is related to the participants' beliefs about and approaches to teaching and learning. Teachers with different beliefs and approaches can very well experience similar situations differently. Thus, it would be relevant to conduct similar studies with participants who have different outlooks. Such studies would add to our

understanding and serve to put the results of the studies presented in this thesis into perspective.

In order to structure, develop and support online teaching, a contemporary, conceptual model of online teaching would be beneficial. Higher education has a long tradition of teaching on campus; when teachers conceive, design and implement courses they rely on this tradition. However, the online context differs fundamentally from a physical campus context. As a consequence, online teaching needs to relate to both the tested and established teaching traditions *and* address the challenges inherent in mediated teaching. An essential step towards a conceptual model of online teaching is to understand and describe how teachers experience and interact with the context and their students. This makes it of immediate concern to continue to conduct studies of how teachers experience teaching online. These should include how teachers balance activities based on teaching and teacher presence and how they experience the relationship between the two; how they experience their roles as teachers; and how they experience the power-balance between their students and themselves. Equally relevant for building a mental model of online teaching is knowledge of how different social situations influence students' interpretations of and reactions to technology. Logically, the next major step would be to include the students' point of view.

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# Paper I





## Seeing through the eyes of a teacher: differences in perceptions of HE teaching in face-to-face and digital contexts

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### ABSTRACT

Studies of how contextual factors influence teachers' approaches to teaching have chiefly focused on face-to-face teaching in physical campus contexts. This study advances understanding of how applicable this knowledge is in digital contexts. The study explores how university teachers perceive the differences between teaching in physical campus contexts and the digital teaching contexts found in online courses. Interview data were collected from 15 university teachers and analysed using thematic analysis. The results show that respondents perceived digital teaching contexts to be changeable. Changes were attributed to technology development and influences from students and teachers. The respondents varied in how close or anonymous they perceived their online students to be compared to their campus students. The variation was related to the type of teaching-learning activities prioritised by the respondents. However, no relationships were found between respondents' perceptions of their student-teacher relationship and class size, time invested, or type of communication.

### KEYWORDS

Higher education; teaching methods; technology uses in education; teacher student relationship; context effect

## Introduction

Research has shown that how teachers perceive the teaching context can influence their intentions and how they approach their teaching (Lindblom-Ylänne et al. 2006; Norton et al. 2005; Prosser et al. 2003; Prosser and Trigwell 1997; Ramsden et al. 2007) and that this is significant for student learning (Gow and Kember 1993; Trigwell, Prosser, and Waterhouse 1999). However, most of this research has been conducted in face-to-face settings. When university courses move from the well-instantiated campus context to a different one – such as the digital teaching context found in online courses – it is important to understand how this new context influences teachers and their teaching.

Teaching in face-to-face contexts provides different affordances compared to teaching in digital contexts. University buildings, lecture halls, classrooms and laboratories have framed and supported higher education for many years. However, digital technologies now play a key role in reshaping how higher education is being delivered. Most European higher education institutions consider online learning in their governance approach (Sursöck 2015) and likewise find that this changes teachers' approaches to teaching and learning (Gaebel 2015). The number of students enrolled in online education continues to grow; more than 6 million are now enrolled in higher education distance courses in the United States (Allen and Seaman 2017). This move to deliver teaching and learning online presents a significant change in teaching context. So how does this change in context affect teachers'

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perceptions of their teaching? This study examines this question by exploring how teachers' perceptions of teaching in a digital context differ from their perceptions of teaching in a physical context. This was done using telephone interviews with 15 teachers across six intuitions.

## Previous research

### *Teachers' approaches to teaching*

One way to examine the impact of changes in teaching context is to examine changes in teachers' approaches to teaching. Approaches to teaching are often divided into two qualitatively different categories: a student-learning approach and a teacher-content approach (Gow and Kember 1993; Trigwell and Prosser 2004). A student-learning approach to teaching is associated with students applying a deep approach to learning. This results in qualitatively better learning. Comparatively, a teacher-content approach to teaching is associated with students applying a surface approach to learning. This results in more shallow and transient learning (Gow and Kember 1993; Sheppard and Gilbert 1991; Trigwell, Prosser, and Waterhouse 1999). It is important to understand how teachers approach their teaching, as studies have shown a strong relationship between how teachers approach their teaching and how students approach their learning (Trigwell, Prosser, and Waterhouse 1999).

### *Influential factors in physical campus contexts*

Trigwell and Prosser (2004) found that teachers' approaches to teaching are influenced by intrinsic and extrinsic factors. Pedagogical beliefs and perceptions of teaching/learning are the intrinsic factors that motivate teachers to approach their teaching in a certain way. However, how teachers translate their pedagogical beliefs into actual teaching is influenced by a number of extrinsic factors, such as characteristics of the context. Prosser and Trigwell (1997) explored how extrinsic factors influence teachers' approaches to teaching in a physical campus context. Their study identified a number of influential contextual factors, covering areas that include teachers' working situation, student-teacher interaction and student characteristics. Their findings demonstrated a systematic link between contextual factors and teachers' approaches to teaching. In particular, they found that a transformative student-learning approach is sensitive to variation in contextual factors. In other words, if the teaching context is not favourable, teachers with a student-learning approach to teaching may resort to a more teacher-content approach.

A slightly different view is presented by Kember and Kwan (2000). They argue that teachers' approaches to teaching are determined primarily by their orientations, that is, their underlying beliefs about teaching, which are more stable than the contextual factors per se. They formulated a list of contextual factors that influence how teachers approach their teaching. Their list partially overlaps with Prosser and Trigwell's. However, Kember and Kwan specifically mention, 'Teaching rooms which are not conducive to the type of teaching preferred by a lecturer' (2000, 487). Postareff and Lindblom-Ylänne (2008) focus on social interaction and provide an overarching description of teaching contexts, which includes the teachers' role, students' role, interaction, and atmosphere. Unlike Kember and Kwan, they do not place intrinsic and extrinsic factors in a hierarchical relationship but instead place teachers' beliefs and contextual factors on the same level.

Despite differences in nuances, the overall picture is in agreement as to how characteristics of the physical campus context are linked to teachers' approaches to teaching. The focus of Postareff and Lindblom-Ylänne on social interactions highlights the importance of *student-teacher interaction*, one of the areas defined by Trigwell and Prosser, while Kember and Kwan's attention to the importance of physical space adds to Trigwell and Prosser's inventory. Seen together, these studies identify four areas of contextual factors: *teachers' working situation*, *student-teacher interaction*, *student characteristics*, and *affordances of environment*. These four have the potential to influence how teachers approach teaching in a physical campus context.

### Extrinsic factors in digital teaching contexts

Studies of extrinsic factors in digital teaching contexts and how they influence teachers' experiences, practices and approaches to teaching are limited in number. However, Gonzalez (2009) investigated three such contextual factors: *student characteristics*, *institutional influence* and *curriculum and subject*. Gonzalez found that *student characteristics* and *institutional influence* had a direct impact on how teachers approach their teaching, while *curriculum and subject* only had an indirect influence. Additionally, Badia, Garcia, and Meneses (2016) found that *time* invested in teaching is related to teachers' approaches to teaching.

