



International Society for Teacher Education

**JISTE: Journal of the International Society for Teacher Education**

ISSN: 1029-5968 (print); 2521-6015 (online). Journal Home page:

<https://isfte.org/index.php/jiste-our-bi-annual-journal/publicly-accessibly-abstracts-only/>

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To cite this article:

Ask, A. S., Aarek, I., Helland, M. H., Sandvik, C., Aadland, E. K. (2020). The challenge of teaching food and health in the first four years of primary school in Norway. *Journal of the International Society for Teacher Education*, 24(1), 60–70.

Published online: 3 August 2020

JISTE 24.1 is available for non-members of the International Society for Teacher Education from 1 January 2021. To get full access, go to <http://isfte.org/index.php/become-a-current-member/>

# The Challenge of Teaching Food and Health in the First Four Years of Primary School in Norway

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## Abstract

The subject food and health will potentially help students gain insight into critically choosing and reflecting on food and meals and also help students acquire skills in food preparation. Good food choices and food behavior are established in childhood and adolescence and may have significant impact on food choices in adulthood. Less than half of teachers teaching food and health have formal education in the subject. The Knowledge Promotion Reform lists competence aims in all subjects. Unfortunately, food and health is often given low priority in grades 1-4. This study was conducted in 2018 to gain insight into how the subject was taught in grades 1-4. The aim was to reveal whether food and health is taught and by whom as well as what challenges the teachers have in teaching the subject. A proposal for the development of an in-service training course is also considered. A total of 24 interviews were conducted at 12 randomly selected schools in Norway. The study showed the random nature of who teaches the subject and how the teaching in food and health is carried out.

**Keywords:** Food and health, home economics, teaching challenges, primary school

## Introduction

Knowledge about food and meals can promote healthy eating habits and may help to reduce health inequalities in the population. Education and education levels are generally the most important single factor for the health of a population (Baker, Leon Greenaway, Collins & Movit, 2011). Recent health challenges such as overweight and mental disorders show the importance of children and young people learning to care for their own health and gaining knowledge and skills related to food and diet. Both globally and nationally, malnutrition and unbalanced diets are major contributors to health loss and premature death (Norwegian Institute of Public Health, 2018; Afshin et al., 2019). The research by Mikkilä, Räsänen, Raitakari, Pietinen and Viikari (2005) suggested that food behavior and concrete food choices are established already in childhood or adolescence and may significantly track into adulthood

which implies that nutrition education should be started early.

The practical and aesthetic subjects of music, art, physical education, and food and health are resources to develop knowledge, skills, and attitudes, both cognitive and physical. These subjects contribute in a unique way in the school. The ambition of the Norwegian government is to increase the competence in, and status of, the practical and aesthetic subjects in kindergarten and school as well as in teacher training (Kunnskapsdepartementet, 2019).

The subject of food and health was previously called *heimkunnskap* (home knowledge) in Norway, in other countries it is known as home economics or domestic science. The change of the subject's name to food and health provides a stronger emphasis of what is important: the connection between the food we eat and our health. It is no longer the economics of the home or homemaking that is important. The subject helps the students gain insight into how to critically choose and reflect on food and meals as well as develop skills in food preparation. This should provide them with knowledge to deal with practical, social, and personal aspects of life.

In Norway, a ten-year basic education is compulsory. Children start school when they are six years old. Subjects, syllabus, and number of hours in each area are adopted for the whole country by the government. In food and health, the total number of teaching hours is 197, where 114 hours are in primary school, level 1-7, and 83 are in lower secondary school, level 8-10. Within the framework, each school can decide how many hours will be taught at what levels in primary and lower secondary school (The Norwegian Directorate for Education and Training, 2006).

The curriculum for the compulsory school in Norway - *The Knowledge Promotion Reform* - lists competence aims in all subjects and the students are expected to reach these. In food and health there are aims after grade 4, 7 and 10, but the subject has often been given low priority in grades 1-4 (Holthe & Wergedahl, 2013). Food and health is divided into three main subject areas: food and lifestyle, food and consumption and food and culture. Each area has several competency objectives. The area of food and lifestyle teaches the students to develop skills and motivation for a healthy lifestyle and to reflect upon the connection between food and health. In food and consumption, the students learn about food production and labelling and how to be critical and responsible consumers. Food and culture deals with food and meals and different customs in connection to food and meals, both in Norway and abroad. After Grade 4 there are a total of 12 competency objectives. They comprise areas such as preparing safe food, practicing good hygiene, taste experiences and meal customs in different countries (The Norwegian Directorate for Education and Training, 2006). All students are supposed to have reached the 12 competency objectives by the end of Grade 4.

