

## A Study of How Cooking is Taught

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### Abstract

*There is no common research approach into how home economics educators teach cookery and food safety. A qualitative observation study of six teachers giving cookery classes to 14-year-old students shows how teachers make more or less conscious didactic choices about subject content. These different choices give the content different meanings. Teachers can create a foundation for formative education (bildung) when they enable students to routinize their own choreography, and conceptualise and reflect, when cooking collaboratively.*

**KEYWORDS:** TEACHING; COOKERY; ROUTINES; HOME ECONOMICS; FOOD AND HEALTH FORMATION; BILDUNG

### Introduction

In Norway, food and health (*Mat og helse—home economics*) is a compulsory school subject. The subject focuses on food, and relates it to life style, consumption and culture (The Norwegian Directorate for Education and Training, 2006)<sup>1</sup>. The development of knowledge about food should promote physical as well as psychological health and social wellbeing, and be part of students' formative education (*bildung*). This is, among other things, achieved by students learning how to cook safely by considering hygiene and order, and by cooking and eating together.

Teaching cooking to junior high school students (14-16-years old) is the focus of this article. Teaching always involves having to make didactic choices. In making conscious choices, teachers need to reflect on different alternatives. The National Curriculum gives guidelines, but teachers choose content and methods for each and every lesson. Didactic competence (Englund, 1991) implies that the teacher reflects on alternative choices and understands that the choice one makes has implications for what students learn. Furthermore, a choice is never limited to facts. Teaching a specific content always involves both facts and values, and facts can be given different meanings, according to the context in which they are taught.

This article is based on a PhD thesis that focused on how cooking is taught to junior high school students. The thesis contained two separate studies. Study 1 showed that Norwegian food and health teachers pay close attention to routinizing students' cooking actions, whereas the second study elaborated on how the routinizing of actions is taught in cookery classes. This article is based on the second study. The aim of the article is to discuss the question:

- What do food and health teachers' didactic choices when teaching routinizing mean for students' bildung?

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<sup>1</sup> A New National Curriculum was introduced from Autumn 2020. It relates food to cooking, health, sustainability, culture and identity.

## Teaching cooking

Even though the routinizing of actions in cooking classes has been shown to be important, we have found no national or international research that focuses on how it is taught (Fordyce-Voorham, 2011; Goldschmidt & Song, 2017; Granberg, 2018; Höijer, 2006; Lange, 2017; Lavelle et al., 2016; Lindblom, 2016; Surgenor, Hollywood et al., 2017; Surgenor, McMahon-Beattie, et al., 2016; Veka et al., 2018). Research on cookery teaching focuses on food safety (Lange, 2017), cookery classroom design and equipment (Fordyce-Voorham, 2011; Höijer et al., 2013; Lindblom et al., 2013), and food choices and recipes (Granberg et al., 2017; Höijer et al., 2014; Veka et al., 2018). Surgenor et al. (2016) and Surgenor et al. (2017) do examine the teaching of practical cooking skills, but they focus on student learning rather than on what teachers do.

Cooking is dependent on the equipment one uses (Sutton, 2015). Teachers who demonstrate how to use different kitchen utensils and, at the same time, highlight and conceptualize how utensils and food interact, simplify students' access to cooking (Venäläinen, 2010). When it comes to food and using recipes, it is important to have knowledge about equivalent ingredients that can be exchanged for each other. Granberg (2018) shows there is a particular lack of such knowledge among students in schools for children with special needs.

Recipes play a central role in cookery classes (Granberg et al., 2017; Höijer, 2006; Veka et al., 2018). When there is a lack of awareness about how to use them, less attention is paid to the food and food safety (Lange, 2017). Recipes are a teaching tool, and teachers must plan how they can be used to raise students' consciousness. It is important they are a support—and not a hindrance—for the learning of cooking skills (Granberg et al., 2017). One obstacle may be that a lack of subject-specific concepts makes it difficult to understand recipes (Granberg, 2018; Veka et al., 2018).

## Routinizing safe cooking—didactic concepts

Some concepts need to be clarified before studying and discussing how teachers teach routinizing in cookery classes.

