Teaching in the Time of Corona Crisis: A Study of Norwegian Teachers' Transition into Digital Teaching

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Abstract

Spring 2020 was quite different than most people could have imagined. Schools around the world have been temporarily closed, and most students have had homeschooling. How have these measures affected teaching and learning? What experiences have teachers gained during the corona period? This study is based on a survey conducted among Norwegian teachers during late April 2020. The findings indicate that teachers have generally mastered the digital transition. Many teachers reported more confidence with digital tools, which they are going integrate into their regular teaching practice. At the same time, some expressed the need for a break from the digital ways of working and looked forward to meeting students physically. The teachers used a variety of digital tools, and the majority said they did live lessons daily by video communication. At the same time, some claimed that using digital tools in teaching requires more preparation and better classroom management than without such tools. The teachers believed that students were generally performing as normal or slightly less than normal during the period of homeschooling. Conversely, some teachers also claimed to notice positive progress among students who usually did not excel as much in the classroom. When asked what competence-raising measures have been most useful for their digital practice during the corona period, most teachers reported their own "trial and error," but quite a few also stated that guidance from a colleague or ICT advisor at their school had been useful. Fewer expressed to have taken formal ICT courses that came in handy. Overall, teachers in this study seem to have mastered the transition into digital teaching in the time of the corona crisis without any major challenges.

Keywords: *teaching methods, professional digital competence, digital transition, corona crisis.*

1. Introduction

This paper presents some preliminary results from a survey conducted among Norwegian teachers during the period of homeschooling. The purpose of the study was to gain insight into the teachers' digital practices and to learn more about the challenges and opportunities they experienced with digital homeschooling.

1.1 Corona measures for Norwegian schools

The national authorities decided to close schools and other educational institutions from 13th March 2020 [1]. Schools were gradually reopened from 27th April, for grades 1-4 in primary schools and grades 12-13 vocational studies. The other grades went back to school between 11-15th May [2]. Many schools have practiced alternative solutions after reopening, such as a combination of ordinary school, homeschooling, and outdoor activities. For the majority of the schools, the school year ends by 19th June.

2. Method

The survey was conducted by SINTEF Digital in late April 2020, during the sixth and seventh week of homeschooling. It was distributed openly via the internet and social media. Also, it was sent to a geographically dispersed sample of Norwegian municipalities with a request to share it internally. An internet survey has some uncertainties. However, this was arguably the most effective way to reach teachers during the homeschooling period. Like the rest of the population, most teachers are online, especially during the period of digital homeschooling. An example is a Facebook group established for teachers to share ideas and resources, which gained more than 60,000 members in a matter of days.

Since this was mainly an open internet survey, teachers were asked to leave their job email as an attempt to ensure that the respondents are reliable. The gross sample is 949 respondents, while the net sample used in this paper is 930 respondents. The respondents are teachers in primary and secondary schools, grades 1-13, with all regions represented. The data collection has been approved by NSD - Norwegian Centre for Research Data.

3. Results
The following is a brief description of preliminary results from parts of the survey.

3.1 Digital tools and assignments
The teachers were asked: Which of the following digital resources do you use during this period? Those who did not teach every day, but used the resources on the days they taught, could tick off for 'daily.'
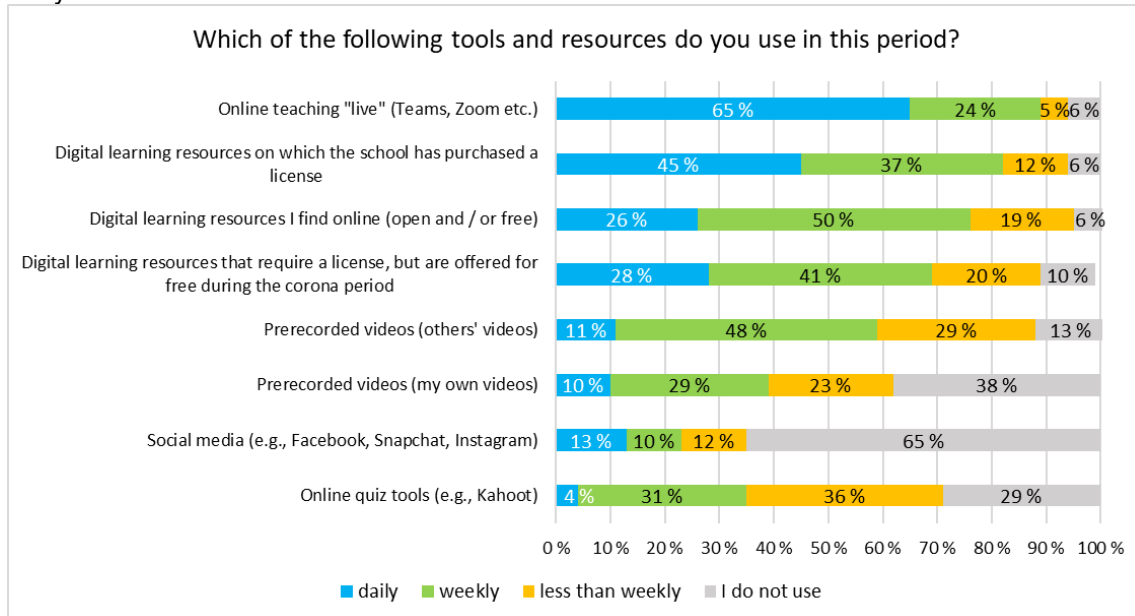

