


# Facing Radical Digitalization: Capturing Teachers' Transition to Virtual Classrooms Through Ideal Type Experiences

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## Abstract

In 2020, a global pandemic changed the educational landscape overnight and caused an abrupt transition to virtual classrooms. This study aims to gain increased knowledge of teachers' experiences of facing such radical digitalization through ideal types. The data include a teacher survey with 1109 respondents from 15 high schools in Sweden, containing both fixed and open-ended response types. Educational affordances and digital competence are used as analytical lenses. The results show distinct differences regarding teachers' perception of how teaching in a virtual classroom has worked and whether they and their students have developed their digital competence during this period. We present four ideal types: a) the enthusiast, b) the skeptic, c) the pessimist, and d) the affirmative, which capture the essence of teachers' multifaceted experiences, actions, and affordances perceived in the transition to virtual classrooms. Contributions include theorizing about teachers' encounters with radical cases of digitalization.

## Keywords

digitalization, distance education, virtual classroom, high-school, digital competence, COVID-19, ideal-type analysis

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## **Introduction**

The COVID-19 pandemic shattered everyday life as we know it and disrupted schooling globally, forcing schools to improvise to ensure continuity of teaching (Harris & Jones, 2020; Willermark, 2021; William & Stéphan, 2021). Maintaining education in a time of global disruption has become an important yet challenging task for the global education community (Huang et al., 2020; Shamir-Inbal & Blau, 2021). The unplanned and unprecedented disruption to education changed many aspects of the work suddenly (Kaden, 2020). In Sweden, as in many other countries, high school administrators, teachers, and students were met by the message from the authorities to immediately switch to distance education (Willermark, 2021). Even though this form of distance education does not constitute a new phenomenon, it was new to most teachers. It has been suggested that the situation meant that many teachers experienced the single most traumatic and transformative event of the modern era (Kaden, 2020). For example, challenges include creating content for online spaces, learning new delivery tools, and becoming familiar with online pedagogy (Hartshorne et al., 2020). Studies also report challenges caused by insufficient technological and pedagogical support at the local school as well as a lack of competence and experience in using digital technology daily (Dong, 2020; Whalen, 2020). Teaching in a virtual classroom affords different teaching and learning activities (Bannan et al., 2016; Willermark, 2021) and places new demands on both teachers' and students' digital competence. This study sheds light on teachers' experiences from suddenly conducting teaching in a virtual classroom. That refers to an educational setting where teaching and learning activities are conducted "in the cloud" using information technology. Previous studies have suggested that teachers' digital competence is highly diverse (Niess, 2015; Pareto & Willermark, 2019; Tondeur et al., 2019; Willermark, 2018) and studies have tried to capture teachers' digital competence through different profiles (e.g., Scherer et al., 2021; Tondeur et al., 2018; Tondeur et al., 2019). This study aims to gain increased knowledge of teachers' experiences of facing radical digitalization. Specifically, the study explores teachers' experiences by creating ideal types based on 1) how they perceive that teaching in a virtual classroom has worked and 2) whether they perceive that they and their student have developed their digital competence due to teaching in a virtual classroom.

## **Related Work**

There is now a stream of research that addresses teaching and learning in light of the pandemic from different perspectives (e.g., Carpenter et al., 2020; Hartshorne et al., 2020; Kaden, 2020; Leithwood et al., 2020). For example, Loeb and Windsor (2020) have studied the effects of pandemics from the students' experiences. The study shows that many students struggle with depression, anxiety, and stress, and feel uncertain about how to handle their studies in the new educational landscape. There are also emerging insights about educational leadership during the pandemic. Research stresses

that the principles of fruitful leadership remain, such as building a collaborative culture and distributing leadership (Leithwood et al., 2020). Furthermore, as a consequence of the social disruption, distributed leadership has gained ground among school leaders as a way to address the challenges by collaborating, learning, and networking their way through different kinds of issues (Azorin et al., 2020). As in this study, there is also previous research that focuses on teachers' experiences. Kaden (2020) highlights how the transition to virtual classrooms brings an increased workload for the teacher. Willermark (2021) explored teachers' experiences of interaction in virtual classrooms and drew a multifaceted picture of interaction that involves both increased and reduced contact with, and control over, the students and their activities. A stream of research illustrated teachers' need to establish rich, diverse, and supportive communities in light of the pandemic (Hartshorne et al., 2020). For example, Carpenter et al. (2020) explored teachers' social media usage, to navigate the transition to virtual classrooms, and how interaction among popular hashtags was used to address the numerous unique and frequently evolving issues related to teaching in the time of COVID-19. It acted as "just-in-time affinity" spaces meeting educators' cognitive, social, and affective needs. Whalen (2020) studied teachers' experience during the crisis and identified an important variation in teachers' readiness to use technology to teach in virtual classrooms. Teachers who regularly used technology in their everyday teaching practice reported an easier transition to virtual classrooms both for themselves and their students. However, the results indicate that most teachers seemed to be "building the plane while flying it," that is, learning approaches to teach in the virtual classroom in the context of a virtual classroom. Thus, there is a lack of preparation for designing quality technology-based instruction (Christensen & Alexander, 2020; Gudmundsdottir & Hathaway, 2020; Whalen, 2020), which has created both additional stressors and barriers to effective teaching (Whalen, 2020). The study has similarities with previous research that examines the effects of the pandemic in general and that takes teachers' perspectives into account in particular. However, through a comprehensive study with both qualitative and quantitative data, we conduct an ideal type analysis to capture the essence of teachers' experiences through a distillation of main components that surround their experience.