A slightly different focus is found in studies conducted in teaching contexts where online activities are combined with face-to-face activities on campus (blended learning). From this perspective a special concern has been to explore how contextual factors support or inhibit technology use (Blin and Munro 2008; Ginns and Ellis 2007; Ottenbreit-Leftwich et al. 2010; Schoonenboom 2014; Stein, Shephard, and Harris 2011). Teachers' preferred use of technology is generally described as a position on an continuum ranging from information transfer to collaborative, activity-oriented use (González 2013; Kanuka and Rourke 2013; Khan and Markauskaite 2017; Lameris et al. 2012). The influential factors identified include institutional culture, peer support, resources and usability issues.

The contextual factors examined in these studies all belong to the four areas established in studies conducted in physical campus contexts (teachers' working situation, student-teacher interaction, student characteristics, and affordances of environment). The studies demonstrate that extrinsic factors influence teachers' teaching practices and approaches to teaching in digital contexts as well as in physical campus contexts. Focusing on teachers' transition from a physical campus context to a digital one, Englund, Olofsson, and Price (2017) found that teachers' approaches to teaching with technology are related to their approaches to teaching. Scott (2016) gained further insights into the relationships between teachers' beliefs and practices in physical and digital teaching contexts by tracking the developmental paths of six teachers through the transition from campus teaching to online teaching in a two-year longitudinal study. The study demonstrated that the relationships between teachers' e-learning beliefs and practices are interactive and multi-directional. Although certain sets of beliefs may remain constant over a number of different contexts, different contexts may influence teachers to activate different beliefs resulting in different practices.

Seen together, these studies demonstrate the influence contextual factors have on teachers' beliefs, approaches and practices. They also make apparent that in order to understand the interplay between specific teaching contexts and how teachers go about their teaching, we need to understand *how* the characteristics differ between different teaching contexts. What remains unclear is how teachers' perceptions of teaching in the digital context found in online courses differ from their perceptions of teaching in a physical campus context. The study presented here investigates this. It advances the understanding of how different teaching contexts influence teachers' perceptions of their teaching.

### Method

The present study explored how 15 university teachers perceived the differences between teaching online and on campus. The study was based on data collected from interviews in which the respondents used their own experiences from campus teaching as a baseline for describing what it was like to teach online.

The respondents were recruited from six Swedish universities through a non-random, purposive sampling method (Cohen, Manion, and Morrison 2011, 156). Accordingly, the respondents were not selected randomly, rather a specific group was targeted based on particular characteristics. A reputational sampling strategy (Cohen, Manion, and Morrison 2011, 157) was adopted, where six technical faculties were contacted and asked to recommend respondents. Respondents were selected based on three criteria: They had extended experience of online teaching, they taught courses with a

significant amount of teacher-led activities, and they were the main teacher of their course (the term 'teacher' is used here in the European tradition; for North American readers, the term 'college faculty' applies). The rationale behind the selection criteria was an ambition to find respondents who had matured in their roles as teachers and had been able to adjust their teaching approaches to an online context. At the same time, respondents were to be involved in day-to-day teaching and have regular interaction with their students throughout the course.

All respondents in the sample taught university undergraduate courses and were responsible for the design of their courses. They were also responsible for planning and implementing teaching-learning activities such as lectures, exercises, seminars, discussions and exams. The size of online classes taught by the respondents varied from 10 to 100 students. All respondents had experience of similar class sizes when teaching on campus. They were encouraged to use their experience of comparable campus classes as a baseline when comparing their online and campus experiences. An overview of the respondents' experience of teaching online and their subject area is presented in Table 1.

Prosser and Trigwell's *Perceptions of the Teaching Environment Inventory* (1997) served to frame the data collection and directly informed both the structure and content of the interview protocol. The semi-structured interviews were based on an interview protocol divided into six sections. Five sections were based on Prosser and Trigwell's identification of contextual factors that influence teachers' approaches to teaching (Prosser and Trigwell 1997). The sixth section was informed by Trigwell and Prosser's *Approaches to Teaching Inventory* (2004) and focused on the respondents' descriptions of their beliefs about teaching. The scope and relevance of the initial set of questions were reviewed by two fellow researchers and revised in light of their comments. A pilot interview was conducted with a third fellow researcher and the interview protocol was further revised in light of the pilot. The finalised protocol focused on how the respondents perceived their own working situation (their workload, their ability to control what and how they taught, how teaching was valued in their departments), how they perceived their students (student characteristics, class sizes, student-teacher interaction), and finally their beliefs about teaching.

All interviews were conducted over the telephone and lasted between 40 and 60 min. The interviews were recorded and transcribed in full. The resulting data were analysed in two iterations in a process combining Braun and Clarke's guide (2006) to thematic analysis with Graneheim and Lundman's (2004) understanding of coding levels. The recorded interviews were transcribed and anonymised during the first iteration. The interviews were read several times to give a sense of the material in its entirety. The data were then structured in a number of steps. Initially, the text was divided into meaning units with each unit consisting of words that related to the same statement. Next, the meaning units were condensed in order to shortening the text without losing the core.

**Table 1.** Respondents' online teaching experience and subject area.

| ID  | Online teaching experience (years) | Subject area           |
|-----|------------------------------------|------------------------|
| P1  | 11                                 | Electrical engineering |
| P2  | 6                                  | Electrical engineering |
| P3  | 6                                  | Ecology                |
| P4  | 4                                  | Civil engineering      |
| P5  | 14                                 | Software engineering   |
| P6  | 2                                  | Material management    |
| P7  | 6                                  | Production management  |
| P8  | 13                                 | Software engineering   |
| P9  | 4                                  | Mechanical engineering |
| P10 | 3                                  | Quality processes      |
| P11 | 13                                 | Software engineering   |
| P12 | 3                                  | Mechanical design      |
| P13 | 4                                  | Mechanical design      |
| P14 | 10                                 | Logistics              |
| P15 | 10                                 | Software engineering   |

Finally, the condensed meaning units sharing a commonality were grouped in order to create themes and sub-themes.

During the second iteration, the raw data from the interviews were revisited in order to review the validity of the themes, using Nvivo v.11 as a tool to store and structure the data. Subsequently, both themes and sub-themes were revised to clarify demarcations and ensure that they were exhaustive. In a final step, possible relationships between sub-themes were explored to clarify patterns. The main themes and sub-themes are presented in Table 2.

## Results and analysis

The respondents' descriptions of how alike and different they perceived it was to teach online and to teach on campus yielded rich material. Two main themes emerged and are presented in Table 2: *the changing nature of the digital context* and *student-teacher interaction*.

### *The changing nature of the digital context*

A distinguishing theme of online teaching was the changeability of the digital teaching context. Respondents described how they had experienced a succession of digital teaching-learning platforms where each new platform presented different functionalities that in effect reconfigured the set-up of the teaching context. Changes in the digital teaching context were attributed to three sources: technology development, student influence, and teacher influence (sub-themes in Table 2). It was accepted as inevitable and natural that technology development should occur and lead to changes in the teaching context. Two short statements exemplified this: 'The technical complexity evolves' (P3), and 'New versions arrive continuously' (P10).