According to a report from the Organisation for Economic Cooperation and Development (OECD, 2005), teachers and teaching are the most important influences on student learning. In particular, the broad consensus in their research is that "teacher quality" is the single most important school variable influencing student achievement. The research also indicates that there is a positive relationship between teacher qualifications and teacher experience and student performance.

The Norwegian Government's White paper 19 (2014-2019) states that the subject is important for

all children, regardless of social background and competence. Knowledge and skills children and young people acquire through food and health in primary school can form the basis for a healthy diet and healthy cooking habits for the rest of their lives (Helse- og omsorgsdepartementet, 2015). In view of this, it is of great concern that less than half (41%) of the teachers who are teaching food and health in Norway have formal education in the subject. In grades 1-4 only 22% have any formal education in food and health (Perlic, 2019).

Food and health is not a compulsory subject in Norwegian teacher education, and not all teacher education institutions offer food and health as an elective course. To be qualified as a teacher in Norway, candidates must have teacher education qualifications. To be able to teach Norwegian, mathematics and English in primary school, special qualifications are needed. For all other subjects there are no specific qualifications (The Norwegian Directorate for Education and Training, 2015). This implies that anyone who has finished teacher education requirements is allowed to teach food and health.

Unfortunately, both teacher education institutions and teacher students regard the practical aesthetic subjects as less important. Food and health is a practical subject where organization of the teaching is very important. The students are not sitting at their desks but are working with sharp knives and hot equipment. Teachers need to possess theoretical, practical, and didactical knowledge and be able to teach cooking techniques, sensory science, consumer science, taste development, nutrition recommendations and food-based dietary guidelines as well as sustainable development in food choice and cooking. In addition, teachers must also have knowledge about allergies, intolerances, and other dietary restrictions.

In his research, Drummond (2010) found that using nutrition education and cooking classes in primary schools encouraged healthy eating. Knowledge about healthy eating, is one of the competency objectives of food and health after Grade 4 in Norway.

The Norwegian Association for Teachers in Food and Health applied to the Gjensidige Foundation for support to carry out a study to gain insight into how food and health was organized and taught in grades 1-4. The aim of the study was to reveal who teaches the content, how the teaching is organized and what challenges the teachers have when teaching. The findings from this study were used to develop an in-service training course for teachers primarily for teachers without formal education in food and health teaching in grades 1-4. The Gjensidige Foundation is a financial foundation that has a non-profit objective to promote health and safety through charitable donations. Such donations are made in accordance with the Foundation's fundamental values: Preventive – Developing – Activity creating – Society building (Gjensidigestiftelsen, nd.).

This paper will present the challenges the teachers faced in teaching food and health for grades 1-4, and what kind of teaching materials and competence enhancement the teachers want and need in order to teach the subject adequately.

### **Method**

A qualitative approach was chosen for this research. According to Lune and Berg (2017) qualitative research “refers to the meanings, concepts definitions, characteristics, metaphors, symbols, and

description of things. In contrast, quantitative research refers to counts and measures of things” (p.12). By using a qualitative method with structured interviews, it is possible to get a better understanding of the challenges of teaching food and health in grades 1-4 than by using a questionnaire.

To obtain a representative selection, five universities covering all of Norway were contacted and asked to supply a list of primary schools used for teacher students’ practice. The lists were numbered and two schools from each list were chosen using Research Randomizer (Urbaniak & Plous, 2018). The principals at the chosen schools were contacted and asked if it would be possible to interview the teachers in food and health on level 1-4 and one from the management. If the schools declined, a new school was chosen. This was done until a total of 12 schools evenly distributed over the whole country had agreed to participate.

The project was provided to the Norwegian Centre for Research Data (NSD). The Norwegian Data Inspectorate has chosen NSD as its partner for implementation of the statutory data privacy requirements in the research community (Ministry of Education and Research, nd). No sensitive personal data were collected, and the answers were given anonymously.

The schools were visited by one or two members of the research team in the spring and autumn 2018. A total of 24 interviews, 15 with teachers and nine with the management, were conducted. Five of the interviews with the teachers were done in focus groups. Each interview lasted 30 to 60 minutes. The interviews were recorded and transcribed.