## Theoretical Perspectives

In the context of this study, teachers' conditions for teaching changed radically. Educational affordances and the concept of digital competence are used as analytical lenses to explore teachers' experiences of facing radical digitalization.

### *Educational Affordances*

Teaching in a virtual classroom affords new teaching and learning activities and interaction patterns (Bannan et al., 2016; Willermark, 2021). Affordances were introduced by Gibson (1977) and were applied in a computer context by Norman (1988).

Since then, the theoretical perspective of affordances has been developed by various researchers (Islind et al., 2019), and important work includes, but is not limited to, social affordances (Bradner, 2001), technology affordances (Gaver, 1991; Kaptelinin & Nardi, 2012), and educational affordances (Kirschner et al., 2002). Educational affordances refer to the relationships between the properties of an educational intervention and the characteristics of the learner that enable particular kinds of learning (Kirschner et al., 2002). In this context, educational affordances refer to the perceived and actual properties of the virtual classroom that denote the possible actions that are available to a user (Michaels & Carello, 1981). The possible actions are often multifaceted and *opaque* in the sense that they are not immediately apparent (Bannan et al., 2016; Holmberg, 2014). Thus, affordances do not determine specific behavior but shape the potentials of channeling specific behavior toward action (Faraj & Azad, 2012). Different teachers (as well as students) might perceive different affordances in the same technology. When the environment around us changes, so do affordances, which means that an individual can have more or fewer opportunities for action. As teachers digitalize their teaching practice, they might discover ways of using digital technology that afford their pedagogical intentions and actions in new ways. How teachers perceive, interpret, and make use of digital technology in an educational context can be linked to their digital competence, which is elaborated on below.

### *Digital Competence*

The digitalization of school changes the conditions for teaching and learning and sheds light on “digital competence” as an important ingredient in education. However, the concept is elusive, since the preconditions, opportunities, and challenges, in addition to the contextual and societal circumstances, change over time (Olofsson et al., 2020). There have been many efforts to pinpoint the meaning of digital competence in an educational context (Hatlevik & Christophersen, 2013; Howell, 2012; Kivunja, 2013; Krumsvik, 2008; Mishra & Koehler, 2006; Pettersson, 2018). Typical for the ideas is that they often stress that teachers’ digital competence acts in complex organizational systems and thus denotes a more multifaceted set of competencies compared to “digital competencies” needed in other areas of society (Instefjord & Munthe, 2016; Krumsvik, 2008; Mishra & Koehler, 2006; Pettersson, 2018). Thus, it requires more than basic technological skills, as it is about integrating them in an educational context, as a pedagogical resource. For example, Mishra and Koehler (2006) conceptualize the complex intersection of technological, pedagogical, and content knowledge within given contexts. Kivunja (2013) outlines digital competence as “the art of teaching, computer-driven digital technologies, which enrich learning, teaching, assessment, and the whole curriculum” (p. 131). Krumsvik (2008) suggests that teachers’ digital competence entails teachers’ proficiency in using technology in a professional context, with good pedagogic-didactic judgment and awareness of its implications for learning strategies. From these perspectives, digital technologies are considered to support pedagogical knowledge and methods. In a recent study, Olofsson et al. (2020) explore

teachers' enacted digital competence and conclude that digital competence depends on local and contextual conditions and is enacted based on the individual teacher's value framework.

## Method

Below is a brief description of the empirical context followed by a report of data collection and data analysis.

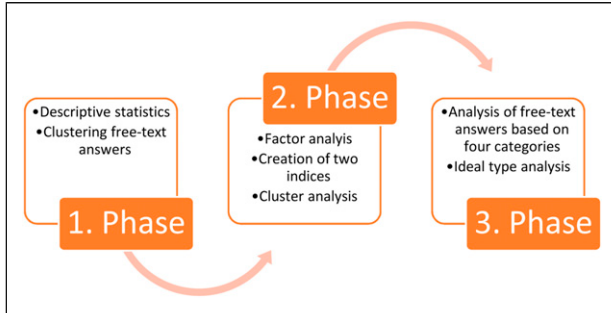
### *The Empirical Context*

As a result of the global pandemic, the Swedish government decided on school closure to reduce the spread of infection with COVID-19. On 17 March 2020, the Swedish government announced that high schools would run exclusively at a distance, starting the following day. On 29 May 2020, the Minister of Education announced that as of 15 June 2020, the schools would reopen but these were then closed again in December due to the increased spread of infection. This study explores high school teachers' experiences from the first period of transition to teaching in virtual classrooms. According to national statistics, there are about 1300 high schools in Sweden, and a total of 355,000 students attended high school during the academic year 2018/19. A clear majority of the students study in a university preparatory program while about 30% study in vocational programs ([The National Agency for Education, 2020](#)).