Student influence was the second source that could initiate changes in the digital teaching context. Student behaviour could directly influence how teachers configured parts of the digital teaching context:

The problem that we noticed was that the students slowly but surely disappeared from there [*the digital collaboration area offered by the course*], so that in the end it was deserted and we teachers were alone there and wrote 'Hello?' We asked the students where they had gone to [*description of an external collaboration service*]. And so we explored that service and it worked well and in the autumn we started using it instead. And it works first class. It is really good in every way. We use it for general conversation but not for exam purposes (P8).

The third and final source of changes in the digital teaching context was teacher influence. Respondents regarded the digital teaching context as malleable and described how they changed its configuration based on their own preferences. This happened when the existing teaching-learning platform did not accommodate specific teaching-learning activities or when its features did not meet the respondents' expectations. In two instances (P4, P8), groups of colleagues developed custom-built tools that they integrated into their teaching context. This was done in both instances because the respondents and their colleagues found that the teaching-learning platform provided by their university lacked features to adequately support their teaching-learning goals. Other

**Table 2.** Main themes and sub-themes in respondents' descriptions of teaching online and teaching on campus.

| Main themes                                | Sub-themes                                                                                                                                                                              |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The changing nature of the digital context | Technology development<br>Student influence on digital context<br>Teacher influence on digital context<br>Digital teaching-learning platform and addition of external interaction tools |
| Student-teacher interaction                | One-on-one/group communication<br>Close/anonymous student-teacher relationship<br>Class size<br>Time invested in teaching the course                                                    |

respondents would add functionality or replace the functionality found in their teaching-learning platform by adding pre-existing, external tools. Video services, conferencing services, chat forums and collaboration services are all examples of external tools added by respondents. Only three of the respondents relied solely on their teaching-learning platform; all other respondents added from one to five additional tools.

The changeability of the digital teaching context experienced by the respondents ranged from changes imposed by outside forces that they as teachers could not control (technology development), to changes they could choose to incorporate (student influences), to changes instigated and implemented by the teachers themselves (teacher influences).

### ***Student-teacher interaction***

The second main theme was student-teacher interaction with four sub-themes, see [Table 2](#).

The way in which the respondents communicated with online students and campus students differed. All respondents found that communicating with one student at a time, rather than with groups of students, occurred more frequently online than on campus. Individual online students would communicate directly with their teacher via e-mail, messages, telephone, in discussion forums or via video links. Teachers would respond in kind and answer the individual student directly. This happened in both small and large online classes. In contrast, contact with campus students consisted to a larger degree of teacher-class communication linked to lectures and exercises, formats that are prevalent on campus. All respondents reported a shift in communication towards more frequent one-on-one communication online.

The respondents varied in how they perceived their relationship with online students compared to campus students. Eight respondents found their online student relationship to be *closer*. They focused on the differences between the contact they had with their online students and their campus students: 'We actually established a closer contact with the [online] students than in a physical classroom' (P6). These respondents also indicated that this was unexpected: 'Those 30 sitting in a classroom [on campus], each of them tends to stay a bit anonymous, but in a distance course it becomes more personal. It is a bit contradictory' (P2). In contrast, five other respondents perceived their online students to be *more anonymous* than their campus students. They stressed the sense of distance between themselves and their online students: 'It does become a bit more anonymous when you teach at a distance. Often it's just a name on a paper' (P12). They also accentuated the qualitative differences between campus and online teaching: 'A physical meeting is superior to Skype and Adobe Connect [...]. In the end it is better to meet person to person' (P14).

The differences and similarities between respondents who found their relationship with online students to be closer and those who found it to be more anonymous were examined in order to gain insight into this variation. The respondents' perceptions of their student relationships were viewed in light of findings on three aspects: class size, time invested, and type of communication. No relationships could be established between these aspects; for an overview see [Table 3](#), Columns 1–4. The respondents taught online classes of varying size. However, class size did not show any clear relationship to whether the respondents perceived online students to be closer or more anonymous. Two respondents, P7 and P11, taught online classes which varied in size between 50–100 and 30–100 students, respectively, but they did not distinguish between the larger and smaller online classes when describing their student relationships. The respondents evaluated the amount of time they invested in preparing and teaching an online course, using as a baseline their own experiences of a comparable campus course. The variety among the respondents was minimal. Five teachers found that they invested slightly more time teaching online courses; one teacher found the time investment to be slightly less. The small variation in the respondents' estimations did not form a pattern. Finally, all respondents found one-on-one communication to be more frequent when teaching online. Since they all had similar experiences, no relationship was found.

**Table 3.** Variance in teachers' perceptions of student-teacher relationship (Column 1) viewed in light of four aspects: class size (Column 2), time invested (Column 3), type of communication (Column 4), prioritised teaching-learning activities (Column 5).

| ID  | Column 1<br>Student-teacher<br>relationship | Column 2<br>Class size | Column 3<br>Time<br>invested | Column 4<br>Shift to one-on-one<br>communication | Column 5<br>Prioritised teaching-learning<br>activities |
|-----|---------------------------------------------|------------------------|------------------------------|--------------------------------------------------|---------------------------------------------------------|
| P1  | Closer                                      | 25                     | Same                         | ●                                                | Social interaction                                      |
| P2  | Closer                                      | 80                     | More                         | ●                                                | Social interaction                                      |
| P6  | Closer                                      | 20                     | Same                         | ●                                                | Social interaction                                      |
| P7  | Closer                                      | 50–100                 | Same                         | ●                                                | Social interaction                                      |
| P8  | Closer                                      | 100                    | More                         | ●                                                | Social interaction                                      |
| P10 | Closer                                      | 70                     | More                         | ●                                                | Social interaction                                      |
| P11 | Closer                                      | 30–100                 | Same                         | ●                                                | Social interaction                                      |
| P13 | Closer                                      | 20                     | Same                         | ●                                                | Social interaction                                      |
| P5  | More anonymous                              | 10                     | Same                         | ●                                                | Student-subject interaction                             |
| P9  | More anonymous                              | 20                     | Same                         | ●                                                | Student-subject interaction                             |
| P12 | More anonymous                              | 60                     | Same                         | ●                                                | Student-subject interaction                             |
| P14 | More anonymous                              | 100                    | Less                         | ●                                                | Student-subject interaction                             |
| P15 | More anonymous                              | 100                    | More                         | ●                                                | Student-subject interaction                             |

### *Approaches to teaching and prioritised teaching-learning activities*

Since no relationships were found between the aspect of student-teacher relationship and any of the three aspects of class size, time invested and type of communication, the authors decided to query the material further. Other differences and similarities between respondents were explored by examining their approaches to teaching and their prioritised teaching-learning activities.

All respondents displayed characteristics associated with a student-learning approach to teaching. Respondents would focus on student learning and their students' study situation when discussing their own roles as teachers. An example is provided by a respondent (P15) who stated that the most important thing he did as a teacher was to create a framework that offered students the possibility to learn. Likewise, respondents found student activities and engagement to be central concerns when designing an online course:

It doesn't work just to upload a number of Internet lectures and then add an exam at the end. As a student you have to work actively with the material. You have to get them to work as a class and discuss with each other even though they are spread around the world (P6).

Respondents also reflected on how students learn when discussing their own roles as teachers:

[It is important] to push, to add a pulse to the discussions, to engage students. Because then their own activity level increases, their own pulse ... It is about creating pulse. By 'pulse' I mean that the brain really heats up (P10).

