IFHE
INTERNATIONAL FEDERATION FOR HOME ECONOMICS

RESEARCH PAPER
Peer-Reviewed

Food and health teachers' experience of online teaching of a practical school subject during the initial Corona lockdown

Dagrun Engeset
University of Agder, Norway

Cecilie Beinert
University of Agder, Norway

Anne Merete Selvik Ask
University of Agder, Norway

Tormod Bjørkkjær
University of Agder, Norway

Abstract

When the Norwegian authorities closed all schools with immediate effect on March 12th 2020 due to Coronavirus, teachers had to find new strategies for educating their pupils online. Food and health are a compulsory subject in Norwegian primary and lower secondary schools, where the main focus is on practical cooking lessons. We hypothesised that practical subjects like food and health would be difficult to perform online. Therefore, we aimed to investigate how food and health teachers carried out their teaching and evaluated the pupils in this challenging situation.

A short online survey was developed. An invitation to respond was sent by email to all primary and lower secondary schools containing a link to the survey. The survey included questions about the teachers' digital tools, how they communicated with the pupils, and how pupils documented their work.

A total of 817 food and health teachers responded, and 710 of them completed the full survey. After excluding teachers who had only answered the demographic questions, we ended up with 751 participants. Most teachers taught food and health in 5th-7th grade (44%) and 8th-10th grade (51%). Only 5 % were teaching at 1st-4th grade. 86% of the respondents were women. The most widely used teaching tool used for online teaching was videos found on the internet, closely followed by digital learning platforms. Regarding documentation of the pupils' work, photos and log were most frequently used. Written communication in digital platforms and video conference was the most preferred tools for keeping contact with the pupils. Although most of the teachers stated that they had changed a lot on both their planned teaching and teaching practice, the majority did not find the teaching, follow-up nor assessment of the pupils too challenging, and most of them were satisfied with their teaching.

KEYWORDS: **FOOD AND HEALTH, HOME ECONOMICS, CORONA LOCKDOWN, TEACHER EXPERIENCE, COVID-19**

Introduction

The infectious and deadly Coronavirus, also known as COVID-19, was first known from an epidemic outbreak in the Chinese city of Wuhan in December 2019. As the virus spread rapidly to other countries, the World Health Organization (WHO) assessed on March 11th, 2020 that COVID-19 could

Engeset, D., Beinert, C., Selvik Ask, A. M., & Bjørkkjær, T. (2021). Food and health teachers' experience of online teaching of a practical school subject during the initial Corona lockdown. *International Journal of Home Economics, 14*(2), 39-52.

Correspondence: **Dagrun Engeset** ✉ dagrun.engeset@uia.no

be characterised as a pandemic (WHO, 2020). This statement resulted in an almost immediate country lockdown all over the world, including Norway.

As a contagion prevention measure against the threatening Corona-pandemic, Norwegian authorities closed all the country's schools with immediate effect on Thursday, March 12th, 2020. Consequently, both teachers and pupils had to stay at home and communicate through the school's digital platforms or other communication channels. Overnight, all teachers had to switch to digital teaching and several digital learning platforms with subscription schemes provided open access to schools during the lockdown as an aid to the teachers. This caused a kick-start to digital teaching for all subjects, including practical aesthetical subjects like food and health (FH). There is reason to believe that schools' sudden closure was an abrupt transition for teachers who previously did not use digital tools in their teaching to a significant extent.

The compulsory Norwegian school subject FH (formerly Home Economics) is typically taught in a school kitchen where pupils cook, while the teacher guides and observes the pupils in groups and tastes their food (Beinert et al., 2021). A previous study conducted in Norway revealed that only 56% of FH teachers used digital tools in their teaching practice before the lockdown. Also, 45% of the teachers who reported using digital tools, used it less than once per month. Hence, digital tools are not widely used among FH teachers in Norway. Furthermore, when exploring the use of a flipped-classroom approach, only 14 % of the teachers reported using flipped-classroom in the same study (Beinert et al., 2020). Flipped classrooms often include pupils watching videos or recorded lectures at home before class, followed by problem-solving, interaction or other active learning methods in class afterwards (Bergmann & Sams, 2012). Such an approach can stimulate more student activity and creativity in a school subject that is typically teacher-led and recipe-driven (Veka et al., 2018).

Although there are good instructional videos on the web or in digital learning platforms, showing how to cook, it is difficult for the FH teacher to assess the pupils' cooking without seeing what they are doing at home and without tasting the result. Therefore, we aimed to investigate how food and health teachers carried out their teaching and evaluation in this challenging situation.

Method

A short survey was developed in the software program SurveyXact®, containing 16 questions about demographics and FH teachers' experiences with teaching and evaluating in the subject through digital tools (Table 1). There were both closed and open-ended questions, and for several questions, it was possible to choose multiple answers.