Figure 1: How often teachers use different digital tools and resources during the period of homeschooling. (n=930).

Sixty-five percent of the teachers have done online live lessons on a daily basis, while twenty-four percent have done this weekly. The survey does not say something about the quality, content, or length of the live lessons. The range can vary from a complete one hour lecture, to a few minutes just to 'meet and greet' before students are left alone with their assignments - or a mixture of these. As figure 1 shows, most teachers have used digital learning resources on which schools have bought licenses. This is positive when considering privacy issues. Almost as many, three out of four teachers, have used other digital learning resources they found online. Many EdTech companies offered free access to their learning resources during the homescooling period, and nearly seven out of ten teachers say they used such resources daily or weekly. Four out of ten teachers frequently used their own pre-recorded videos, while six out of ten used videos pre-recorded by others. One of three teachers used online quiz tools weekly or more often, while less than one out of four used social media when interacting with their students weekly or daily. Most teachers have other means to communicate with their students, i.e., a learning management system.

3.2 Preparation and 'classroom management'
Teachers were asked the consider five statements related to the use of digital resources in teaching, compared with the use of non-digital resources. Results in Figure 2.

The use of digital resources in teaching..

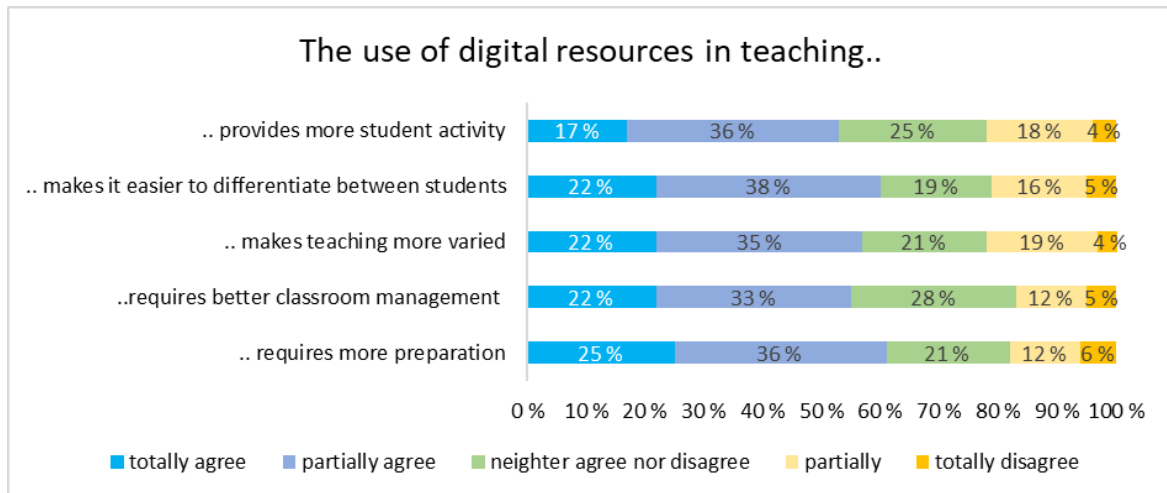| Statement	totally agree	partially agree	neighter agree nor disagree	partially	totally disagree
.. provides more student activity	17 %	36 %	25 %	18 %	4 %
.. makes it easier to differentiate between students	22 %	38 %	19 %	16 %	5 %
.. makes teaching more varied	22 %	35 %	21 %	19 %	4 %
..requires better classroom management	22 %	33 %	28 %	12 %	5 %
.. requires more preparation	25 %	36 %	21 %	12 %	6 %

Figure 2: Proportion of teachers that agreed or disagreed with the statements. (n=930).

Six out of ten teachers partially or totally agreed that the use of digital resources when teaching requires more preparation than without them. Almost as many, fifty-five percent, agreed that it requires better classroom management. However, fifty-seven percent also agreed that using such resources makes teaching more varied, while twenty-three percent disagreed. Half of the teachers believed that using digital resources in teaching provides more student activity. Even more, six out of ten agreed that using digital tools makes it easier to differentiate between students. A relatively high proportion of were neutral when faced with these statements. A significant, but not too high proportion partially disagreed, while few totally disagreed with the statements.