While respondents shared a student-learning focus, they varied in how they prioritised teaching-learning activities. Respondents *either* defined their first teaching priority to be to stimulate student-subject interaction *or* to stimulate social interaction.

Respondents who prioritised student-subject interaction would direct their teaching efforts towards creating stable and clearly structured frameworks for their students. This is illustrated by a respondent who described his priorities as a teacher: 'To plan well, to create a good structure for the course so that it is very clear to the students' (P14). They would also strive to create situations where their students actively engaged with the subject. Student learning was directly associated with student-subject interaction: 'There is a lot to do [for students] – to sit in front of the computer and program and see what happens. That is probably the most important' (P15 on a software development course). Timely in-depth feedback and responding to students were judged to be important in order to support student learning. One of the most important things a respondent did to support student learning was: 'To answer questions from students promptly so that they can get on with their own studies' (P5). An important role for these respondents was to imbue their students with a sense of immediacy and enthusiasm for the subject, which would lead the students to engage actively and

extensively with the subject. In contrast, respondents who prioritised social interaction would incorporate group collaboration and seminars as central activities in their courses. They found that social interactions between teacher and students were central activities in their courses: 'We invest a lot in providing supervision where you [the students] get help and where you get to discuss questions' (P7). This view is enforced by a respondent who pointed out that: 'Collaboration – that's the biggest part' (P10). Respondents described how the most important thing they did for students to learn was to show engagement and make it clear that they as teachers were accessible to students. They also expressed a desire for even more supervision time. One respondent pointed out the importance of establishing rapport with students; she summarised her role as a teacher in one short sentence: 'It is all about establishing communication' (P1). Likewise, an important part of the teacher's role was: '... to show that you are available, that you are present, that you are engaged [...] You have to be part of their development. You can't just leave them to the net as it were' (P13). Core activities for respondents who prioritised social interaction were supervision, providing meeting places, initiating dialogues, and initiating group discussions.

When mapping the differences in teaching priorities against the respondents' perceptions of their online student-teacher relationship, it was clear that those who described a *more anonymous* relationship also prioritised student-subject interaction in their courses. Those who described a *closer* relationship, on the other hand, all prioritised social interaction. See Table 3, Columns 1 and 5.

## Discussion

One of the main findings in this study concerns student-teacher relationships. They are more than just a trait of the overall atmosphere of a course; they can also influence student engagement and motivation (Frisby and Martin 2010; Handelsman et al. 2005). This is also true for online students; social engagement, including student-teacher relationships, is identified as a key element in online students' engagement with their studies (Redmond et al. 2018). In the same vein, Margalina, De-Pablos-Heredero, and Montes-Botella (2017) highlight the importance of high-quality student-teacher relationships for student satisfaction in online teaching and argue that both teachers' and students' satisfaction is important for the success of online courses. As generational identity changes, social interaction becomes increasingly important to students (Gerhardt 2016). Gerhardt's study of millennials and how they differ from prior generations of students, argues that teacher sociability plays an increasingly significant role in creating teacher credibility. The link between teacher credibility and learning outcomes is well documented; a meta study on teacher credibility highlights 'the meaningful role that teacher credibility plays in facilitating student learning' (Finn et al. 2009). In short, the social element in student-teacher relationships can affect student motivation, engagement, satisfaction and (indirectly) learning outcomes.

While teaching contexts have the potential to influence teachers and their teaching, the process is far from straightforward (Englund, Olofsson, and Price 2017; Lameris et al. 2012; Scott 2016). Scott (2016) called the process 'fluid' and found that teachers' beliefs, practices and reflections interact to inform how teachers think about online teaching. In the same vein, Lameris et al. (2012) suggested that the interaction between contextual factors and teachers' beliefs has a greater influence on how teachers go about their teaching than the actual features presented by the digital teaching-learning platform. More specifically, Englund, Olofsson, and Price (2017) found a relationship between conceptual change and teacher characteristics. Together these studies demonstrate that the effect contextual factors have on teachers and their teaching cannot be isolated, rather intrinsic and extrinsic factors coexist and interact to form teachers' practices and perceptions. The respondents in this study varied in how a change of context influenced their perceptions of their student-teacher relationship. In light of the above, the interaction between the respondents' priorities (intrinsic factors) and the features of the teaching context (extrinsic factors) may help explain this variation.

The respondents differed in their teaching priorities: they prioritised either student-subject interaction or social interaction. However, they agreed that a defining feature of the digital teaching

context was its changing nature. This was perceived to include changes due to technology development as well as to student and teacher influence. They found that they could adjust the functionality of the context to better suit student behaviour and their own teaching objectives. A key attribute of favourable teaching contexts is that teachers have some control over how they teach (Prosser and Trigwell 1997), and that the context is conducive to the type of teaching preferred by the teacher (Kember and Kwan 2000). By adding, exchanging and developing features, the respondents could exert a degree of control and configure the digital teaching context to become more conducive to their preferred type of teaching.

With this in mind, we propose that the variation in how the respondents perceived their student-teacher relationships is based on the interaction between the respondents' teaching priorities and the changing nature of the digital teaching context. In effect, the digital context allows a teacher to focus on either student-subject interaction or on social interaction more effectively than does the physical campus context. When teaching online, teachers can include or exclude features that support social interaction according to their teaching priorities. Teachers who prioritise social interaction can configure the one-on-one student-teacher interaction associated with online teaching to support two-way interactions, just as they can add functionality that is specifically designed to facilitate social interaction. On the other hand, teachers who prioritise student-subject interaction can channel the one-on-one student-teacher interaction to question-answer formats, which entails little social interaction. They can choose functionality that supports student-subject activities and omit functionality that is specifically designed to support social interaction.

When teaching face-to-face on campus, the social element of student-teacher interaction cannot be included or excluded as easily. Classrooms and lecture halls on campus are stable structures generally designed to frame teacher-class interaction. Teachers who prioritise social interaction will find that lectures and exercises create situations that act to promote teacher-class interaction rather than individualised interaction. To establish social interaction with individual students in this setting demands more organisation from the teacher than does teacher-class interaction, and therefore presents a higher threshold. Teachers who prioritise student-subject interaction can focus on activities that promote this in class. However, the shared space and physical co-presence inevitably includes some social interactions, even if the teacher does not attribute pedagogical value to it. This line of reasoning is based on the interaction between intrinsic and extrinsic factors and offers a possible explanation of the variation in how the respondents perceived their student-teacher relationships.