A structured interview guide consisting of four parts was developed prior to conducting the interviews. The first part consisted of background information about the teachers’ education, competence, and experience. The next part dealt with the framework in food and health at the school, e.g., number of lessons, number of students, organization of the teaching in a classroom or in a home economics room. The third part of the interview asked about the teaching in food and health, e.g., contents, materials, cooperation with other subjects and with the local community.

The questions in the fourth part were dealing with challenges in teaching food and health in grades 1-4 and the teachers’ need for skills development. This paper will focus on the four main questions we asked the teachers:

1. What do you consider as challenging in implementing teaching in food and health in grades 1-4? (practical challenges, organizational challenges, challenges in relation to own competence/knowledge, related to the competence goals in the subject and other things)
2. Is there anything you need in order to provide good education in food and health for grades 1-4 at your school in the future? (equipment, budget, teaching hours, collaboration with other subjects)
3. According to your assessment, is the quality of the teaching materials in food and health for grades 1-4 good enough? Do you have specific wishes for teaching materials?
4. If you were given the opportunity to attend a training course in food and health, what would you prefer that such a course should contain?

The qualitative data collected were interpreted by the authors by categorizing the answers according to the topics listed.

## Results and discussion

The answers from the four questions in the fourth part of the interview guide were divided into three topics: challenges in teaching food and health in grades 1-4; what is needed to provide good teaching in food and health and what content the teachers wanted in a competence course. The answers to questions two and three were merged since there is little teaching material on level 1-4, and most of the teachers therefore had no comments as they did not use any readymade teaching materials.

### *Challenges in teaching food and health*

Answering the question of what the teachers experienced as practical challenges in the teaching of food and health in grades 1-4, all teachers focused on five areas: teaching kitchens, students, teaching, framework factors and competence.

There is often only one kitchen in each school, and the oldest students are given priority over the youngest. In grades 1-4, therefore, few teachers have access to the school's kitchen. There is usually not room for a whole class in the kitchen, and without the possibility to divide the class into two groups, it is difficult to use the kitchen even though it might be available. The benches are often too high for younger students, and they also cannot reach the overhead cupboards. The access of appropriately equipped facilities and kitchen units have previously been interlinked to influencing students' learning opportunities (Lindblom, Arreman, & Hörnell, 2013) The kitchen may be used by many different groups and this creates challenges such as an untidy kitchen and broken or lost equipment. Many mentioned that it was necessary for someone to have the responsibility for the kitchen and to purchase and replace equipment. This is in line with findings from Höijer, Fjellström and Hjalmeskog (2013) who found that replacing broken equipment was simply not a priority.

Many teachers found it difficult to teach young children to prepare food. The teachers were not prepared for the fact that students lacked both background knowledge and experience. As one teacher said, "Some have never peeled a carrot, and some have not even eaten one." Several students did not know how to set a table, so the teachers really needed to start from scratch. In addition, the teachers found it difficult being the only adult present to guide and help a large group of children. They expressed that it was difficult to organize the teaching so that all students benefited from the work in the kitchen.

Teachers of minority language students faced linguistic challenges when students did not always understand what to do or how to cooperate with others. They needed help and support to read recipes, and they often had other dietary rules.

The teachers reported increasing number of students with allergies and other diagnoses to deal with. This presented challenges when cooking, as substitution food items did not necessarily work well. Another challenge mentioned was students who refused to taste certain kinds of food. For example, many had not eaten vegetables at home. Some teachers would have liked to use more of what is locally available and use the school garden if they have one. Drummond (2010) found that using nutrition education and cooking classes in primary schools encouraged healthy eating and that eating together may encourage children to try new foods.

Many teachers called for better framework factors in food and health. The teachers found that the curriculum is verbose and not explicit enough. They claimed that it was a disadvantage that the subject did not have its own scheduled lectures on the timetable, and that grades 1-4 did not have fixed days in the school kitchen. Any lectures in the kitchen were hectic, and there was not enough time to learn and practice good routines. The earmarked lectures for food and health often disappeared in theme teaching or in interdisciplinary teaching programs. Several teachers found that the practical aesthetic subjects were not given priority in their school. It was hard to get everything “squeezed” into a busy school day. In addition, teachers told about poor finances for purchasing food and equipment. When given a probing question, some teachers said they did not have a fixed budget limit. In the new strategy plan for practical and aesthetic subjects, the government wants to strengthen these subjects in school and improve the recruitment of teachers with expertise in these subjects as well (Kunnskapsdepartementet, 2019).