Table 1 **An overview of questions and categories, with explanation to some of the questions in the survey on online teaching in food and health**

Questions	Categories	Explanations
Age	1. < 30 year 2. 30–39 year 3. 40–49 year 4. 50–59 year 5. > 60 year	
Sex	1. Women 2. Men 3. Other	
Teaches food and health at	1. Primary school, level 1–4 2. Primary school, level 5–7 3. Lower secondary school, level 8–10	Multiple answers possible Level 1–4 is age 6–9 Level 5–7 is age 10–12 Level 8–10 is age 13–15

Questions	Categories	Explanations
What teaching aids do you use for your home-teaching in food and health?	1. Digital learning platforms. State which 2. Videos found online (not from digital learning platforms) 3. In-house instructional videos 4. Real-time teaching (video meeting) 5. Other (specify)	Multiple answers possible In this context, digital learning platforms were thought of as platforms were different teaching aids like videos, assignments, digital textbooks etc. meant for teaching food and health were available. No examples or explanation was given in the questionnaire
What did the pupils do to document their work?	1. Took pictures of practical cooking at home 2. Made a video 3. Received confirmation from parents 4. Wrote log 5. Created blog 6. Other (specify)	Multiple answers possible
To what extent did you change your originally planned teaching? • Original syllabus • Originally planned teaching method • Planned recipes • Planned workload	1. Did not change 2. Changed slightly 3. Changed to some extent 4. Changed a lot 5. Changed everything / almost everything	
How did you keep in touch with your pupils?	1. Video conferencing 2. Email 3. Written in schools digital platform 4. Other (specify)	Multiple answers possible
Who did you get help and advice from on the occasion of digital teaching?	1. Management / administration 2. Colleagues 3. Other teachers on social networks 4. Family/friends 5. Was not offered help 6. Did not need help 7. Other (specify)	Multiple answers possible
How do you feel that home education in food and health has become?	Scale from 1 to 7 where 1 is *very bad*, and 7 is *very good*	
To what extent do you feel this has been a challenge: • Follow-up of pupils • Assessment of pupils' work • Digital implementation • Other	1. Has not been a challenge 2. Been a bit challenging 3. Neither 4. Been quite challenging 5. Been very challenging	Possible to give comments to all questions. The comments are not explored here
Do you want to return to the same form of teaching in food and health education as before the corona closure when the schools reopen, and the pupils are allowed to return?	1. Yes, continue as before 2. Will change something in the form of teaching 3. Completely/ almost completely change my teaching	
If you want to change food and health education, what will be the biggest change compared to previous education?	Open text field	This question is not explored here
To what extent do you feel you have learned something?	Scale from 1 to 5 where 1 is *learned a lot* and 5 is *not learned anything*.	

Questions	Categories	Explanations
To what extent have you received new impulses?	Scale from 1 to 5 where 1 is *got many new impulses* and 5 is got *no new impulses*.	
To what extent has the experience made you more creative?	Scale from 1 to 5 where 1 is *much more creative* and 5 is *not become more creative*.	
Are there other experiences you want to share?	Open text field	This question is not explored here

With a link to the survey, an invitation to participate was sent by email to the principals at Norwegian primary and lower secondary schools on April 23rd, 2020, requesting to forward the invitation to the schools' FH teachers. A mailing list with the contact info of principals of all Norwegian primary and lower secondary schools deriving from a previous survey (Beinert et al., 2020), was used in the present study. It turned out that many of the schools had new principals, and some schools had been closed permanently. Norway has also had many municipal and county coalitions since the address list was last used. This resulted in many unsuccessful inquiries, which meant that the addresses had to be searched online to distribute the survey to all schools. The schools reopened for 1st-4th class pupils on April 27th, 2020, and on May 12th, all the pupils were allowed back. The opening for the oldest pupils resulted in the search for missing addresses being terminated since it was assumed that the teaching would, somehow, return to normal practice. Thus, 147 missing mail addresses were not searched for.

The invitation mail was initially sent to 2,821 mail addresses; however, we do not know precisely how many of the initial inquiries were rejected. Today there are 2,799 schools, of which 2,538 are public schools in Norway (Utdanningsdirektoratet, 2020b). Many private schools (international) do not have FH on their curriculum. Some public schools are located in small communities with few pupils; thus, classes are merged across grade levels. These schools do not teach FH every year, and many of them reported that they did not teach the subject in the school year 2019–2020. According to The Norwegian Directorate for Education and Training, there is no available information about how many of such schools there are in Norway (private communication). As for the new counties and municipalities, Norway went from 19 counties in 2019 to 11 counties in 2020 and from 422 to 356 municipalities (KS, 2020).

The survey was anonymous, and FH teachers gave their consent by participating in the survey. Ethical approval was given by the Faculty of Health and Sports Sciences ethics committee at the University of Agder, Norway. The survey met the requirements of the General Data Protection Requirements (GDPR).

The statistical software IBM SPSS 25.0 was used for the data analysis. The results are presented as frequency with percentages, using descriptive statistics and cross-tabulation for multiple response sets. Statistical significance was set to $p < 0.05$. *P*-value is stated only if statistical significance is found.

Results

A total of 817 FH teachers responded, and 710 of them completed the full survey. Some of the respondents reported technical problems with the survey one day, which may be the reason why not all respondents completed the survey. A total of 66 respondents (53 women, 12 men and one "other sex") had only answered two or three of the first questions (age, sex, and which grade they were teaching) and were excluded, leaving 751 teachers in the analyses (Figure 1).

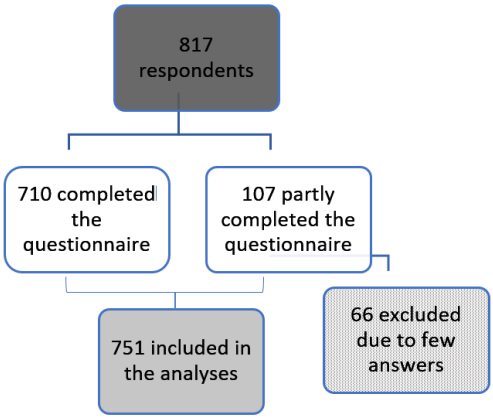

Figure 1 **Flowchart showing the inclusion and exclusion of respondents in the analyses of the survey on online teaching in food and health**

Demography

Most of the teachers (58.4%) were in the age range 40–59 years, and the majority (50.6%) were teaching at lower secondary school (8th-10th grade). The vast majority were women (86.3%) (Table 2). Since only two people identified themselves as "other sex", these were not included in further analyses where gender differences were concerned. The analyses did not reveal any major differences between the age groups (data not shown).