This study provides insight into how 15 university teachers perceive the differences between teaching online and on campus. One of the characteristics of small, qualitative studies like this is that they interpret the specific (Cohen, Manion, and Morrison 2011, 46). What is specific in this study is represented by the characteristics of the respondents, their interpretation of their experiences, the particular subjects they teach, and their actual teaching situations. To explore the extent to which the specific can be generalised, this study could be repeated with a larger sample including different disciplines and courses. Conducting a longitudinal study that focuses on how teachers' experiences of online teaching evolve would add to the snapshot provided by the present study.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Paper II





**Will technology allow me to be the teacher I want to be?**

***An autoethnographic study of how technology influences a teacher's decisions***

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## **Will technology allow me to be the teacher I want to be?**

### ***An autoethnographic study of how technology influences a teacher's decisions***

This study illustrates how technology can influence the decisions a teacher makes when her course moves online. In an autoethnographic approach, points of interaction between technology and beliefs about learning were explored. Using emotions as a tool, feelings of insecurity, frustration, joy, and confidence were connected to occurrences in the course. The points identified were explored by comparing teaching–learning activities in the campus version and the online version of the course. The main difference was a separation of teaching–learning activities. What had been integrated and overlapping activities on campus were split into two types online: activities involving dialogue and activities involving student–content interaction. Decisions about teaching–learning activities were found to be influenced both directly and indirectly by technology, direct influence being related to the functionality of technology, indirect influence to student behaviour. The way technology influenced student behaviour was found to vary with student group size.

Keywords: Higher education; teaching methods; technology uses in education; teacher–student relationship

## **Introduction**

I was about to become an online teacher. For over ten years, I had taught my project development course on campus, but now I was leaving the comfortable and well-known campus environment to move my course online. The decision to do so represented a major change. Not that the course I had taught for so long had stayed the same over the years: each new academic year had seen minor adjustments, implemented to address pedagogical challenges. However, these changes had been slow and gradual. The decision to move the

course online was different. It was abrupt and involved dramatic change. I was not averse to online education and I certainly did not consider it inferior to campus education, but I knew it was different.

Teaching and learning can be seen as a transaction between two parties, teacher and student (Bakhurst, 2020). However, the nature of this transaction changes when teacher and student no longer meet face to face, but have to rely on technology to bridge the distance between them. As a result, the teacher–student interaction we know from the classroom is replaced with teacher–*technology*–student interaction. Although it remains a transaction between two parties, a third entity, technology, has been inserted between them (see Figure 1).

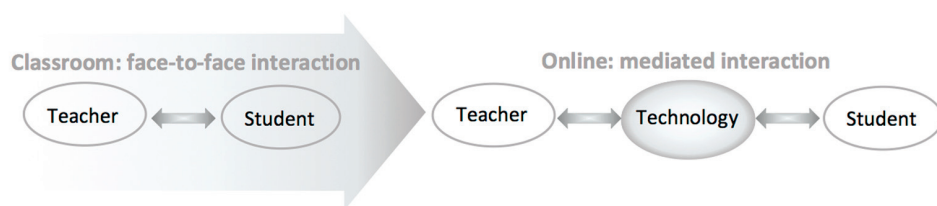


Figure 1. Teaching in a classroom allows teacher and student to interact face to face. Online, all interaction is mediated, in effect a third element (technology) being inserted between teacher and student.

This was very different from the teaching practices I had relied on for so long. The teaching–learning activities in my course and, indeed, my identity as a teacher were linked to the physical classroom and face to face meetings with my students. I had never envisioned my project development course as an online course or myself as an online teacher. This text charts my journey from the physical classroom to an online context and describes the decisions that shaped the new version of my course. Theories of distance education guide the journey, while an autoethnographic approach allows room for my emotions and experiences.

## **Distance and presence**

Setting out, the questions uppermost in my mind were: How could I bridge the distance between my students and myself? How would I fare as a teacher? I was of course not the first person to ponder this, as teaching at a distance has a long history and others had asked these questions before me. Börje Holmberg was one such teacher and theorist. During the second half of the twentieth century when the mediating technology was physical mail going back and forth between teacher and student, he explored how teachers can support student learning at a distance (Holmberg, 2003, 1995). He saw the distance student as an individual who was learning alone. The teacher's role was to promote study pleasure and motivation, which could be achieved by establishing personal rapport between student and teacher (Holmberg, 1999, 1989). Although letter writing is a slow and non-contiguous form of interaction, Holmberg found that the sense of a personal relationship can be established when the teacher adopts a friendly and conversational style of communication (Holmberg, 1989). At a later time, Michael Moore also explored the relationship between teacher and distance students. He argued that the distance between teacher and student should be regarded as a psychological rather than a physical factor, calling this the 'transactional distance' (Moore, 1973, 1993). Accordingly, a major concern for distance teachers is to reduce the perceived distance between themselves and their students. Moore defined two variables that influence how students perceive this distance, i.e., dialogue and structure, with the learning outcome also being influenced by how autonomous the students are. These variables interact, although dialogue was found to play a central role in reducing the distance (Best and Conceição, 2017; Saba and Shearer, 1994). Although Holmberg's 'conversation' and Moore's 'dialogue' are similar, they are not identical concepts. 'Conversation', as Holmberg used the term, indicates a style of address, whereas Moore used the term 'dialogue' in the same sense as Bohm et al. (1991), who defined dialogue as exploratory and found that it involves creative participation. Where Holmberg and Moore both focused on the *distance* between teacher and students,

Garrison et al. et al. (2003, 1999) concentrated on teachers' and students' *presence*. In their *community of inquiry model*, they defined three types of presence: social, cognitive, and teaching presence (Garrison et al., 1999). All three are needed in order to create a community. Whereas social presence and cognitive presence relate to participation and student engagement, teaching presence describes the teacher's role, comprising two aspects of being a teacher: designing the learning experience and facilitating teaching–learning activities (Anderson et al., 2001; Garrison et al., 2010).

Holmberg's, Moore's, and Garrison et al.'s beliefs about teaching and learning are largely aligned with one another. They agree that social interaction is important for student learning and, accordingly, that teachers should strive to build relationships with their students. Their differences lie in *how* this should be done. The three approaches represent growing complexity from simple conversation (Holmberg), through dialogue (Moore), to community (Garrison et al.). Each approach was formulated within a specific technological context and each had to make use of the functionalities offered by the available technology: at Holmberg's time the mediating technology was physical letters moving back and forth between teacher and student; Moore experienced the infancy of digital media, while Garrison et al.'s work is situated in a more contemporary setting with the emergence of interactive social media. Each successive technology offers a wider range of functionalities than does its predecessor. Despite the apparent interaction between technology and these scholars' beliefs about teaching and learning, they all intriguingly ignore the importance of the technological context itself and treat it as given in their approaches. Although Garrison et al. (1999) sees potential in technology and argues that more advanced technology will make communication easier, he does not include technology in his model. Moore (2004) for his part, finds that dialogue between teacher and student is influenced by the 'medium of communication' (p. 157), but warns not to put too much store in the tools. Otherwise, the role technology plays is treated as

incidental and is not conceptualised in any of the three approaches. Indeed, each approach pushes the available technology almost beyond its capabilities. Holmberg found it essential that students could share moments of discovery and intellectual experience with their teachers (Harry et al., 2013), although the mediating technology (letter writing) meant that ‘sharing’ involved days of waiting for a letter to arrive. When Moore (1973, 1993) defined interactive dialogue as central to student learning, he did so at a time when Internet connections were notably slow and communication primarily asynchronous. Garrison et al.’s (1999) concept of social presence builds on the concept that teachers’ and students’ online presence can truly represent who they are as persons, both intellectually and emotionally; this is an ambitious proposition even in light of today’s communication technology. It is apparent that while the three approaches are influenced by and dependent on the available technology, technology does not define them. Rather, in the context created by the available technology, Holmberg, Moore, and Garrison et al. envisioned different possible roles for the distance teacher based on their beliefs about teaching and learning. An overview of their differences and areas of agreement is presented in Table 1.