Of the 20 teachers interviewed, 15 teachers lacked formal qualifications in food and health. Some of them even expressed that they did not want to teach the subject. This is disturbing in view of the quality of teaching in the subject that is intended to promote the students' food competence and healthy eating habits. Perlic (2019) found that 78% of teachers in food and health in grades 1-4 did not have formal qualifications. In our sample, we found that 75% did not have any education in food and health. The reason for the small positive difference found in our research may be because these schools were used for teacher students' practice.

Having enough expertise in a subject is experienced very differently by the teachers interviewed. A few saw all the challenges in the subject and expressed that they lacked the competence to meet these. One teacher said that she should at least have been given an introduction to the subject when she was told that she should teach food and health. Other teachers thought that they had enough expertise. One teacher said: "My skills for grades 1-4 are sufficient. It is enough with the everyday competence we have. In the 6<sup>th</sup> grade you probably must have more knowledge about nutritional content and various food cultures and such, but that is something we can figure out. It is not that challenging at this level." With this comment, she stressed that her daily life skills are enough. Or as Lindblom, Arreman and Hörnell (2013) pointed out, food and health is sometimes seen as a subject anyone with their own household is qualified to teach as it only teaches everyday knowledge. This shows a lack of understanding for the subject's syllabus and the complex goals of learning expected to be achieved.

#### *Requirements for good teaching in food and health*

The second question asked the teachers what is needed in order to be able to provide a good education in food and health for grades 1-4 at their school in the future. In their replies, the teachers focused on five areas: teacher competence, kitchen responsibility, time, finances, and teaching materials.

Formal education, number of working years, subject knowledge, teaching tradition and how they interpret the syllabus are all important factors when teachers make choices for the educational content (Lange, Goranzon, & Marklinder, 2014; Molin, 2006). The choices made will have an impact on the students' learning process (Molin, 2006). Many teachers wanted more competence in food and health, and they said that it is difficult to get permission to take competence enhancement courses in this subject. Few

courses are offered, and the schools did not prioritise to send teachers to these courses. The reason for this is two-fold, the cost of substitute teachers and other subjects such as Norwegian, mathematics and English are given priority. At the same time, some of the teachers who did not have education in the subject, did not see the need for further education. One of them replied that she had no education in the subject, and that a course in food and health was not the first thing she had hoped for, as there were other things, she felt she needed more. She continued: "But clearly, if one is to teach food and health, it might have been okay to have a little more competence in it. And there is a need to read up a bit, both on competence goals, and maybe make some plans." A recent study in California found 56% of teachers, who did not engage in nutrition instruction, reported that lack of nutrition knowledge was a barrier to teaching nutrition (Jones & Zidenberg-Cherr, 2015).

Lack of time was mentioned by most teachers interviewed, both the total number of lessons, but also more time for theory and interdisciplinary work. The number of hours is decided by the Ministry of Education (The Norwegian Directorate for Education and Training, 2006). This issue is difficult to change since most school subjects want more teaching hours. With the limited time available, collaboration with other school subject could be a way to increase the possibilities for students to reach learning goals (Lindblom et al., 2013). There was also a desire for more resources to be able to divide the class. With smaller groups it would be easier to use the kitchen.

The teachers also reported wanting a better budget for buying teaching materials. This would enable them to make a proper dinner with fish or meat. They, likewise, lacked equipment such as rolling pins and worktables with necessary equipment. Sometimes they received extra funding, but as nobody had been given the responsibility for purchasing and time was a limiting factor, no purchases were made. They stated that sharing of lecture plans is common in other subjects, but not in food and health, where they were left to their own devices. This coincides with Holthe and Wergedahl (2013) who found that food and health teachers in primary schools have challenges related to the availability of equipment and raw materials. Several lacked plans and ways they could tie together food and health with other subjects. Similarly, Holthe, Hallås, Styve and Vindenes (2013) found that the two primary schools in their study did not have local curricula in the practical aesthetic subjects.

All of the teachers, except one, wanted a textbook or a booklet for grades 1-4 and a resource book for the teachers. Some teachers told that they had used textbooks designed for 6<sup>th</sup> grade students in the absence of other books. The schools have Matopedia (an online textbook for 5<sup>th</sup> -10<sup>th</sup> grade) (Opplysningskontoret for egg og kjøtt, 2020), but must supplement with other teaching materials such as SmartPÅmat (an online textbook for 5<sup>th</sup> -7<sup>th</sup> grade) (Nasjonalforeningen for folkehelse, nd.).