Sweden, like the other Nordic countries, is frequently positioned as a digital front-runner both in a European and a global context ([Drotner, 2010](#); [Randall & Berlina, 2019](#)). The digitalization of society is reflected in the education system, through policy reforms and development initiatives ([Olofsson et al., 2021](#); [Willermark and Pareto, 2020](#)). In terms of digitalization, the Nordic educational system has been characterized by a stronger tradition of project-based learning, proclaiming equal opportunities for all, and high access to digital technology ([Erstad et al., 2021](#)). The Swedish education system is one of the most digitalized in the European Union. Most schools have so-called 1:1, that is one computer (or tablet) per student and even preschools have high computer density. At the same time, previous research shows that many Swedish teachers still feel unprepared to use technology in teaching and that there is inequality regarding access to, and use of, technology between and within schools ([Willermark & Pareto, 2020](#)).

### *Data Collection*

The empirical data consist of a teacher questionnaire containing both fixed and open-ended response types, capturing both quantitative and qualitative data. The methods are complementary that you can use in questionnaires to get results that are both comprehensive and detailed. The approach has obvious advantages such as enabling efficient, comprehensive, and comparable studies from a large amount of data while still



**Figure 1.** Illustration of data analysis.

offering details and depth about teachers' experiences, mindsets, and attitudes (Bryman, 2015). The questionnaire aimed to examine teachers' experiences, thoughts, and lessons learned from the shift to virtual classrooms. It included a background question of within which school organization the teacher worked and 14 questions where teachers were asked to share their experiences from teaching in a virtual context (see Appendix for an overview of all survey items). The questionnaire interface offered an opportunity for the respondents to review all the questions in their entirety and make any modifications before final submission. The questionnaire was available during May (weeks 20–22) of the year 2020. It was distributed via email to a total of 2536 teachers spread across the country, from both metropolitan and sparsely populated areas, representing both practical and theoretically oriented schools. The questionnaire received 1109 responses, which gives a response rate of 43%.

### Data Analysis

The data analysis was conducted in three main phases (see Figure 1), based on an iterative process that alternated between a quantitative and qualitative analysis (Bryman, 2015). The analysis included statistical analysis as well as qualitative content analysis and the use of ideal types (Weber, 1978). All steps were carried out to make as rich an analysis as possible and to interpret the complex data. Below, we elaborate on the process step-by-step.

*In the first phase*, an initial understanding of the material was formed by compiling fixed answers and reviewing descriptive statistics. Furthermore, the free-text answers were examined to familiarize us with the data. In this stage the analysis involved roughly clustering the free-text answers to identify different perspectives on teachers' experiences, that is, different types of problems and opportunities linked to, for example, workload, study environment, and examination.

*In the second phase*, correlation analyses and factor analysis (based on principal component analysis and varimax rotation) were conducted in IBM/SPSS statistics version 27 to explore the relationships between different variables and to explore

potential underlying factors. Based on this analysis, two indices were created that capture 1) teachers' overall experiences of teaching in a virtual classroom (7 items, Cronbach's alpha = 0.87), and 2) teachers' and students' development of digital competence (2 items, Cronbach's alpha = 0.72). The items used in the indices were all measured on a five-point scale, and the indices were calculated as the mean of included items. The aim of using factor analysis was to explore relationships and, if possible, reduce the number of variables by creating indices. Furthermore, using relevant indices, rather than all items individually, eased the interpretation and understanding of the following cluster analysis.

Five questions from the questionnaire were excluded from the study. Question 7 and 8 consisted of open-ended responses. Question 9 showed no strong correlation with any factor and was not explicitly phrased toward virtual teaching or digitalization; therefore, this item was not included in any index. Questions 10 and 11 formed the third factor, but since this factor measured students' achievements rather than teachers' experiences of virtual teaching and digitalization, this factor was not included in the subsequent cluster analysis.

#### Index 1. Overall experiences of teaching in a virtual classroom

1. How do you perceive the technology you needed to teach in the virtual classroom has worked?
2. How do you perceive the contact with the students who have worked in the virtual classroom?
3. How do you perceive your opportunities to give students the support needed in the virtual classroom?
4. How do you perceive students' opportunity to keep up and be active in teaching in the virtual classroom?
5. How do you perceive that it has worked with students' attendance and meeting deadlines?
6. How do you perceive that the students could benefit from teaching in the virtual classroom?
14. In summary, how do you feel that teaching in the virtual classroom has worked?