|                                          | <b>Holmberg</b>                                       | <b>Moore</b>                                                    | <b>Garrison, Anderson,<br/>and Archer</b>                                        |
|------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------|
| <b>Beliefs about learning</b>            | Social constructivist                                 | Social constructivist                                           | Social constructivist                                                            |
| <b>Understanding students as</b>         | Individual learners<br>Self-directed                  | Individual learners<br>Self-directed                            | Groups of learners<br>Socially dependent                                         |
| <b>Primary type of<br/>communication</b> | Teacher to student                                    | Interactive between<br>teacher and student                      | Interactive including<br>teacher–student and<br>student–student<br>communication |
| <b>Best practice</b>                     | Conversational style of<br>address<br>Show of empathy | Engage student in dialogue<br>Balance dialogue and<br>structure | Design learning experience<br>Facilitate teaching–learning<br>activities         |
| <b>Technology</b>                        | Physical mail                                         | Digital communication                                           | Interactive digital<br>communication                                             |

Table 1. Overview of differences and areas of agreement regarding beliefs about learning and approaches to distance education.

Together Holmberg's, Moore's, and Garrison et al.'s points of agreement and difference as well as omissions illuminate the challenges awaiting a teacher moving from campus to an online setting. They agree that social interaction is essential for student learning and that establishing social relationships is a major challenge in distance education. Yet they offer three different conceptions of relationship building and of what it means to be a distance teacher, differences apparently related to their specific technological contexts. However, Holmberg, Moore, and Garrison et al. all neglect to conceptualise technology and it is unclear just how their beliefs about teaching and learning interact with the technological context. As a teacher moving to an online setting I needed to know how technology would influence my teaching. I would no longer be able to meet my students face to face; instead, technology would be inserted between us and all our interaction would be mediated by it. Holmberg's, Moore's, and Garrison et al.'s models did not include technology, so I had to find out its role for myself: Would technology allow me to be the teacher I wanted to be?

### **Emotions as a tool**

At a theoretical level, I was curious about the interaction between technology and teachers' beliefs about teaching and learning. I wondered how this interaction might influence the decisions teachers make about their courses. At a practical level, I faced the immediate challenge of meeting my students across a distance and becoming an online teacher. By combining curiosity about the phenomenon and my own journey, I took the step into autoethnography. In autoethnography the researcher simultaneously observes and participates, and the aim is to illuminate rather than provide positive proof or confirmation (Bullough and Pinnegar, 2001; Douglas and Carless, 2013). Autoethnographers argue that there are other ways of knowing than those evident in traditional research (Jones et al., 2013); they welcome emotion and see autoethnography as a way to openly acknowledge that the researcher

influences the research (Ellis et al., 2020). Whereas traditional research separates the researcher from the phenomenon and seeks objectivity, autoethnography welcomes subjectivity. Lived experience is understood as data and researchers are allowed to be conscious participants in their own narratives (Boylorn, 2021). The objective is to extract meaning from experience, and one way to do so is to use the personal narrative. Rather than providing a mechanical step-by-step account, the personal narrative explores the intersection between the self and the arena of practice (Bochner, 2000; Bullough and Pinnegar, 2001; Ellis et al., 2020). Adams, Ellis, and Jones (2017) describe autoethnography as a research method that ‘uses personal experience (“auto”) to describe and interpret (“graphy”) cultural texts, experiences, beliefs, and practices (“ethno”)’. Thus, autoethnography, through its exploratory purpose, coincided with my personal need to disentangle my own experience of online teaching and the role of technology.

In the tradition of autoethnography, I allowed emotions to guide me through the process of transforming my course. Feelings of insecurity, frustration, joy, and confidence helped me identify points where features of the mediating technology interacted with my beliefs about teaching and learning. To relate my emotional responses to occurrences in the course, differences between the original course and the new online version were documented. The documentation covered teaching materials, teaching–learning activities, notes, and course structures. The points identified by using emotions as a tool were then explored by comparing activities between the original and new versions of the course, noting the decisions leading to the changes, and identifying my arguments for making the changes. Doing so opened the decision process to analysis and discussion with a fellow researcher; it also served to counteract the risk of solipsism, as noted by Bullough and Pinnegar (2001). The course I taught first on campus and then online was a project development course involving both theoretical and practical aspects of project development. It was a mandatory course for third-

year computer science students at the bachelor level, and 35 students were enrolled in the course. The technologies used were Zoom, Canvas, and e-mail, and the course did not include any physical meetings. My role included responsibility for designing, planning, and teaching the course, and the term ‘teacher’ is used throughout this text to cover these different aspects.

### **Insecurity, frustration, joy, and confidence**

Setting out, the aim was to keep the course intact and make as few changes as possible to the teaching–learning activities. A defining feature of the original course was *clustered activities*. Based on a social constructivist conception of learning, I believed student learning to be stimulated by rich and varied activities. This had led me to include a series of compound sessions in my campus course. Each session would engage the whole class of 35 students and include varying activities clustered around a theme and generally last four to six hours. Typically, a session would consist of a mixture of short lectures, discussions, exercises, and presentations. By seamlessly combining the activities and allowing them to overlap, the aim was to stimulate students to bring together different aspects of the theme and thus support their learning.

### ***The compound session***

Moving online, my intention was to reproduce this type of session. During the planning phase preceding the course, I found that each of the activities (lectures, discussions, exercises, and presentations) was supported by the technology. However, I soon lost confidence and started to doubt. Technology could support class activities online, just as it supported break-out groups, but what about the interface between the two? A student who is sent to a break-out group faces an abrupt transition: first an empty screen, a count-down, and then a moment of reorientation when the rest of the group arrives and is recognised. This transition separated the

activities rather than seamlessly combining them, as was my intention. As a teacher I could enter one group at a time, but I would no longer have an overview of all groups. I would lose a sense of the general activity level in the class as well as of the rhythm and dynamics of the different groups. This was information I had relied on in the classroom to help me decide how and when to move on to a different activity. A sense of insecurity seized me when I realised just how demanding it would be to combine different types of activities, keeping track of people, activities, and software status while holding on to the session's theme. I felt this to be beyond me online. I had to relinquish the idea of clustered activities and find a solution better adapted to the technological context. As a result, the compound sessions were replaced by instructions, videos, and texts supporting student-content interaction. Effectively, I gave up my own intimate involvement in the activities. My contribution to the learning process, which had included dialogue and personal participation within the classroom community, was now transformed into separate artefacts (videos, texts, instructions, and exercises).

### ***The lecture***

Lectures had been part of the original course and I planned to go on lecturing online. I did not expect this to be a problem. Technology allowed me to be heard and seen by the class, to turn my slideshow on and off at will. It also allowed students to comment, to ask and answer questions. However, lecturing online turned out to be deeply frustrating. I found myself lecturing to an empty screen and found students to be reluctant to use their microphones and cameras. While it was possible for students to turn on their cameras, they explained that they felt uncomfortable and had trouble concentrating if they knew they were on camera. When prompted to respond, they also preferred to use the chat panel, rather than turning on their microphones to do so. I could no longer watch the interaction between students, see their body language, or listen to their tone of voice. This left me without the feedback I used to rely on to pace and adapt my lectures. I could not tell whether the students were following or were lost,

alert, or bored. My inability to ‘read the class’ made me feel insecure, and as a result I presented lectures devoid of rhythm and life. As I believe that the lecture’s role in the learning process is to stimulate curiosity and to motivate, rather than to transfer knowledge, a lifeless and rigid lecture is of little value. Consequently, all live lectures were converted into videos, texts, and exercises. Once again, my presence in class was replaced by artefacts.