Table 2 **Demographic characteristics of the participants of the food and health teachers participating in the digital home-schooling survey**

	Women		Men		Other		Total	
	n	%	*n*	%	*n*	%	*N*	%
Sex	648	86	101	13	2	0	751	100
Age	*n*	%	*n*	%	*n*	%	*N*	%
<30	71	11	13	13			84	11
30-39	130	20	24	24	1	50	155	21
40-49	198	31	29	29			227	30
50-59	189	29	22	22	1	50	212	28
60+	60	9	13	13			73	10
School level	*n**	%	*n**	%	*n**	%	*N**	%
Grade 1-4	34	5	9	8	1	33	43	5
Grade 5-7	310	44	50	44	1	33	360	44
Grade 8-10	356	51	56	49	1	33	413	51

**n* counts higher than the total due to the possibility to work at more than one level

percentages have been rounded off to whole numbers

Handling of online teaching

The teachers reported using several different approaches in their digital teaching. Videos from the Internet and digital learning platforms (e.g., Salaby and Matopedia) were used as approaches most often (23.7 and 21.7% respectively). Other teaching tools were reported by 28% of the teachers (Table 3). More men than women reported using other teaching tools (36.3% and 26.7%, respectively). Examples of "other teaching tools" are recipes for food that pupils were to make at home and written theoretical homework delivered on the school's digital platform. It also turned out that digital learning platforms were listed under "others" and that digital tools, such as iPad, and digital communication tools, such as Teams and Skype, were listed under digital learning platforms. This

suggests that many teachers did not understand the question and what was meant by digital learning platforms (explained in Table 1). Real-time teaching was used more often at grade 8-10 (19.3%) than at the lower grades (10.6 % at grade 5-7 and 5.5% at grade 1-4). In-house instructional videos were the least used approach (11.2%) (Table 3).

The most common way for the pupils to document their work at all school levels was to take pictures of their work (40.3%) and writing a log (25.1%) (Table 3).

The preferred method of keeping contact with the pupils was by written messages through the schools' digital platform (44.2%) and by video conferences (33.8%) (Table 3).

When asked where they received help and advice from on the occasions of their digital teaching, 36,6% of the teachers referred to other colleagues. Only 13.2 % stated that they got help from their management (Table 3).

Table 3 **Food and health teachers' handling of online teaching, at different school levels, during the Corona lockdown**

	Grade -4		Grade 5-7		Grade 8-10		Total	
	n =	%	*n* =	%	*n* =	%	*N* = 751	%
Teaching aid used	43	5.3	360	44.1	413	50.6	749	99.7
Digital learning platforms	13	17.8	146	23.4	187	20.7	346	21.7
Videos found online	17	23.3	144	23.1	218	24.2	379	23.7
In-house instructional videos	14	19.2	67	10.8	98	10.9	179	11.2
Real-time teaching	4	5.5	66	10.6	174	19.3	244	15.3
Other	25	34.2	200	32.1	225	24.9	450	28.2
How pupils documented their work							***N* = 737**	**98.1**
Pictures	35	42.7	325	43.7	390	37.6	749	40.3
Video	9	11	58	7.8	134	12.9	201	10.8
Parents confirmation	9	11	78	10.5	83	8	14	9.1
Log	17	20.7	186	25.1	264	25.5	467	25.1
Blog	2	2.4	2	0.3	13	1.3	17	0.9
Other	10	12.2	93	12.6	153	14.8	256	13.8
Contact with pupils							***N* = 727**	**96.8**
Video conference	19	26.8	221	33.8	281	34.4	521	33.8
Email	12	16.9	69	10.6	92	11.2	173	11.2
Written in digital platform	28	39.4	289	44.2	365	44.6	682	44.2
Other	12	16.9	75	11.5	80	9.8	167	10.8
Where teachers got help							***N* = 725**	**96.5**
Management	7	11.9	62	11.2	103	15	172	13.2
Colleagues	16	27.1	190	34.4	270	39.2	476	36.6
Teachers at social networks	10	16.9	94	17	96	14	200	15.4
Family/friends	2	3.4	25	4.5	30	4.4	57	4.4
Not offered help	5	8.5	42	7.6	52	7.6	99	7.6
No need of help	16	27.1	119	21.6	110	16	245	18.9
Other	3	5.1	20	3.6	27	3.9	50	3.8

Most teachers reported extensive changes, both concerning their planned syllabus, teaching method, planned recipes, and workload (Table 4).

Challenging

While most of the teachers did not find pupils' follow-up too challenging, about 30% found it challenging or very challenging (Figure 2a). Approximately the same result was seen for the question of evaluation of pupils' work (Figure 2b). When asked if digital implementation had been challenging, approximately 13% answered in the affirmative. Most FH teachers did not find it very challenging (Figure 2 c).