#### Index 2. Development of digital competence

12. Do you perceive that you have developed your digital competence through the transition to virtual teaching?
13. Do you perceive that your students have developed their digital competence through the transition to virtual teaching?

Thereafter, a two-step cluster analysis was conducted using the indices above, resulting in the following four clusters:

1. Teaching worked well, digital development was high
2. Teaching worked OK, digital development was high
3. Teaching worked well, digital development was low
4. Teaching worked OK, digital development was low

“Teaching” refers to Index 1 and “Digital development” refers to Index 2.

In the third phase, we had the four clusters as a basis for the qualitative data analysis where we applied an ideal type analysis. The concept “ideal type” originates from the sociologist Weber (1978). Ideal types are to be regarded as a construction of reality in which individuals’ driving forces and motives are reduced to their main rationalities. Through an analytical mindset, the researcher can generalize specific properties and explain what this world of ideas looks like and how the ideas are constructed and connected. Ideal types should be considered as a tool with which one can more easily understand and interpret the real world with its complex and changing connections (Segady, 2014). In other words, there is a generalization of, and a reduction to, the most important characteristics and driving forces of a different group. The choice of analysis method was based on its ability to make the data tangible and at the same time maintain nuances by pointing to different ideal types. In practical terms, the analysis was carried out in the MAXQDA software program developed to support qualitative and mixed methods research. The tool was chosen to support systematically organizing, evaluating, and interpreting the data and to enable visualization of the code distribution of data. All free-text answers from the questions which constitute Index 1 and Index 2 were read, analyzed, and categorized (see Figure 2).

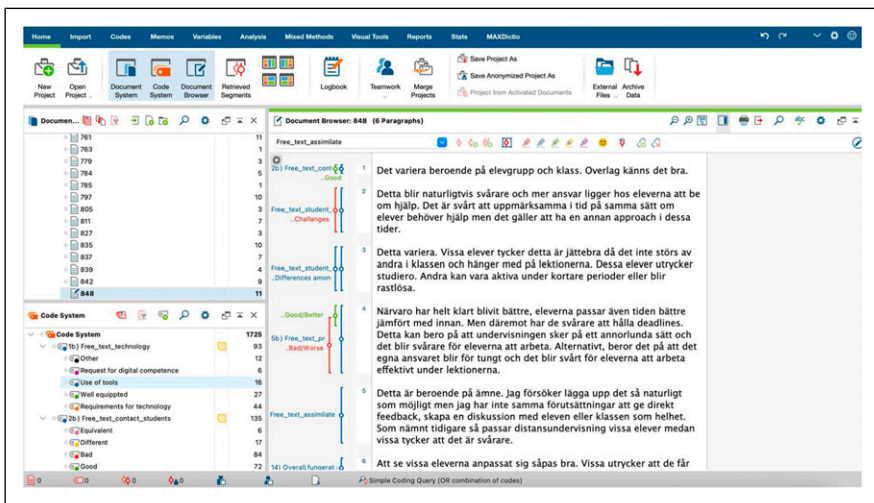
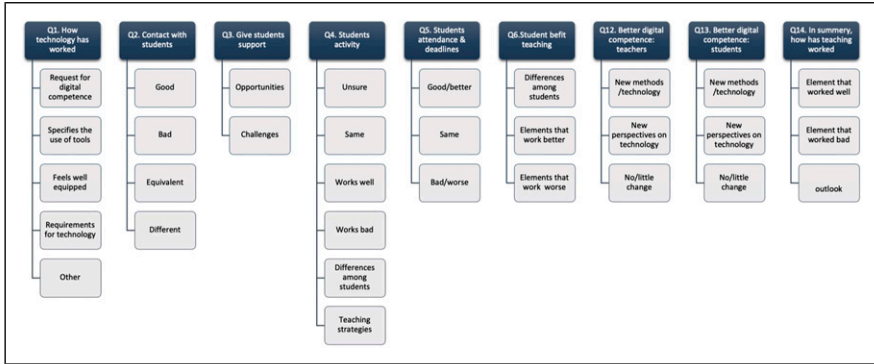


Figure 2. Illustration of data analysis in MAXQDA.





**Figure 3.** Categorization of the free-text answers.

The categorization of data was made through an inductive approach where excerpts were arranged and rearranged into evolving categories while interpreting the data. The final categorization of the free-text answers for each question is illustrated in [Figure 3](#).

In total, 7703 excerpts were categorized. This categorization constituted the basis for creating four ideal types of narratives. To bring out the essence of the most important characteristics of each of the four clusters, the analysis focused on similarities and differences between the different clusters based on the free-text responses. On the one hand, the analysis identified and mapped concrete examples of how the transition affected the teachers’ everyday lives (how teachers acted, what measures they took to handle the situation, what tools they used, how they communicated, etc.). On the other hand, the analysis also focused on the teachers’ affection, how the teachers experienced the situation emotionally (creative, pleasurable, transformative, boring, depressing, draining, etc.). The purpose of the analysis was to create a narrative that reflects a reduction to the most important characteristics of each of the four clusters. The ideal types are thus a composition of the respondents’ perspectives and experiences. In the narrative of the ideal type, we have used the respondents’ examples, anecdotes, and descriptions from the free-text responses. The analysis should not be seen as a categorization of teachers’ personalities or characteristics, instead it reflect the essence of their main experiences concerning a specific situation.