### Cooking

Norwegian students in junior high school are supposed to learn how to safely cook a variety of tasty dishes and meals (The Norwegian Directorate for Education and Training, 2006). Successful cooking takes its starting point in an idea of the dish or meal to be made. It involves making shopping lists and menus based on preferences, food inventory and budget, so that everything is prepared and in place when the actual cooking starts (Fordyce-Voorham, 2011; Goldschmidt & Song, 2017; Sutton, 2015). In the food and health class, preferences are not only based on what pupils like but also on criteria for healthy and sustainable food and theoretical considerations. One study concludes that cooking skills can be seen as “person-centred and contextual (and hence as specifically *domestic* or *professional*) and as consisting of perceptual, conceptual and organizational skills as well as practical, mechanical skills and academic knowledge” (Short, 2003, p. 177).

In food and health education, practical cooking skills also include issues of hygiene, order and cleaning, that is, making safe food. If cooking is to be safe, the kitchen equipment—depending on the situation and the cook's ability to flexibly use and organize the utensils and food—plays a central role in cooking a planned dish or meal (Sutton, 2015, s. 60-64, 183). In other words, knowledge of the final product, or dish, is central to being able to choose and handle utensils.

To learn about safe cooking is also to learn about taking risks (Sutton, 2015), about trial and error. This means that students should be allowed to fail, whether it is a matter of cooking methods, sensory aspects, or choices and combinations of foods and utensils. Taking risks helps to develop *perceptual* and *conceptual* skills (Short, 2003); students must be able to take criticism, be open to new experiences, expand their food horizons, take things step-by-step and adapt to new conditions.

Following the work of Short (2003) and Sutton (2015), the authors of this study understand teaching safe cooking as being a matter of designing the cooking lessons so that students can take risks, use their senses, conceptualize, plan, make decisions and use theoretical and practical knowledge and skills. Safe cooking is operationalized in a number of action categories: cooking methods; making decisions about safe food; using utensils, ingredients and recipes; product evaluation throughout the

cooking process; and organisation. In our study, “other” was used as a final action category, to ensure that any other actions were not left out.

### **Routines**

Food and health teachers are concerned with routinizing all of their pupils’ actions. Like all actions, the ones that make up the cooking process have an inner structure of steps in a choreographed order (Grimen, 1997). The choreographed order signals that routines are context-sensitive and flexible. In a process of routinizing, individuals can spend different amounts of time on each step and the order can vary. This means that the inner order of the actions will be routinized differently. To have established a fixed order of steps in an action indicates that the action is routinized and can be performed with confidence. The routinized action provides predictability, which in turn makes it possible to organize and synchronize actions. A fixed order of, for example, the process of boiling vegetables, can consist of details as to how it is performed. Although routines can serve as a type of manual for how specific actions should be performed, they are often regarded as devalued actions (Ehn & Løfgren, 2010; Grimen, 1997).

Applying a choreography perspective to routines implies that the same routine can be performed in different ways. Ehn and Løfgren (2010) argue that the range of different ways in which a routine can be executed and understood indicates that there are polarities in routine actions. One such polarity concerns the rigour of a routine: how a routine might *limit* or *support* personal development (Ehn & Løfgren, 2010).

How rigorously educators choose to teach the choreography of the different cooking categories will give different meanings to what is taught (Englund, 1991). The ways in which different teachers present routine actions will have consequences for their students’ learning and development (*bildung*).

### **Bildung**

The concept of *bildung* is somewhat unfamiliar in the Anglo-Saxon world. It can be described as a two-sided coin, with a process side and an ideal side, and can be defined as *becoming a human* (an ideal or result) or *becoming as a human* (a process). Steinsholt (2011) writes that Humboldt spread the term *bildung* from Prussia, more than a hundred years ago. Humboldt argued that the process a young person undergoes during growing up into adulthood is a process that forms her/his personality. He postulated that this is a process in which language is an important tool, a process which requires not only time, learning and skills, but also active participation in social life. The young person should learn that it is necessary to take responsibility, not only for him/herself, but also for society. It involves automatically developing the willingness to go on learning, to act responsibly for the community and to be critical (Steinsholt, 2011).

According to the National Curriculum, *bildung* in food and health is related to what Dale (2010) calls formal *bildung*-processes. Students develop through thinking critically, gaining independent insights and exercising responsibility and co-responsibility; communication is a central feature (Dale, 2010; The Norwegian Directorate for Education and Training, 2006). Furthermore, formal *bildung*-processes require that when subject content is offered, it should contain a diversity of meanings.