Some also used video clips they found online. Interestingly, a recent study among Californian teachers who reported nutrition concepts, 29% of teachers reported using internet websites frequently and 41% reported using websites sometimes (Jones & Zidenberg-Cherr, 2015). Several teachers said that the quality of what is presented on-line is very poor. They wanted educational programs and help in finding good websites they could use in their teaching. There are plenty of recipes online, and the teachers and students googled to find what they needed, but this is usually not made for young children. The teachers



wanted suitable teaching materials in food and health for grades 1-4, and websites that could be used on tablets. Some teachers had so little experience with the subject that they said they did not have the basis to have an opinion about teaching materials. One teacher remarked: “It is a forgotten subject.”

#### *Preferred content in a competence enhancement course*

The teachers wanted a competence enhancement course in food and health for grades 1-4. This course should focus on how to teach the subject, relevant theory they can use in teaching and time for sharing of experience. There was a wish for shorter education courses rather than longer, further education courses.

Many teachers would like to learn more about how to set up and organize food and health education for the younger students. The teachers had many questions: How could they make things easier? What should they start with? How to teach children to choose healthy? How to use nearby nature? How to teach both theory and practical cooking? What can one do on a tight budget? How to motivate children? The teachers wanted practical tips and inspiration for what they could do, and how to incorporate this in their own teaching. They felt the need to learn more about healthy dishes that are suitable for children, such as fish and tempting packed lunches, and how to use foods from the surroundings.

The teachers asked for suggestions on how to present theory for the younger students. The following is a list of suggestions on theory topics the teachers wanted the competence enhancement course to contain:

- interdisciplinary teaching combining food and health with other subjects
- how to guide and evaluate students
- alternative recipes for students with allergies and intolerances
- basic and simple nutrition to understand dietary guidelines
- general knowledge about food
- how should we relate to genetically modified food?
- who should we listen to when there are many players in the media?
- annual plans in food and health.

The course should have ample time for sharing of experience.

#### **Conclusion and further research**

Our study showed that it was quite random who taught and how the teaching in food and health was organized and carried out at each school. It also revealed that some teachers, without education in food and health, lacked the ability to see their own lack of competence. There is a great need for a resource book for the teachers and possibly a textbook for the students. It is obvious from the study that the subject is not given priority and funding by most managements and teachers.

The teachers want to receive competence enhancement in general nutrition and knowledge about food, and they need inspiration for practical and theoretical teaching in grades 1-4. Furthermore, they want to know more about interdisciplinary teaching combining food and health with other subjects, alternative recipes for students with allergies and intolerances.

This study supports previous findings that a majority of teachers teaching food and health on level 1-4, have no education in the subject. In Norway, the class teachers teach almost all the subjects in the

lower grades, and in view of this, it is recommended that the subject must be integrated in the training of all teachers for primary school.

## References

- Afshin, A., Sur, P. J., Fay, K. A., Cornaby, L., Ferrara, G., Salama, J. S. ... Murray, C. J. L. (2019). Health effects of dietary risks in 195 countries, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*. 393(10184), 1958-1972. [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8)
- Baker, D. P., Leon, J., Smith Greenaway, E. G., Collins, J. & Movit, M. (2011). The education effect on population health: A reassessment. *Population and Development Review*, 37, 307-332. doi:10.1111/j.1728-4457.2011.00412.x
- Drummond, C. E. (2010). Using nutrition education and cooking classes in primary schools to encourage healthy eating. *Journal of Student Wellbeing*, 4(2), 43-54.
- Gjensidigstiftelsen. (nd.). About the Gjensidige Foundation. Retrieved from <http://www.gjensidigestiftelsen.no/english>
- Helse- og omsorgsdepartementet. (2015). *Folkehelsemeldingen. Mestring og muligheter*. (Meld.St.192014-2015). Retrieved from <http://www.emcdda.europa.eu/system/files/Norway%20Folkehelsemeldingen%20Mestring%20og%20muligheter.pdf>
- Holthe, A., Hallås, O., Styve, E. T. & Vindenes, N. (2013). Rammefaktorenes betydning for tilrettelegging av opplæringen i de praktisk-estetiske fagene – en casestudie. *Acta Didactica Norge*, 7(1).
- Holthe, A. & Wergedahl, H. (2013). Mat og helse på barnetrinnet – praktisk, men ennå ikke kreativt. In M. Espeland, T. E. Arnesen, I. A. Grønsdal, A. Holthe, K. Sømoe, H. Wergedahl & H. Aadland (Edt.), *Skolefagsundersøkelsen 2011: Praktiske og estetiske fag på barnesteget i norsk grunnskule* (s. 104–126). Stord: Høgskolen Stord/Haugesund.
- Höijer, K., Fjellström, C. & Hjälmeskog, K. (2013). Learning space for food: exploring three Home Economics classrooms. *Pedagogy, Culture & Society*, 21(3), 449-469. <https://doi.org/10.1080/14681366.2013.809374>
- Jones, A., & Zidenberg-Cherr, S. (2015). Exploring nutrition education resources and barriers, and nutrition knowledge in teachers in California. *Journal of Nutrition Education and Behavior*, 47(2), 162-168. DOI: <https://doi.org/10.1016/j.jneb.2014.06.011>
- Kunnskapsdepartementet. (2019). *Skaperglede, engasjement og utforskertrang. Praktisk og estetisk innhold i barnehage, skole og lærerutdanning*. Retrieved from <https://www.regjeringen.no/contentassets/c8bbb637891443fea7971ba8e936bca4/skaperglede-engasjement--og-utforskertrang.pdf>
- Lange, M., Goranzon, H. & Marklinder, I. (2014). Teaching Young consumers - food safety in home and consumer studies from a teacher's perspective. *International Journal of Consumer Studies*. 38(4), 357-366.
- Lindblom, C., Arreman, I. E. & Hörnell, A. (2013). Practical conditions for home and consumer studies in Swedish compulsory education: A survey study. *International Journal of Consumers Studies*.