### ***Small group sessions***

While insecurity and frustration accompanied activities that involved the entire class, *meetings with small groups* of students turned out to be a joyful experience. Each student group consisted of five students. Interacting with these groups and individual students, I felt confident in my role as an online teacher. I believe student learning to be influenced by social interaction. Accordingly, my ambition was to be a teacher who was available to my students, who showed interest in their thought processes and progress, and who knew them, at least by name. Technology supplied a context that made it possible to pursue these goals. In the smaller and more intimate groups, students had no reservations about turning on cameras and microphones. When they appeared on my screen, sitting in their own workspaces, often surrounded by their personal belongings, they seemed relaxed and focused, more so than they generally do when they enter my office at campus. Obviously, they had not rushed to arrive on time and they were in no hurry to move on afterwards; there was no bustling about disposing of coats, arranging chairs, connecting and logging in on laptops. During the meetings, students would share their screens, allowing fellow students and myself to calmly study their work on our own screens, while we were guided through their thought processes. Together this added a sense of calm and focus to the meetings, an atmosphere that seemed to support open and easy dialogue. A small detail: the software neatly tagged all students on my screen with their names, eliminating the risk that I might forget names or mismatch faces and names. By removing some of the clutter and disturbance connected with physical meetings,

technology simplified the student meetings. I found that this simplification supported my desire to establish dialogue and become part of my students' learning process.

### **The changes**

The course was transformed, and I felt I became a different teacher online from the one I was on campus. I had not foreseen this. Although I had been prepared to make adjustments, I had not intended to implement the major changes I did. Certain teaching–learning activities were left out, namely, all live activities involving all students in the course. The reasons for leaving them out were linked either to characteristics of the technology or to students' responses to the technology. One such characteristic was that technology limited the flow of information between students and myself. Explicit information (sound, images, documents, text, etc.) could be shared, but implicit information was lost. This included information inherent in student interactions, such as students' unspoken and unrecorded reactions, all the little cues that are not spoken aloud but can nonetheless be sensed in the physical classroom. Another characteristic of the technology was that it allowed discrete activities, but did not permit them to be blended and overlapped. My need for smooth and seamless transitions between activities was not met. Students were also influenced by the technology, although their responses to it could vary from one social context to another. One such variation concerned the use of cameras and microphones. In one social context (with all enrolled students present) the use of cameras and microphones led to a sense of discomfort, so they were not used, whereas in a different social context (small groups of students) cameras and microphones were seen as neutral and, accordingly, were used. When students refrained from using their cameras and microphones, they became an unseen and silent audience and both implicit and explicit information was lost. In short, while technology largely supported the class activities I had planned, its characteristics and its influence on student behaviour collided with my intentions as a teacher: it offered explicit information and discrete activities, whereas I needed implicit

information and overlapping activities. However, this conflict between my intentions, on one hand, and technology and student behaviour, on the other, only occurred during activities in which a large group of students participated. In contrast, technology added value to activities involving small groups of students. These latter activities invited students to participate actively, express their thoughts, and share their material. This resulted in a rich flow of explicit information, which compensated for the lack of implicit information. At the same time, technology reduced distractions, eliminating a number of trivial actions normally connected with physical meetings. Together this established a context that supported dialogue and participation and thereby my intentions.

The resulting changes to the course all led in the same direction. In the original course the classroom had framed different types of interaction. The students and I would move seamlessly between activities that involved dialogue (social interaction) and activities in which students engaged with the subject matter (student–content interaction). In the online version of the course, these two types of activities were separated and took place in two different social contexts. Now, activities based on dialogue took place in small groups of students, while those relying on student–content interaction involved all students in the course. These latter activities were framed and supported by digital content (such as videos, texts, and exercises) and did not include dialogues and meetings (see Figure 2).

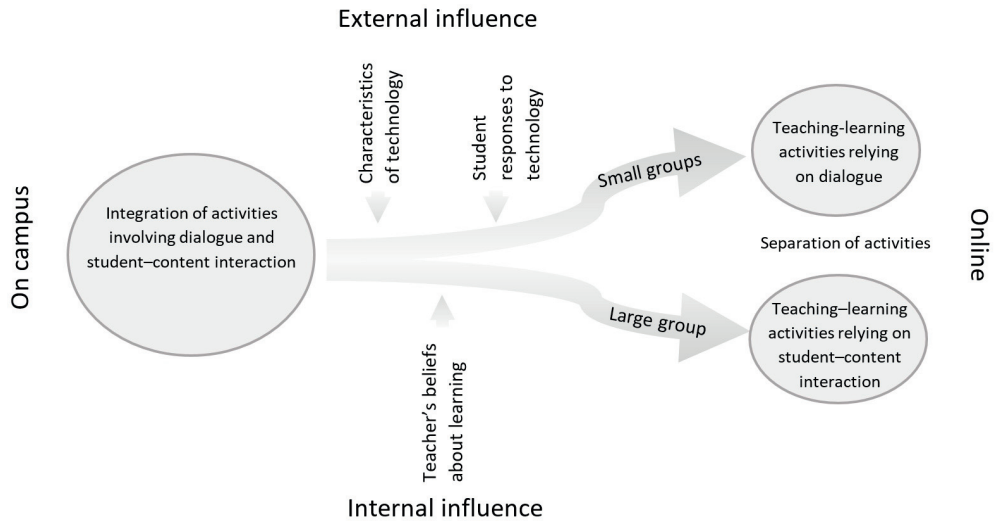


Figure 2. In the online version of the course, teaching–learning activities were separated into two types: activities involving dialogue and activities involving student–content interaction. This separation was related to the number of students involved in the activity and to the characteristics of the technology. Activities relying on dialogue took place in small groups, while those relying on student–content interaction involved all students enrolled in the course. The changes were influenced both by the teacher’s beliefs about learning (an internal factor) and by factors the teacher could not control (external factors).

## Discussion

The main difference between the original and the new versions of the course was the separation of teaching–learning activities. What had been integrated and overlapping activities were split into two separate types of activities. Likewise, my role as a teacher changed. On campus the different aspects of being a teacher had been integrated, while online my teaching efforts were divided into two distinctly different roles. Regarding individual students and small groups, I became a participant; regarding the class, I focused on my role as an organiser and instructor.