## Results and Analysis

This section is introduced by showing descriptive statistics from teachers’ experiences based on the two indices. Then, we present four ideal types based on teachers’ perception of how the teaching in a virtual classroom has worked and whether they perceive that they and their student have developed their digital competence.

**Table 1.** Distribution of Answers Per Question for Index 1. N = 1109.

	Very Well, %	Pretty Well, %	OK, %	Pretty Bad, %	Very Bad, %	Total, %
1 How do you perceive the technology you needed to teach in the virtual classroom has worked?	34	48.3	14.4	3.0	.4	100
2. How do you perceive the contact with the students who have worked in the virtual classroom?	13.7	46.6	28.9	9.5	1.4	100
3. How do you perceive your opportunities to give students the support needed in the virtual classroom?	9.0	37.5	32.6	17.1	3.8	100
4. How do you perceive students' opportunity to keep up and be active in teaching in the virtual classroom?	8.8	33.6	38.2	16.3	3.1	100
5. How do you perceive that it has worked with students' attendance and meeting deadlines?	25.7	40.4	24.7	7.9	1.3	100
6. How do you perceive that the students could benefit from teaching in the virtual classroom?	9.3	42.3	35.5	10.6	2.3	100
14. In summary, how do you feel that teaching in the virtual classroom has worked?	24.3	44.8	23.6	5.2	2.0	100

### *Transitioning to Virtual Classrooms*

When teachers rate their experiences of teaching in a virtual classroom, in summary, a clear majority of 69% state that it has worked “very well” or “pretty well.” Of the rest, 24% state that it has worked “OK” and 7% state that it has worked “pretty bad” or “very bad” (see Table 1). From the related free-text answers, several teachers indicate that the transition went unexpectedly well based on the sudden and transformative demands for change. Some describe a smooth transition while others also describe a tiring everyday life and a great lack of everyday contact with colleagues and students.

### *Developing Digital Competence*

When teachers rate to what extent they have developed their digital competence, 54% estimate a development to a “very large” or “large” extent, 33% state that they “to some extent have developed their digital competence,” and 13% state that they have developed their digital competence to a “small” or “very small” extent. When teachers rate to what extent their students have developed their digital competence, 45% estimate that their students have developed their digital competence to a “very large” or “large” extent, 42% state that students have developed their digital competence to some extent

**Table 2.** Distribution of Answers Per Question for Index 2. *N* = 1109.

	To a Very Large Extent, %	To a Large Extent, %	To Some Extent, %	To a Small Extent, %	To a Very Small Extent, %	Total, %
12. Do you perceive that you have developed your digital competence through the transition to virtual teaching?	19.4	34.4	33.5	7.9	4.7	100
13. Do you perceive that your students have developed their digital competence through the transition to virtual teaching?	10.9	33.6	42.5	9.9	3.1	100

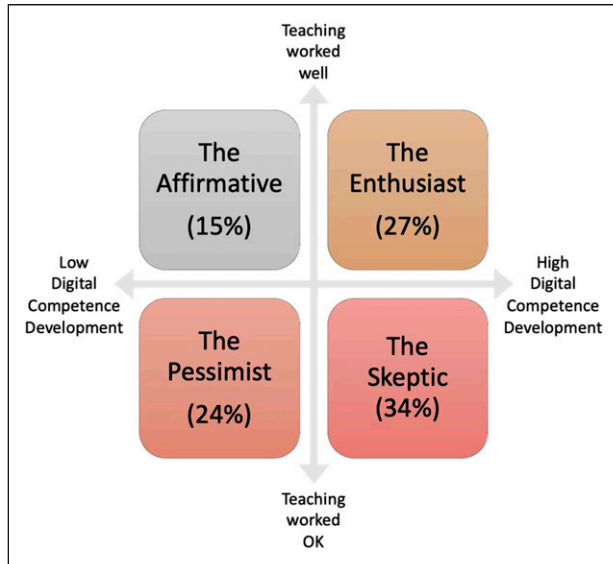
and 13% state that students have developed their digital competence to a “small” or “very small” extent (see [Table 2](#)).

### *Ideal Type Experiences*

Below is the distribution for each ideal type (see [Figure 4](#)). The enthusiast (27%) thinks the teaching in a virtual classroom has worked well and that the development of digital competence is high. The skeptic (34%) experiences that the teaching has worked OK and that the development of digital competence is high. The pessimist (24%) believes that the teaching has worked OK and that the development of digital competence is low. The affirmative (15%) think that the teaching has worked well and that the development of digital competence is low.