3.3 Assessment of students' performance

The teachers were asked to do an assessment of the overall performance of their students during this period, compared to normal circumstances.
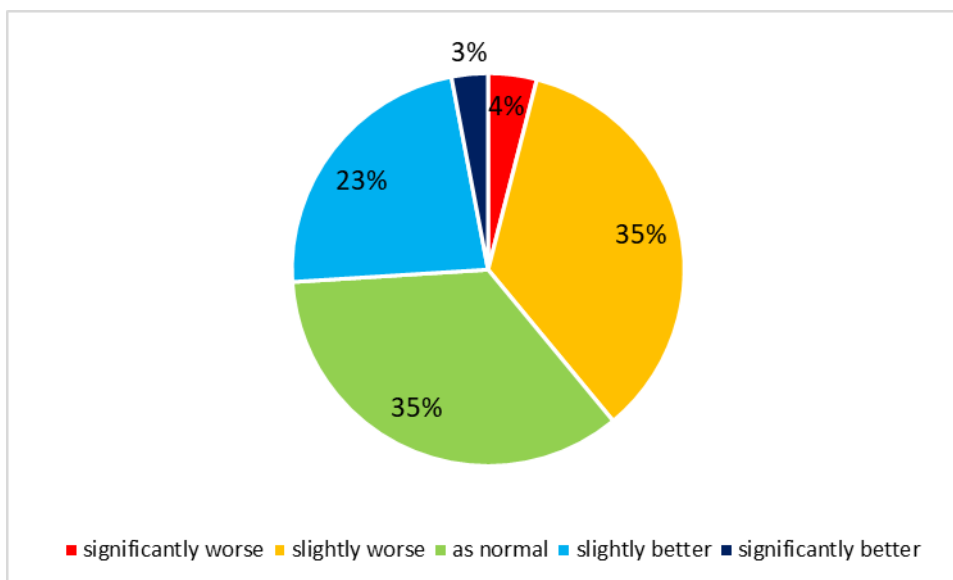

Figure 3: Teachers' assessments of pupils' academic progression in homeschooling compared to normal school/teaching. (n = 930)

As you can see in figure 3, thirty-five percent believed that their students have performed as normal. An equal number believed that the students have performed slightly worse than normal. What is more surprising is that twenty-three percent believed that their students performed slightly better than normal. Some teachers have also commented in the open text question, that students who usually do not excel as much in the classroom have 'blossomed' during the period of homeschooling. The noticeable improvement of a few students might have influenced the teachers' overall impression.

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3.4 Teachers' digital competence

Which role has different measures for improving teachers' professional digital development played during the period of homeschooling? To find out more about this, they were asked: *To what extent have you benefited from these various methods of digital skills development during this period (i.e., previous courses and training programs)?* The response options were given in a five-point Likert scale: to a very large extent, to a large extent, to some extent, to a small extent, to a very small extent, and in addition, don't know / not applicable. None of the respondents used the extremes of the scale, so these are omitted in Figure 4.
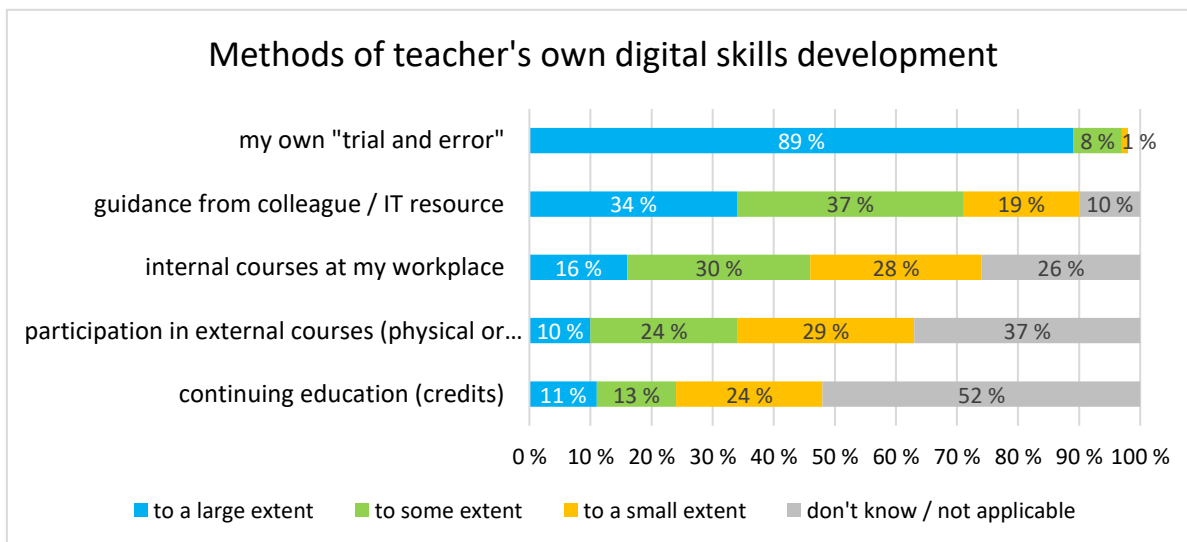