When Holmberg (2003, 1995) developed his theory of teaching and learning, he did so in response to the specific context that defines distance education. He reasoned that this

context had little in common with that of traditional education, so approaches developed for traditional education would be of little help (Holmberg, 2003, p. 38). He saw distance education as two-dimensional and defined it as constituted by two separate elements: first, *interaction between students and teacher* and, second, *subject-matter presentation* (Holmberg, 2003, p. 9). The first consisted of two-way communication between teacher and student, the second of one-way communication from teacher to student. Like Holmberg, Moore (1993) found that two separate variables were critical in distance education. One of these was the positive interaction between teacher and student ('dialogue'), while the other encompassed design, organisation, and structure ('structure'). The balance between dialogue and structure influenced how students perceived the distance from their teacher. With more dialogue and less structure they felt closer to their teacher, whereas with more structure and less dialogue the perceived distance between themselves and their teacher increased (Saba, 2016; Saba and Shearer, 1994). This is important because how students perceive this distance is associated with their satisfaction, motivation, and perceptions of their own learning (Bolliger and Halupa, 2018; Dron et al., 2004; Kara, 2020).

Translated to actual teaching, Holmberg's and Moore's theories paint very similar pictures. Distance education is seen as two-dimensional, with one dimension involving teacher–student interaction and the other organising student–content interaction. While the community of inquiry model (Anderson et al., 2001; Garrison et al., 1999) presented a somewhat different picture by including student–student interaction, it still defined *social presence* and *teaching presence* as separate elements and, in addition, distinguished between the teacher's role as a participant ('instructor presence') and as an organiser and facilitator of interaction ('teaching presence') (Richardson et al., 2015).

In light of these theories, it becomes apparent that the new version of my course was not unique. Rather, when I divided the teaching–learning activities into two non-overlapping

types, this was in keeping with how the theories understand distance education. However, there is a gap between these theories and my experience. While the theories conceptualise distance education and discuss its two-dimensional nature, they provide little guidance to a teacher who has to navigate these dimensions. Like other teachers in similar situations, I had to find the right balance between the two types of teaching–learning activities and answer the question: *When should I design a teaching–learning activity around dialogue and when would it be better to rely on student–content interaction?* This is not a trivial question since, in distance education, teacher–student relationships are established and maintained by different means for each of the two types of activities. Teaching–learning activities relying on dialogue allow students and teacher to directly form a connection. This can be supported by the teacher’s ability to show engagement and empathy (Holmberg, 1991) and ask questions rather than provide answers (Moore, 2001). In contrast, teaching–learning activities relying on student–content interaction entail a more indirect approach. In these situations other means, including use of student names and reminders of upcoming due dates, serve to forge a connection between student and teacher (Richardson et al., 2015). Students also rely on occasional interaction and available social cues to form personal impressions (Weidlich and Bastiaens, 2019a, 2019b). In short, the balance between the two types of teaching–learning activities affects both teacher–student relationships and the teacher’s role vis-à-vis the students.

Although I was responsible for the course design, I did not feel entirely free to follow my intentions when designing and balancing teaching–learning activities. Originally, I had not intended that activities relying on dialogue should be reserved exclusively for small groups of students, or that activities involving all students in the course should rely on student–content interaction; instead, I had aimed for a more integrated approach. As shown here, a series of decisions over time gradually led to this outcome.

To gain more control over any decision process, we must recognise and become familiar with the factors that influence it – in the present case, the role played by technology. This can also help bridge the gap between the theories of distance education and the decisions teachers have to make about teaching–learning activities. A step in this direction would be to distinguish between technology’s direct and indirect influences. *Direct influences* include factors linked to technology’s functionality, i.e., what is and is not supported by technology. In contrast, *indirect influences* concern how technology can affect student behaviour (see Figure 3).

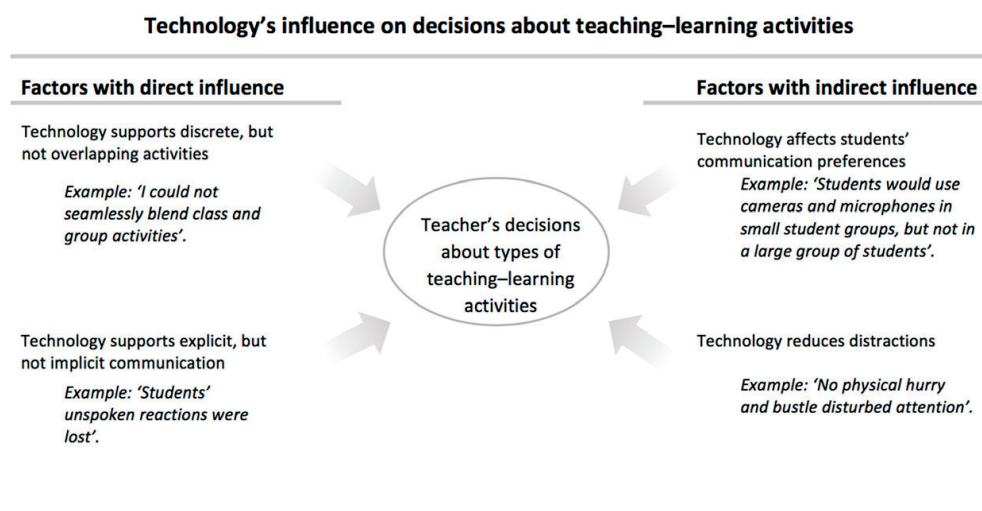


Figure 3. Technology’s influence on teachers’ decisions about teaching–learning activities can be divided into direct and indirect factors. Direct factors concern technological functionality, i.e., what teachers find that they can or cannot do with technology. Indirect factors concern technology’s influence on student behaviour, which can vary between social situations.

Technology’s direct and indirect influences triggered my emotional responses during the migration of the course. I felt insecure, frustrated, joyful, or confident by turns when my intentions as a teacher met with technology’s influential factors. This interaction between my intentions and these factors inspired the decisions I made. I gave up compound sessions in

response to a direct factor: lack of functionality for overlapping activities. A combination of direct and indirect factors influenced my decision to leave out live lectures: the direct factor was lack of functionality for implicit communication, while the indirect factor was the effect on students' communication preferences. My decision to prioritise teaching–learning activities based on dialogue in small groups of students was influenced by two indirect factors: reduction of physical disturbances and the effect on students' communication preferences.

The list of direct and indirect factors presented here is by no means exhaustive; instead, its brevity could inspire further reflection. We are also aware that analyses of specific technologies have short-lived relevance due to rapid technological development, so the direct influence of technology is likely to change at an equal pace. However, the technological factors discussed here are not linked to specific software solutions. Rather, they are generic characteristics of contemporary digital communication technology and, until the arrival of new technological solutions, we suggest that they be considered when discussing approaches to online teaching–learning.

In contrast to the rapid technological development, social patterns change slowly. It is reasonable to believe that students will continue to respond differently to technology in different social settings. Accordingly, the indirect influence of technology is likely to change much more slowly than is direct influence. From a practical point of view, it is worth noting that while teachers and educational institutions have little control over technological development as such, they do have direct control over a number of aspects concerning students' social contexts (e.g., size of student groups). In light of this, it would be worth continuing to explore how student reactions to technology vary with changes in the social aspects of their learning context.

As an autoethnographic study, this is by nature an extreme close-up depicting the microcosm of one teacher teaching one course. As such it does not offer proofs, though by providing an inside view of a decision-making process it contributes a unique point of view and builds our many-faceted understanding of online teaching. The reader should regard it as an invitation to continue exploring what it means to teach in an online context. Our hope is that the short list of direct and indirect factors identified here will be expanded and supplemented by future studies.

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