Table 4 **To what extent food and health teachers changed their originally planned teaching during Corona lockdown**

	Women		Men		Total	
	n	%	*n*	%	*N*	%
Changed syllabus	633	86.8	96	13.2	729	100.0
Did not change	13	2.1	2	2.1	15	2.1
Changed slightly	44	7.0	5	5.2	49	6.7
Changed to some extent	175	27.6	28	29.2	203	27.8
Changed a lot	220	34.8	31	32.2	251	34.4
Changed everything / almost everything	181	28.6	30	31.3	211	28.9
Changed teaching method	*n*	%	*n*	%	*N*	%
Did not change	7	1.1	0	0.0	7	1.0
Changed slightly	15	2.4	2	2.1	17	2.3
Changed to some extent	93	14.7	10	10.4	103	14.1
Changed a lot	274	43.3	41	42.7	315	43.2
Changed everything / almost everything	244	38.5	43	44.8	287	39.4
Changed recipe	*n*	%	*n*	%	*N*	%
Did not change	28	4.4	1	1.9	29	4.0
Changed slightly	39	6.2	7	7.3	46	6.3
Changed to some extent	137	21.6	19	19.8	156	21.4
Changed a lot	176	27.8	29	30.2	205	28.1
Changed everything / almost everything	253	40.0	40	41.7	293	40.2
Changed workload	*n*	%	*n*	%	*N*	%
Did not change	17	2.7	3	3.1	20	2.7
Changed slightly	83	13.1	14	14.6	97	13.3
Changed to some extent	247	39.0	29	30.2	276	37.9
Changed a lot	157	24.8	29	30.2	186	25.5
Changed everything / almost everything	129	20.4	21	21.9	150	20.6

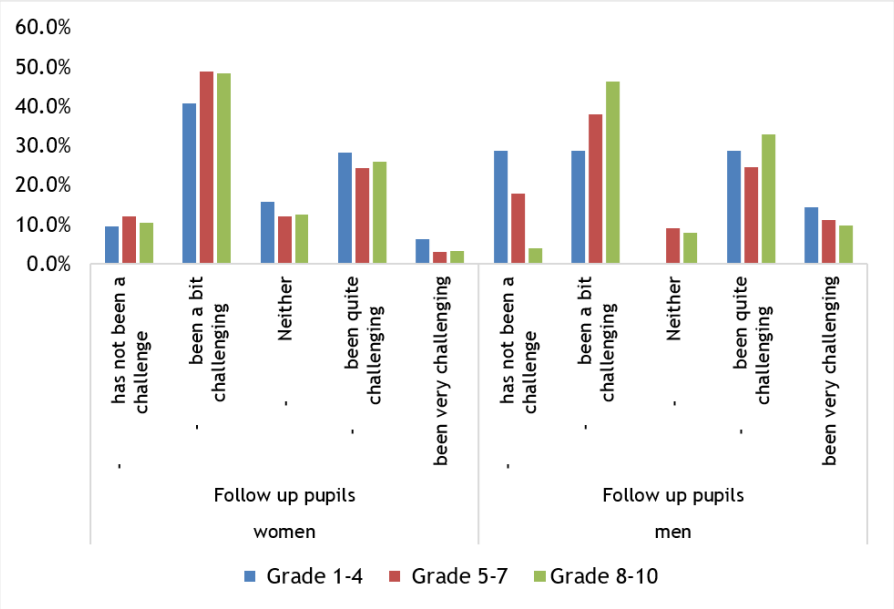

Figure 2a **How challenging food and health teachers found the follow up of their pupils during Corona lockdown**

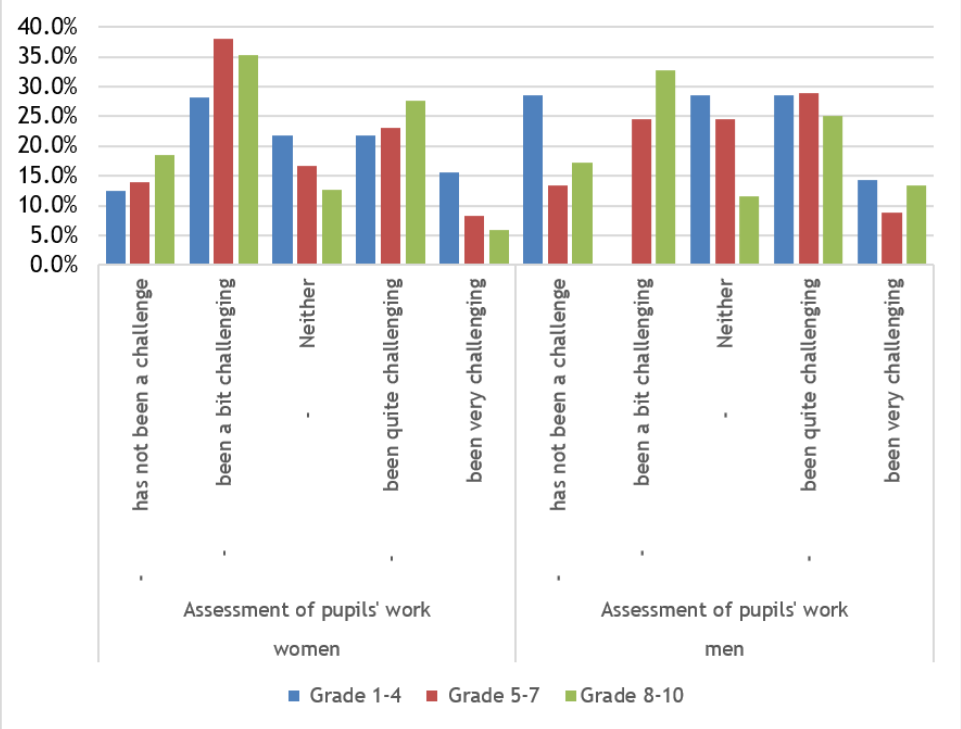

Figure 2b **How challenging food and health teachers found the assessment of their pupils work during Corona lockdown**