37(5), 556–563. DOI: 10.1111/ijcs.12027

- Lune, H., & Berg, B. L. (2017). *Qualitative research methods for the social sciences* (9th ed.). Pearson Global Edition.
- Mikkilä, V., Räsänen, L., Raitakari, O. T., Pietinen, P., & Viikari, J. (2005). Consistent dietary patterns identified from childhood to adulthood: The Cardiovascular Risk in Young Finns Study. *British Journal of Nutrition*, 93(6), 923-931.
- Ministry of Education and Research (nd). Norwegian Centre for Research data. Retrieved from <https://nsd.no/nsd/english/index.html>
- Molin, L. (2006) Rum, frirum och moral: en studie av skolgeografins innehållsval. Ph.D. thesis. Uppsala: Uppsala universitet
- Nasjonalforeningen for folkehelse. (nd.). *Smart på mat*. Retrieved from <https://nasjonalforeningen.no/smart-pa-mat/>
- Norwegian Institute of Public Health. (2018). *Public Health Report: Health Status in Norway 2018*. Retrieved from [https://www.fhi.no/contentassets/d021a759c5ed48ae85fffc94e35785cf/health\\_status\\_in\\_norway\\_2018.pdf](https://www.fhi.no/contentassets/d021a759c5ed48ae85fffc94e35785cf/health_status_in_norway_2018.pdf)
- OECD. (2005) *Teachers matter: Attracting, developing and retaining effective teachers*. Retrieved from: <https://www.oecd.org/education/school/34990905.pdf>
- Opplysningskontoret for egg og kjøtt. (2020). *Matopedia*. Retrieved from <https://www.matopedia.no/startside/?ReturnUrl=/>
- Perlic, B. (2019). *Lærerkompetanse i grunnskolen. Hovedresultater 2018/19*. Statistisk sentralbyrå. Retrieved from [https://www.ssb.no/utdanning/artikler-og-publikasjoner/\\_attachment/391015?\\_ts=16b93d5e508](https://www.ssb.no/utdanning/artikler-og-publikasjoner/_attachment/391015?_ts=16b93d5e508)
- The Norwegian Directorate for Education and Training. (2015). *Krav om relevant kompetanse for å undervise i fag Udir-3-2015*. Retrieved from <https://www.udir.no/regelverkstolkninger/opplaring/Ovrige-tema/krav-om-relevant-kompetanse-for-a-undervise-i-fag-udir-3-2015?depth=0&print=1#2.-kompetansekrav-for-a-undervise-pa-barnetrinnet>
- The Norwegian Directorate for Education and Training. (2006). Curriculum for food and health. Retrieved from [https://www.udir.no/kl06/MHE1-01/Hele/Komplett\\_visning?lplang=http://data.udir.no/kl06/eng?depth=0&print=1](https://www.udir.no/kl06/MHE1-01/Hele/Komplett_visning?lplang=http://data.udir.no/kl06/eng?depth=0&print=1)
- Urbaniak, G. C., & Plous, S. (2018). Research randomizer. Retrieved from <http://www.randomizer.org/>

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