Food and health has the reputation of being taught in a rather fixed, unchanging and moralistic way (Hjälmeskog, 2013; Kristiansen & Kristiansen, 1997). If there is no diversity of meaning, the student’s development is secondary, and we see so-called material *bildung*-processes (Myhre, 1978). Teachers who are aware of their subject’s normative content can more easily teach it with a degree of uncertainty and wonderment, and thus make their classes meaningful for all students offer diversity to the content. They will not just pass on a fixed content that does little to help each students to develop (Hopmann, 2007).

### **Data Collection, Methods, Analysis and Research Ethics**

In this study we examine how teachers’ didactic choices give different meanings to the routinizing of safe cooking actions in food and health classrooms, and discuss how these different meanings have consequences for students’ experiences and *bildung*-processes. To be able to do this, we made specific decisions about the collection and analysis of data.

### Data collection, methods and data basis

To study teachers' didactic choices, we selected the method of participatory observation, an approach that enables the researcher to capture immediate actions. Thus, teachers' subjective interpretations of their own practice did not provide basic data, which would have been the case if we had, for example, interviewed them (Fangen, 2011). Because of the noise of kitchen equipment and students' conversations, the fact that teachers constantly and quickly moved around the classroom, and in order to safeguard confidentiality, data was collected as field notes instead of by video camera. No names were noted. Attention was focussed on all of the details of teachers' oral and practical actions. As it was not possible to write down everything that we observed, our field notes were complemented directly after the classes (Fangen, 2011).

We observed six food and health teachers, in five different school kitchens/classrooms in five schools, both urban and rural ones. An average of 12 students were organised in groups of three to four to cook together. The teachers' age and teaching experience varied. Their level of education also varied, in line with the national average for food and health teachers in Norwegian upper secondary schools (Statistics Norway, 2014).

At the beginning of the school year, the students' collaboration was organized according to a *family model*. This meant that students took turns in doing cooking tasks according to a scheme predetermined by the teacher. Later on, the students organised the collaboration when cooking themselves. The menus for the cooking classes included pancakes, salad and baking with yeast. Some student-planned menus were based on leftovers. They made everyday meals, as well as a synchronously served one with many side dishes.

### Analysis

Data was analysed using a five-step directed content analysis, in which theoretical concepts related to cooking and routines are used as a basis for categorisations of the data into matrixes (Grønmo, 2016; Mayring, 2000). The first step of the analysis consists of the development of categories, characteristics and matrixes. Table 1 shows the structure of the matrix created to sort the data in relation to the eight possible cooking action categories. The matrix also categorises whether the ways teachers chose to present the routine limited or supported their students' development. One matrix was filled out for each teacher. The second step of the analysis involves categorization.

Table 1 Matrix for Categorisation of Actions During Cooking and Polarity

| Actions in cooking | Cooking actions                   | Polarities in teachers' presentation of routinizing  |
|--------------------|-----------------------------------|--|
| Field notes        | Eight possible categories:        | Two possible categories:   |
|                    | 1. cooking methods                | 1. Presentation that limits students' development. Indicators: limit, inhibition, restriction, one-sidedness   |
|                    | 2. safe food                      |  |
|                    | 3. use of utensils                | 2. Presentation that supports students' development. Indicators: encourage, substantiate, help, defend, second |
|                    | 4. handling of foods              |  |
|                    | 5. product evaluation             |  |
|                    | 6. throughout the cooking process |  |
|                    | 7. handling of recipes            |  |
|                    | 8. organizing                     |  |
|                    | 9. other                          |  |

Cooking methods were operationalised according to Kirkegaard and Klinken (2013): these included cooking, frying, baking, thickening, stiffening, marinating, chopping and cutting, and their subgroups. Safe food was operationalised as actions related to hygiene, order and cleaning.

Examples of the categorisation of two different cooking lesson situations is illustrated in Table 2.

Table 2 Examples of Categorisation

| Field notes (transcript).   | Cooking categories | Polarity in teachers' presentation of routinizing |
|---|--------------------|---|
| ... [T]eacher leans calmly on her desk. She nods her head and looks at all the groups, loud, clear and gentle voice: So you have to be a little careful to have a little lower heat when you make white sauce... And then you have to follow what happens in the pan closely! | Cooking method     | Supportive  |
| Teacher rinses berries in running water before silently distributing the berries to the students  | Safe food          | Limiting  |

By cutting the completed matrixes into rows based on actions, and sorting the rows into cooking categories, the analysis went into the third stage, in which those actions that were respectively supporting and limiting within each category were sorted out. This gave us actions in 15 of the possible 16 categories. The result is shown in Table 3.