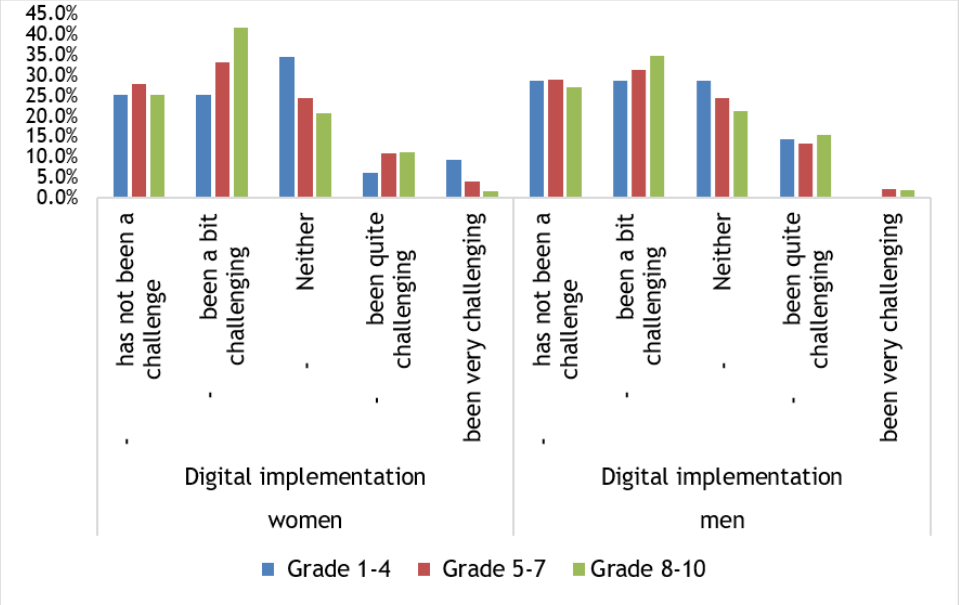

Figure 2c How challenging food and health teachers found digital implementation of teaching during Corona lockdown

Satisfaction

The response to the question "How do you feel the teaching has become" was largely positive for both male and female teachers, although men had a slightly higher score in both the lower and upper part of the scale (Figure 3).

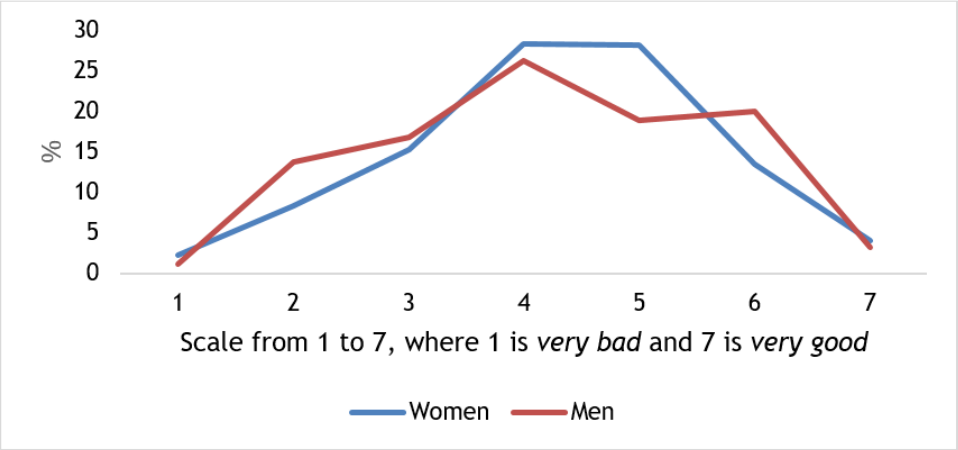

Figure 3 Number of female and male food and health teachers (in percent) that felt their teaching became good during Corona lockdown, in a scale from 1 to 7

Just over half (52%) of the teachers reported wanting to go back to their usual way of teaching when the schools reopened, and 42% said they would change some or all (6.3%) of their teaching approaches. More men claimed they would continue like before (64%), and more women wanted to change some (43%) or all (7%) of their teaching (Figure 4). The difference between male and female teachers was statistically significant, $p = 0.03$.

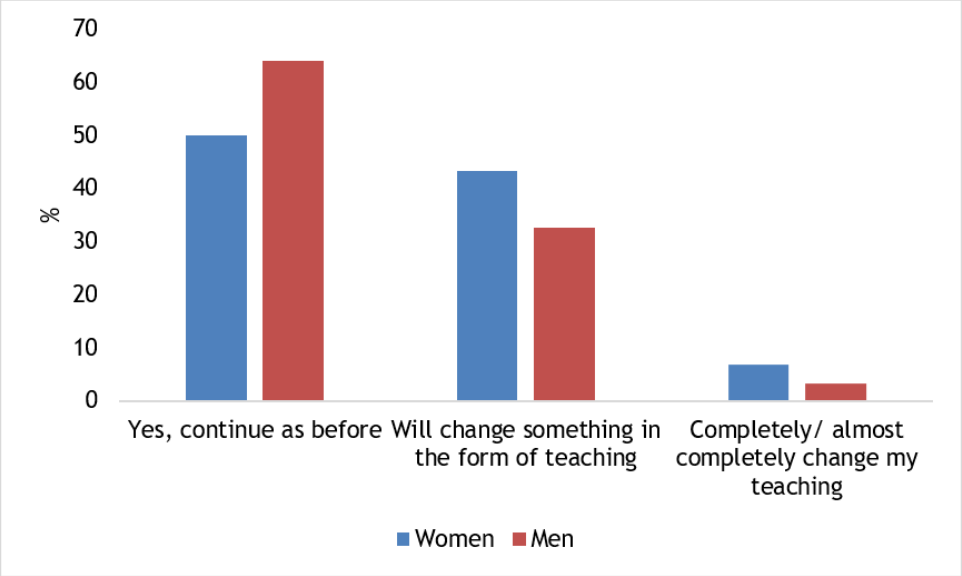

Figure 4 **Number of female and male food and health teachers (in percent) that wants to change their teaching after Corona reopening of schools**

When asked if they felt they had learned more, gained new impulses or become more creative, the majority of teachers answered at the positive end of the scale (Figure 5). However, the female teachers seem to be more positive than the male teachers, and there was a statistically significant difference both for becoming more creative and learnt something (p = 0.07 and p <0.05).