Figure 4: To what extent teachers have benefited from pre-corona digital skills development. (n = 930)

Figure 4 does not show how many teachers have completed different courses, but whether they believed such measures have been beneficial. The majority believed that their own 'trial and error' have been most beneficial for their transition into digital homeschooling. More than seven out of ten teachers also believed that they, to some extent or a large extent, have benefited from guidance from a colleague or an ICT resource person. A mentionable proportion also agreed that participation in internal and external courses have been useful, but more than half believed this has not been beneficial or was not applicable. One out of four teachers believed that they, to some extent or a large extent, have benefited from previous formal credit courses. During the last few years, there have been several initiatives to offer teachers professional courses in digital literacy [3]. How many of the respondents that have completed such courses is unknown, but half of the respondents answered 'don't know/not applicable.'

3.5 Open question feedback

The last question of the survey was open for the respondents to share other comments and thoughts: *Do you have any other comments or experiences you want to share? (E.g., positive/negative experiences, skills, and methods you want to use more when the school reopens).* Several teachers reported that they have become more confident with several digital tools, which they are going integrate into their regular teaching practice. At the same time, some expressed the need for a break from the digital ways of working and look forward to meeting students physically. Several pointed to challenges for some students related to age, social background, and general home situation. Conversely, some teachers also claimed to notice positive progress among students who usually did not excel as much in the classroom.

About forty percent of respondents answered the open question, which leaves 365 free-text responses to be analyzed. At the moment, this is not fully completed. Therefore, I would like to emphasize that all this should be considered as preliminary findings.

4. Discussion

Almost nine out of ten teachers said they did online live teaching daily or weekly, but quality, content, and duration is unknown. Also, this might differ between school levels and grades. Findings from other research on homeschooling in the same period suggest that primary school students have had too

little contact with their teachers [4]. A quick look at the numbers in this survey shows that fifty-five percent of the teachers in grades 1-4 had online live sessions daily, twenty-nine percent weekly, and nine percent never. Whether this is enough or not depends on the content, context, and the various needs of students and their parents.

Overall, more teachers used others' pre-recorded videos than making their own. This might be a matter of own digital shyness. However, there are millions of tutoring videos online, so it is no surprise that many choose to use what is already made. Also, six out of ten teachers agreed that using digital resources requires more preparation than without them, and more than half believed that it requires better classroom management.

The teachers in this study believed that students were generally performing as normal or slightly less than normal during the period of homeschooling, but as many as twenty-three percent also believed that students were performing slightly better. Some teachers commented that students who usually did not excel as much in the classroom had 'blossomed' during this period. The noticeable improvement of a few students might have influenced the teachers' overall impression. However, six out of ten agreed that using digital resources makes it easier to differentiate between the students - which could be beneficial for students' performance.

Teachers' professional digital literacy has been a missing link in teacher education, something which has affected their pedagogical and didactical understanding of digital tools [5][6]. As a result, many teachers have to rely on their 'trial and error' approach to develop digital skills and literacy. This corresponds to the findings in figure 4 and with previous research [7]. In a national survey on digital practices in K-12 education, more than eight out of ten teachers considered didactics to be the crucial factor for using digital resources in teaching [7]. For the last few years, both national authorities and teacher training institutions have done measures for the development of teacher's professional digital literacy, i.e., the Professional Digital Competence Framework for Teachers [8], and by offering specific continuing education in digital literacy [3]. The results might be noticeable in a few years. However, I am sure that teachers also can benefit from their own hands-on experiences from spring 2020. Authorities, teacher training institutions, and school leaders must build on the emerging digital confidence that many teachers seem to have gained. Moreover, it is time to focus on didactics rather than the technical part of using digital tools.

5. Conclusion and future work

The overall impression of the teachers participating in this study is that they have mastered the transition into digital teaching without any major challenges. This, despite the short notification of schools closing and other abnormal circumstances due to the coronavirus.

The complete findings of this study should be analyzed more carefully and included as part of a broader context of research on homeschooling. Also, the study could contribute to reflecting on classroom practices in the 21st century.

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