Table 3 Teachers' Actions Divided Into Cooking Categories

| Routinizing of                    | Limiting students' development | Supporting students' development |
|-----------------------------------|--------------------------------|----------------------------------|
| Cooking methods                   | 33                             | 121                              |
| Safe food                         | 23                             | 92                               |
| Use of utensils                   | 20                             | 25                               |
| Handling of foods                 | 13                             | 40                               |
| Product evaluation                | 29                             | 21                               |
| Handling of recipes               | 14                             | 17                               |
| Organising                        | 16                             | 23                               |
| Other                             | 0                              | 8                                |
| <b>Total actions per category</b> | <b>148</b>                     | <b>357</b>                       |
| <b>Total sum of actions</b>       | <b>505</b>                     |                                  |

Actions in each category were then compared in order to search for underlying patterns that might be common to multiple actions in the category (Fangen, 2011; Grønmo, 2016). As patterns were sorted out, they were grouped and named accordingly (see Tables 4 and 5).

In the fourth stage of the analysis, the characteristics of the different groups were discussed in the light of theory related to routinizing and cooking, as well as research-based knowledge about cooking. This discussion brought out the meanings that teachers gave to the subject content. In the fifth and final stage of the analysis, the meanings of the content are discussed in the light of Dale's understanding of *bildung* in order to help us answer the question: *What do food and health teachers' didactic choices when teaching routinizing mean for students' bildung?*

### Research ethics

Research needs to follow ethical guidelines and satisfy internal and external demands (Grønmo, 2016; NESH, 2016). In keeping with external ethical obligations, participants in this study were informed about the study and gave their oral permission, both when invited and when data was collected. Participant confidentiality was ensured by categorizing quotes into actions instead of persons, and by referring to participants and third parties in general terms.

Internal ethical obligations, such as safeguarding our own impartiality as teacher educators, were adhered to using results from a study using grounded theory methodology. To generate valid data from which conclusions about many details in teachers' teaching actions could be drawn, participant observation and field notes were used to collect data. Furthermore, theoretical concepts used in our analysis are carefully described, so that the reader can judge their validity. To ensure greater reliability, our field notes were proofread, and possible additional details added immediately after

observation. The systematic description of analysis procedures (above) has also strengthened the study's reliability.

## Results

The teachers' more or less conscious actions were categorised as either *supporting* or *limiting* students' development, in line with Ehn and Löfgren (2010). We firstly describe the didactic choices that lead to teachers' actions which limit students' development, before describing patterns of teachers' actions that support students' development.

### Teaching safe cooking routines in ways that limit students' development

When safe cooking routines are predominantly presented in ways that limit students' development, teachers' actions generally lack substantial subject-specific content (see Table 4, column 2). Concepts characterizing teachers' actions, that is, their didactic choices, are presented in the third column of Table 4. The fourth column lists the degrees of meaningfulness that emerge when action patterns are reflected on, from the perspectives of the study's theoretical platform and research-based knowledge.

Table 4 Teaching That Limits Students' Development

| Cooking categories  | Examples of teachers' actions   | Characteristics of action patterns   | Contents' meaning |
|---------------------|---|--|-------------------|
| Cooking methods     | Ignores students' inquiries; order-like inadequate information  | Silence regarding subject content. Commands. Limited use of subject-specific concepts. | Meaningless       |
| Safe food           | Cleaning  | Ignores in silence; commands.  | Mechanical        |
|                     | Food hygiene, order   | Does not make important action steps visible   | Meaningless       |
| Use of utensils     | Subject-specific justifications and elaboration are lacking.  | Limited use of subject-specific concepts, management and contextualisation.            | Meaningless       |
| Handling of food    | Knowledge about food is not thematised. Expensive food is portioned out.  | Obedience; camouflaging of the subject-specific.                                       | Meaningless       |
| Product evaluation  | Feedback to students has no subject-specific meaning, e.g. <i>really good!</i>                                    | Superficial. Without subject content and limited use of subject-specific concepts.     | Meaningless       |
| Handling of recipes | Students are instructed to uncritically follow recipes. Teacher does not follow recipes. Recipes are not decoded. | Confusion. No subject content.   | Meaningless       |
| Organisation        | Constantly new information about organisation.  | Uncertainty.   | Ambiguous         |

Subject content defined as *meaningless* lacks substance, while content defined as *ambiguous* lacks focus. Content that is *mechanical* does not involve reflection; it is robotic and automatic.