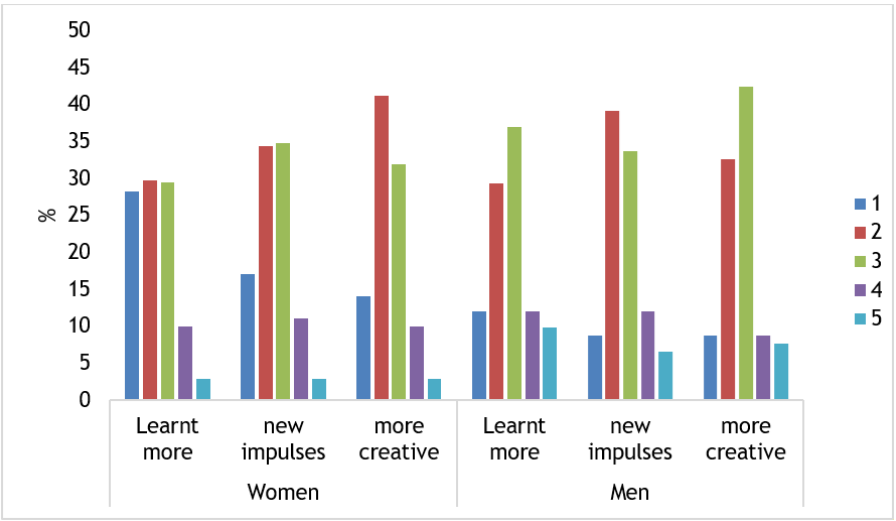

Figure 5 **Number of female and male food and health teachers (in percent) that feel they have learnt more, got more impulses, or got more creative because of the Corona lockdown. Scale from 1 to 5 where 1 is a *lot more* and 5 is *not at all***

Discussion

In this study, we found that teachers used different approaches when teaching FH during the initial Corona lockdown. Videos from the internet or digital learning platforms were often used. However, most teachers used "other teaching tools" where written assignments and practical assignments seemed to be the most common approach. However, the open comment fields have not been systematically reviewed, so it is difficult to state how much practical assignments and how much written assignments were given. Some comments suggest that some teachers mainly gave written assignments because households may not be required to buy ingredients for cooking. In a recent study, Beinert et al. (2020) found that there has been a mismatch between time spent on practical

cooking lessons and nutrition theory. If there has been a greater focus on theoretical assignments during the lockdown, this may have helped to reduce this mismatch.

The use of more theoretical assignments were also seen in a study performed in five EU-member states (Carretero Gomez et al., 2021). The EU-study interviewed, amongst others, teachers in primary and secondary schools, and thus corresponds with the participants in this study. The teachers reported to omit content that was difficult to teach remotely; however, what content this was, is not mentioned (Carretero Gomez et al., 2021). Practical subjects were not mentioned in particular in the report, but due to the nature of such subjects one may speculate that the practical teaching of these subjects was omitted.

In a large study, implemented by the International Labour Organization (ILO) in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Bank, on technical and vocational education and training from several different countries around the world, they also reported that focus was mainly on theoretical classes during the lockdown (ILO, 2021). The ILO-study was conducted at the same time as the current study. Although this study looked at the challenges of primary school teachers and the ILO-study looked at the challenge of practical subjects in higher education, it is seen that teachers met many of the same challenges and used many of the same approaches to solve the challenges, regardless of school level.

Of practical tasks, different types of housework were often mentioned, which is no longer part of the curriculum for food and health (Utdanningsdirektoratet, 2006, 2020a). This may suggest that all FH teachers do not know the syllabus properly, which could possibly be due to the relatively low formal education level among Norwegian FH teachers in general (Perlic, 2019).

However, several of the teachers stated that they gave the pupils recipes for the food they were to make at home. With the use of videos, such an approach becomes a variant of the flipped classroom (Bergmann & Sams, 2012): The pupils watch an instructional video beforehand and then make the dish themselves afterwards. The use of in-house instruction videos was relatively low, which means that the instructions on the videos are given by other than the teacher and may not necessarily be hands-on what the pupils are supposed to learn. As such the typically teacher-led practice in FH classes (Veka et al., 2018), may have been more individually pupil-driven. During a normal FH class, the cooking usually takes place in groups, under the teacher's expert guidance, which is difficult to accomplish when the pupil cooks in their own home. Some teachers reported the use of real-time teaching. It does not appear from the survey whether real-time teaching was used for practical cooking lessons, but it would, of course, be a possibility if the teacher wanted to guide the pupils through the cooking.

A contrast to the answer to the use of real-time teaching (15%) is the answer to how teachers kept in touch with their pupils. Just over a third (34%) reported using video conferencing to stay in touch. Video conferencing could also be used for real-time teaching. However, in this context, teachers probably referred to short meetings where they gave messages and where the pupils could ask questions, and did not see it as real-time teaching as such.