### *The Enthusiast*

Overall, the enthusiast feels that the transition to a virtual classroom has worked well. Sure, there have been challenges since the transition was sudden and technology has failed at times. Yet the experience has also led to new ways of teaching and interaction. There has been good support from colleagues and management where both concrete tips and general encouragement have been shared. In many respects, more personal contact with the students has been developed through increased one-on-one interaction. It has been possible to devote more time to individual students without having to consider the order in the classroom. It seems that many students find it easier to communicate online than in the traditional classroom and they seek more contact than usual. Some withdrawn students make their voices heard in a new way. Attendance is higher and students are better at showing up on time and if they do arrive late, they can connect without disturbing the teaching. The students have experienced a better study



**Figure 4.** Illustration of the ideal types and the distribution of the data within each category ( $N = 1109$ ).

environment, with fewer distractions, and they seem more rested. Students take greater responsibility for their studies and deadlines. Questions that constantly arise in the traditional classroom such as “What should I do?” or “When should the task be finished?” have disappeared. Of course, teaching has also changed. Structure and clarity have become increasingly important. The lesson design has needed to be clarified for the students. The teacher’s digital competence has been developed. This includes navigating different systems and increasing knowledge about the digital functionalities of different tools, but also about becoming more comfortable in their use. The teacher has been forced out of his comfort zone and is happy with the result. The pedagogy has also been developed in creative ways. Instead of trying to imitate the usual teaching situation, they have tried different ways to use the new situation. Students have recorded podcasts, designed digital surveys, conducted digital tests, and used new digital presentation aids such as screencasts. The students have also suggested tools they have heard used by other schools. The students have also developed their digital competence. Although they are described as a digital generation, their knowledge is quite varied. Initially, it was noticed that many students had limited digital competence but gradually learned to communicate and adapt to the digital environment. The experience has made the students well equipped to, for example, study higher education at a distance or to be able to follow the teaching digitally in the event of illness or for other reasons.

### *The Skeptic*

Overall, the skeptic experienced that the transition has worked OK, in many ways better than expected but has created a boring and monotonous everyday life. It is almost depressing. Much of what constitutes the core of the teaching profession—the social contact and informal conversations—are lost in the virtual classroom. In general, the virtual classroom has led to an increased distance to the students, which grows as time goes on. Attendance is high but is a chimera. The threshold to connect is low, but the participation is fragmented, which low productivity testifies to in many cases. The digital contact routes have increased but the relationship building has deteriorated significantly. More and more students have both microphone and camera turned off in video calls and it feels like talking to a wall. The response takes time or is absent and blaming technology hassles is an easy solution for students who do not want to participate. Misunderstandings arise in the digital classroom that do not usually occur in the physical classroom. The biggest challenges are found in the practical subjects whose characteristics are more difficult to address and practice in the virtual classroom. Lectures and instructions work fine but students lose practical knowledge. The teacher cannot expect them to have equipment and materials at home. The spontaneous support that the students receive when the teacher walks around the classroom disappears. Students who ask for help get good help, but the others receive less support. The development of digital competence has been high. The shift meant that the teacher had to go far beyond his comfort zone and try both new digital tools and explore new digital affordances. Furthermore, the teacher has developed his ability to handle technical stress when things do not go as planned and find alternative solutions to technical problems. The students have also been challenged and developed. They are often assumed to be digitally competent because they are young in a digital world, but there is a great variety regarding students' digital competence. Many students lack knowledge of basic functions in the software such as spelling, how to make tables and how to set up tasks. Now the students have had to learn as they cannot take the easy way to let a friend or a teacher solve the situation for them. Teachers find that students become better able to act on their own to solve certain technical problems which arise, and they will not be as perplexed anymore.

### *The Pessimist*

Overall, the pessimist experiences that it has been possible to practice teaching virtually, but the situation has been characterized by lower commitment, reduced interaction, and workarounds. At times, the teacher has felt more like a radio host who broadcasts live than a teacher with established relationships with the students. The lack of insight into who listens or participates in the teaching makes the role of the teacher one-dimensional. The work situation is more fragmented and stressful than usual. It feels like there is a constant tinkling on different channels where students, colleagues, and management call for attention. Working over all days of the week, to keep up with

the workload while maintaining teaching quality has become a daily routine. The technology does not work optimally. Recurring problems include lack of connection; congested learning platforms and functions that disappear; participants in video meetings are thrown out, and images that freeze. The use of new plug-ins and add-ons is necessary but makes it messy and it is partly difficult for students to keep track of all new information. Taken together, the technical problems lead to frustration in the teaching situation. The teacher feels that the intuitive feeling has disappeared. Not being able to have direct contact with the students in the classroom every day feels like having a body part amputated. Despite streamed lessons and different ways to get the interaction, it is not comparable to what it is like to teach on-site in school. Students who have good discipline and study skills will do just fine, but what happens to the other students is unclear before the examination. Attendance statistics have never been better, but the actual attendance seems to have decreased. It has happened several times that the teacher by chance realizes that a student is absent but is connected. The teacher estimates that the distractions increase for many students when they are not in a classroom. Overall, the assessment becomes legally uncertain when one does not see and follow the students' processes. The teachers' development of digital competence is low. They were well equipped even before the crisis and were well acquainted with platforms, applications, and digital learning materials, even if they learned some new functions in individual software. Rather, they have been strengthened in their conviction of the advantage of meeting face-to-face in teaching. For the students, the computer has long been their work tool, and navigating the digital systems has not been a problem.