The pupils documented their work mainly through photography of the end product and by writing a log. In this way, the teachers could see the result of the work, and the pupils could report on difficulties, how the food tasted and so on. This may also be the reason why only 33% of the teachers reported that the evaluation of the pupils was challenging. The problem with such documentation is that the teacher cannot see, taste, touch or smell the result himself, for example, whether the buns were hard as stones, or whether they tasted too salty. Secondly, the teacher cannot be completely sure that it is the pupil who has made the food; they may, for example, have photographed the result of the parents' cooking. For teachers in the lower secondary school, this can make it challenging to set grades since the pupils can more easily cheat themselves into a better grade than if they were to cook in the school kitchen in front of the teacher. Pupils do not receive grades at primary school level; therefore, the evaluation problem will not be challenging in the same way. However, lower secondary school teachers did not report differently on challenges in evaluating pupils' work than teachers in the lower school levels.

Both the beforementioned EU-study and the ILO study reported monitoring students performance and evaluation of students as difficult (Carretero Gomez et al., 2021; International Labour Organization et al., 2021). The ILO-study emphasised in particular that the dissemination of practical skills in

distance education constitutes a special challenge for technical and vocational education (International Labour Organization et al., 2021), and practical subjects such as FH in primary and lower secondary school can be compared with this. In 2006, Norway implemented a new national curriculum in which digital competence was given the status of the fifth basic skill in Norwegian primary and lower secondary schools (Utdanningsdirektoratet, 2006); hence, the use of digital tools in teaching should not be a problem for most teachers. However, there is a difference between using tools in ordinary teaching and suddenly having to complete all teaching digitally. In addition, Beinert et al. (2020) showed in their study that FH teachers did not extensively use digital tools. Therefore, it is somewhat surprising that not more teachers, even among the oldest age groups (data not shown), found digital implementation too challenging. However, this is good news considering the new curriculum implemented from the autumn of 2020(6), where there is a greater emphasis on digital competence than the previous curriculum. In addition to the general focus on digitalisation in schools (Kunnskapsdepartementet, 2017), more emphasis will also be placed on digital technology in all practical subjects onwards (Kunnskapsdepartementet, 2019). As a result of this pandemic, the use and implementation of digital technology in all subjects may have been boosted (Federici & Vika, 2020). Interestingly, most FH teachers used other colleagues and not their administration when in need of help with digital teaching and assessment. This may suggest the need for didactical rather than technical discussions were the main concern.

The use of other colleagues and sharing good practices was also reported in the EU-study (Carretero Gomez et al., 2021) and the ILO-study (ILO et al., 2021), and both studies point to the need for future teachers to receive better training in how to perform distance teaching in a good way.

The next step is to find the best way to use digital tools in FH classes to enhance pupils' learning, including more flipped classroom approaches or other learning methods, including digital tools.

Strengths and limitations

To our knowledge, this is the only survey examining FH teachers' challenges during the first Corona lockdown in Norway. The results give us a valuable picture of how the teachers handled this challenge and their experience of how teaching, follow-up and assessment of the pupils went when everything was done digitally and remote. Another strength is that a large number of FH teachers from all over the country have responded, which makes the study more representative of this group of teachers. Interestingly, another Norwegian study where both teachers, pupils and caregivers were questioned about their experience of schooling during the lockdown found that teachers had become more creative in their way of teaching (Bubb & Jones, 2020), which is similar to what we found.

Our results also correspond with the results of Federici and Vika (2020), who in their survey have asked similar questions to teachers in general, and school leaders in Norway.

However, it is clear from the results that some of the survey questions were not clear enough, which leads to uncertainty about some of the answers. The time pressure to get the survey out before the schools reopened is the main reason why the survey was not better processed before sending, and also the reason why we took the shortcut by using an existing mailing list when sending out the invitations. The latter turned out to lead to a lot of extra work and probably a lower response rate.

Another weakness of the survey is that there are self-reported results from the teachers, and we do not get the pupils' or parents' views on how the teaching has been. This might have given us a more in-depth understanding of how everyday school life was during the closure (Bubb & Jones, 2020).

Conclusion

This survey results show that most FH teachers coped with the abrupt transition to digital teaching reasonably well. They found new ways to teach the subject using the school's digital platform and various digital tools. Most FH teachers were relatively happy with their teaching, and about 50% said they would make changes to their teaching when they return to a more normal school day. One may assume that the "crash introduction" in digital teaching has helped raise digital competence among both the FH teachers and their pupils. However, we do not know anything about the quality of teaching, and as other international studies have pointed out, the study shows that teachers were not well enough prepared to start with distance teaching, and that teacher education should put

more focus on this in the future. Educated teachers should be offered continuing education courses to better provide students with distance teaching in the future school.

In order to gain more in-depth knowledge of how the food and health teachers experienced their digital-everyday-life, the answers in the open text fields should be analysed. The survey does not provide answers to how the pupils' learning and level of knowledge in the subject may have changed and should therefore be explored in future research.