### *The Affirmative*

Overall, the affirmative feels that the transition has worked fine, and teaching has been both stimulating and enjoyable. Every form of education has its merits and shortcomings. Some parts are more difficult to implement virtually, but virtual teaching is still superior to traditional teaching in many ways. The teacher has difficulty relating to the common description of the transition as a situation characterized by "crisis" and "chaos." Even though the pandemic could not have been predicted, preparedness was good. Access to functional technology was good, the use was high and the digital competence among the teachers was steady. According to the teacher, the school should seriously examine the possibilities for extended distance education even after the crisis, although it will not suit all schools, programs, or students' courses. In virtual teaching, the immediate overview you as a teacher have in a traditional classroom is missing, but it is possible to follow student activity in various programs and forums. The one-on-one conversations create a more personal contact with the students and many dare to ask more questions and engage in discussions in the closed digital rooms. The presence is at an all-time high. Furthermore, the transition means that students with long-term school absenteeism have begun to participate actively in the teaching. At the same time, the teaching places increased demands on structure and order so that students who do not

take the initiative for interaction are not neglected. Productivity among students is good, probably because of a clearer framework, better study environment, and less divisiveness. The teacher's digital competence was high before the transition to virtual classrooms and has thus not resulted in any significant changes. Instead, the change has meant an opportunity for teachers to apply their digital competence to a greater extent than usual. The students' digital competence was also high, and teaching in a virtual classroom has not meant major differences in their technical repertoire. However, the teachers experience that the students have developed their digital communication and shown a greater awareness of structure, taking turns, clarity, which becomes more central in digital communication. Furthermore, students have also become better at monitoring their digital channels by regularly logging into the learning platform and reading messages.

## Discussion

Some parameters are widely spread in teachers' experiences of the transition to teaching in virtual classrooms. For example, many experience a lack of access to specific tools, or struggle with connection and partially overloaded software. In addition to such framework factors, many address questions about what constitutes real presence in the virtual classroom and there is a widespread view that on the one hand, one lacks the quick overview of a class that the traditional classroom offers, but that one-to-one communication is given more room in the virtual classroom. However, when teachers' overall experiences are considered, as well as their assessment of individual elements in the virtual classroom, opposing experiences emerge. Thus, the result from this study shows that it is justified to describe the situation in terms of crisis and chaos, and perhaps the single most traumatic and transformative event of the modern era (Kaden, 2020). For many teachers, the transition has been both radical and difficult while the outcome in terms of teaching quality and job satisfaction is significantly worse. However, this is far from the whole picture. On the other side, there are examples of teachers who do not experience the changeover as upsetting at all. Instead, it emphasizes how central parts are stable; the curriculum, the students, and the tools are the same with the difference that the teaching itself does not take place in the physical classroom but via video conference. Avoiding commuting to work has been time-saving and something that simplifies everyday life. In addition, all experiences take place somewhere in between these extremes.

The fact that the experiences differ greatly must be seen from the perspective that teachers have different conditions for teaching in virtual classrooms. It includes the digital infrastructure at school, at home among students and access to tools, digital teaching aids, and IT support. Factors such as the number of students, the group composition, whether the teacher had developed a relationship with the class before the transition to teaching in the virtual classroom, and the subject, condition the teacher's possibilities of action (Willermark, 2021). For example, there are various challenges when it comes to teaching language or social sciences versus teaching practical/

aesthetic subjects in the virtual classroom. For example, the fact that the sound from the microphone has been compressed during ordinary video conferencing is usually unproblematic in most subjects and is not reflected on by any teachers or students. But for a music teacher and vocal coach, it is essential to be able to hear the voice and all the harmonics to provide reliable instruction, which is a problem in the virtual classroom. In the same way, the slightest delay means that the opportunities to play music together at the same time in a meaningful way are lost. Similarly, it becomes difficult in practical subjects that require access to real vehicles, commercial kitchens, etc. In many cases, it places significantly higher demands on technology, tools, and simulations as well as new ways of conducting teaching. Such factors can hardly be overestimated when exploring teachers' experiences.

In addition to the framework conditions, one can also understand the difference through the lens of affordances. That is the perceived and actual properties of the virtual classroom that denote the possible actions that are available to a user (Kirschner et al., 2002). In the context of a virtual classroom, it is required to be able to distinguish affordances in the specific environment. When the environment changes, so do affordances. Affordances are what the environment means to the teacher. The affordances of the virtual classroom are the behavior it invites or permits for the teachers' effectiveness (Michaels & Carello, 1981). In this situation, there are both examples of teachers that discover more and fewer opportunities for action. This is reflected in a variety of ways. For some, teaching in the virtual classroom has the affordance of increased interaction, enabling more voices to be heard and better chances at monitoring student performance. For others, teaching in the virtual classroom affords increased distraction and entails legally uncertain examination. How the teachers act depends on what opportunities for action the teacher can discern in their environment. Some affordances are relatively simple or intuitive while others require more refined perceptual abilities. In the virtual classroom, the opportunity to be able to distinguish different affordances concerning digital technology becomes central. Here, what can be seen as technically simple functions, such as being able to create online small groups in video meetings, throw out unauthorized participants, or track students' digital activities in the learning platform, can be crucial for the teaching to feel engaging, safe and legally secure. Many teachers describe how things fell into place in connection with identifying a certain function in software or discovering a new program that responded to the teacher's pedagogical incentives or beliefs. What constitutes digital competence in a virtual classroom can be seen as the ability to identify and make use of affordances in a highly digital environment. Being able to discern certain digital affordances can be an important part of the difference between effervescent or lack of interaction. Still, it cannot be separated from contextual conditions such as teaching subjects or grade level which makes digital competence flexible and depends both on local contextual conditions and the individual teacher's value framework (Olofsson et al., 2020). As for students' digital competence, teachers address how the virtual classrooms put demands on students' technical skills such as the ability to navigate in the platform and utilize specific functions in software programs and solve their own technical problems.



However, they also highlight aspects such as developing a digital way of communicating and showing a greater awareness of structure, taking turns, and clarity in the digital environment as well as acquiring new digital habits such as monitoring their digital school-related channels. In conclusion, the teachers' different perspectives demonstrate the importance of exchanging experiences where both opportunities and risks in virtual teaching can be identified.

### *Limitations and Future Work*

The strict statistical results in this study are bound to the Swedish high school context, which makes it difficult to generalize the results of individual studies (Yin, 2017). As for the qualitative results with the ideal type analysis, the central question is not whether the results are generalizable to a larger population, but how well they succeed in generating theory based on their results, referred to as “theoretical generalization” (Mitchell, 1983) or “analytical generalization” (Yin, 2009). Therefore, it is not statistical criteria but the explanatory power of theoretical reasoning that becomes relevant when assessing the results. The position of this paper is that the results from this study have broader theoretical implications than to explain this specific study, as it illustrates different narratives by shedding light on opposing experiences in a variety of dimensions when teachers are facing a radical case of digitalization. Furthermore, it highlights how no teaching situation is neutral and illustrates how different teachers, as well as students, benefit from and are disadvantaged by the traditional and the virtual classroom. In other words, which classroom has the affordances to show off their best side.

### **Conclusion**

The results shed light on teachers' distinct experiences of facing a radical form of digitalization and the sudden transition to teaching in a virtual classroom. Contributions include deep and broad empirical knowledge of teachers' experiences of teaching in light of the pandemic. This study contributes to the broader context of teaching in the time of a global pandemic and transition to virtual classrooms and adds nuance to the narrative of a time unilaterally marked by a tumultuous and chaotic transition. Furthermore, we are theorizing about teachers' encounters with radical cases of digitization by presenting ideal type experiences which capture the essence of teachers' multifaceted experiences, actions, and affordances as perceived by teachers in the transition to virtual classrooms. Lastly, we contribute to the discussion of the meaning of digital competence in the context of virtual classrooms.

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## Appendix

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### Questionnaire

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1. How do you perceive the technology you needed to teach in the virtual classroom has worked?
  2. How do you perceive the contact with the students who have worked in the virtual classroom?
  3. How do you perceive your opportunities to give students the support needed in the virtual classroom?
  4. How do you perceive students' opportunity to keep up and be active in teaching in the virtual classroom?
  5. How do you perceive that it has worked with student's attendance and meeting deadlines?
  6. How do you perceive that the students could benefit from teaching in the virtual classroom?
  7. What do you perceive has worked best during the transition to virtual classroom?
  8. What do you perceive has worked the worse during the transition to virtual classroom?
  9. Have you developed new methods for planning and implementing the teaching that can support the students' learning even when you return to regular teaching?
  10. How have the students been able to complete all the elements in the courses for which you are responsible?
  11. Do you think that your students will need to be compensated (time, internship/examination opportunities, etc.) when the school returns to regular teaching?
  12. Do you perceive that you have developed your digital competence through the transition to virtual teaching?
  13. Do you perceive that your students have developed their digital competence through the transition to virtual teaching?
  14. In summary, how do you feel that teaching in the virtual classroom has worked?
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