Author biographies

***Associate Professor Dagrun Engeset**, PhD, has a background as a teacher in nutrition, health, and environmental subjects, and experience from Home Economics teacher education. She is also an experienced researcher in nutrition epidemiology. She is currently teaching nutrition at the University of Agder.*

***Assistant Professor Cecilie Beinert**, PhD, holds a Bachelor's degree in nutrition and a Master's degree in Public Health Sciences. Her PhD research was on Home Economics education as part of the Priority Research Centre on Lifecourse Nutrition at the University of Agder, where she is currently teaching nutrition subjects.*

***Professor Anne Selvik Ask** is currently head of the Department of Nutrition and Public Health at the University of Agder and has a background from Home Economics and Pedagogical Entrepreneurship in teacher education. Ask is a member of the Priority Research Centre Lifecourse Nutrition at the University of Agder.*

***Associate Professor Tormod Bjørkkjær**, PhD, has experience from teaching and supervision in public health, nutrition, and the Food and Health subject. Bjørkkjær is programme coordinator for the Bachelor's programme in Public Health Sciences and leading the Food and Health research area in the Priority Research Centre Lifecourse Nutrition at the University of Agder.*

References

Beinert, C., Overby, N. C., Abacka, G. K., Engeset, D., Hillesund, E. R., Ask, A. M. S., & Vik, F. N. (2020). The state of learning activities in teaching Home Economics: A cross sectional study in Norwegian schools. *International Journal of Home Economics*, *13*(1), 2-14.

Beinert, C., Palojoki, P., Åbacka, G., Hardy-Johnson, P., Engeset, D., Rudjord Hillesund, E., Ask, A. M. S., Overby, N. C., & Vik, F. N. (2021). The mismatch between teaching practices and curriculum goals in Norwegian Home Economics classes: a missed opportunity. *Education Inquiry*, *12*(2), 183-201.doi:https://doi.org/10.1080/20004508.2020.1816677

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International society for technology in education.

Bubb, S., & Jones, M. (2020). Learning from the COVID-19 home-schooling experience: Listening to pupils, parents/carers and teachers. *Improving Schools, 23*(3), 209–222. doi:https://doi.org/10.1177%2F1365480220958797

Carretero Gomez, S., Napierala, J., Bessios, A., Mägi, E., Pugacewicz, A., Ranieri, M., Triquet, K., Lombaerts, K., Robledo Bottcher, N., Montanari, M., & Gonzalez Vazquez, I. (2021). *What did we learn from schooling practices during the COVID-19 lockdown*. https://publications.jrc.ec.europa.eu/repository/handle/JRC123654

Federici, R. A., & Vika, K. S. (2020). *Spørsmål til Skole-Norge. Analyser og resultater fra Utdanningsdirektoratets spørreundersøkelse til skoleledere, skoleeiere og lærere under korona-utbruddet 2020* [Questions to School-Norway. Analyzes and results from the Norwegian Directorate of Education's survey of school leaders, school owners, and teachers during the corona outbreak in 2020] (2020, p. 13). https://www.udir.no/contentassets/865c9aebe7af4770ab520e65598cb474/raport13_2020.pdf

International Labour Organization, United Nations Educational, Scientific and Cultural Organization (UNESCO) & the World Bank. (2021). *Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training*. https://www.ilo.org/skills/areas/skills-training-for-poverty-reduction/WCMS_766557/lang--en/index.htm

KS [The Norwegian Association of Local and Regional Authorities]. (2020). Noen fakta om nye kommuner fra 2020. [Some facts about new municipalities from 2020] *Kommunereform [Municipal reform]*. https://www.ks.no/fagomrader/demokrati-og-styring/kommunereform/noen-fakta-om-nye-kommuner-fra-2020/

Kunnskapsdepartementet [Ministry of Education]. (2017). *Framtid, fornyelse og digitalisering. Digitaliseringsstrategi for grunnopplæringen 2017–2021. [Future, renewal and digitalisation. Digitization strategy for basic education 2017-2021.*] https://www.regjeringen.no/contentassets/dc02a65c18a7464db394766247e5f5fc/kd_framtid_fornyelse_digitalisering_nett.pdf

Kunnskapsdepartementet [Ministry of Education]. (2019). *Skaperglede, engasjement og utforskertrang—Praktisk og estetisk innhold i barnehage, skole og lærerutdanning. [Creative joy, commitment, and the urge to explore—Practical and aesthetic content in kindergarten, school, and teacher education.*] https://www.regjeringen.no/contentassets/c8bbb637891443fea7971ba8e936bca4/skaperglede-engasjement--og-utforskertrang.pdf

Perlic, B. (2019). *Lærerkompetanse i grunnskolen. Hovedresultater 2018/2019 [Teacher competence in primary school. Main results 2018/2019].* https://www.ssb.no/utdanning/artikler-og-publikasjoner/_attachment/391015?_ts=16b93d5e508

Utdanningsdirektoratet [Directorate of Education]. (2006). Kunnskapsløftet 2006.[The Knowledge Promotion 2006] *Læreplaner [Curricula].* https://sokeresultat.udir.no/finn-lareplan.html?fltypefiltermulti=Kunnskapsl%C3%B8ftet%202006

Utdanningsdirektoratet [Directorate of Education]. (2020a). Kunnskapsløftet 2020. [The Knowledge Promotion 2020] *Læreplaner [Curricula].* Retrieved from https://sokeresultat.udir.no/finn-lareplan.html?fltypefiltermulti=Kunnskapsl%C3%B8ftet%202020

Utdanningsdirektoratet [Directorate of Education]. (2020b). *Skoleporten [The school gate].* https://skoleporten.udir.no/rapportvisning/grunnskole/fakta-om-opplaeringa/elevar-laerarar-skolar/nasjonalt?orgaggr=o&kjonn=a&trinn=0&sammenstilling=1&fordeling=2

Veka, I., Wergedahl, H., & Holthe, A. (2018). Oppskriften-den skjulte læreplanen i mat og helse [The recipe-the hidden curriculum in food and health]. *Acta Didactica Norge [Acta Didactica Norway], 12*(3). doi:10.5617/adno.4829

WHO. (2020). *Archived: WHO Timeline—COVID-19.* https://www.who.int/news/item/27-04-2020-who-timeline---covid-19