### Teaching safe cooking routines ways that support students' development

When safe cooking routines are predominantly presented in ways that are supportive of students' development, teachers' actions make the subject content meaningful. In Table 5, column two shows examples of actions that contain the characteristics presented in column three. The fourth column presents the degrees of meaningfulness that emerge when the teachers' actions are reflected on, from the perspectives of the study's theoretical platform and research-based knowledge.

Table 5 Teaching That Supports Students' Development

| Cooking categories | Examples of teachers' actions  | Characteristics of patterns in actions  | Contents' meaning |
|--------------------|--|---|-------------------|
| Cooking methods    | <i>What's the sauce like?</i><br>One teacher showed and told: "Divide in the middle, and in the middle, and take the bad parts away, but the best way is to tear the salad into pieces, then you get a nice result." "Good if one stirs and the other thins down". | Exploratory, structuring, contextualizing, challenging, appreciative. Wonderment. Not related to a planned dish. Use of everyday concepts.      | Flexible          |
|                    | Order, cleaning  | Agreement on a clean and tidy result, but the teacher must constantly repeat procedures to arrive at the agreed result.                         | Ambiguous         |
| Safe food          | Food hygiene   | Provides subject-specific support to students who show initiative and willingness to act; challenges other students to use subject knowledge.   | Flexible          |
| Use of utensils    | Provides subject-related positive questions and feedback. Supports the development of choreography. Challenges students to use their senses.   | Appreciative, structuring, challenging. Wonderment. To some degree related to a planned dish and some use of subject concepts.                  | Flexible          |
| Handling of foods  | Focuses on choreography and procedures; shows how to break a herbal leaf between the fingers to sense it. Challenges students to reflect.  | Structuring, contextualizing, appreciative, challenging. Wonderment. To some degree related to a planned dish and some use of subject concepts. | Flexible          |
| Product evaluation | Students challenged to reflect: What must be changed to make a healthier product? How can we make thinner pancakes? Students were unfamiliar with product demands before they were engaged in the process.   | Challenging. Not firmly attached to a particular dish or subject-specific concepts.   | Ambiguous         |
| Handling recipes   | Decoding recipes - "look at the stages of the recipe, read step by step". Students challenged to adapt to the context.   | Structuring. Challenging. Everyday concepts.  | Flexible          |
| Organisation       | Do you remember what I said about organisation? Today we'll make the pancake mix first, and let it swell while we're in the lab.   | Structuring, but not anchored in an agreed-upon dish or in subject-specific terms.  | Ambiguous         |
| Other              | Small talk related to wishes, traditions and ambience.   | Inviting  | Flexible          |

*Flexible* describes teaching that has substantial subject content, presented with a kind of wonderment that challenges the students. Content defined as *ambiguous* lacks focus.

The results presented in Tables 4 and 5 show how the same teaching content is given different meanings due to teachers' more or less conscious didactic choices. Below, the possibilities for students to learn routines and their possibilities for *bildung* are discussed.

### Students' possibilities to learn routines in cooking classes

- Do the students have the possibility to learn how to routinize safe cooking? Does this possibility vary, according to which cooking category they practice?

A number of teachers present cooking methods (cooking, frying, baking, thickening, stiffening, marinating, chopping and cutting), hygiene, handling of food and recipes by employing a flexible approach. These teachers make didactic choices that challenge individual students to be aware of the interaction between themselves, kitchen utensils, recipes and foods: there are conversations, reflections and actions around the different steps and order of actions. According to Surgenor et al. (2017), such an individual focus supports students in learning how to cook. If there is time enough, students will routinize their actions (Grimen, 1997). Teaching that involves conversation and reflection first and foremost challenges students' everyday concepts and gives them the opportunity to routinely engage in everyday communication about cooking.

Venäläinen (2010, s. 99) has studied the relation between conceptualization and practice in cooking. She found that when the teacher conceptualized kitchen utensils without showing students how to use them, they became insecure which, in turn, caused them to ask many questions. When the teacher acted in this way, his/her actions were categorised as *meaningless*. When kitchen utensils, which can be regarded as the key to routinizing (Ehn & Löfgren, 2010) and cooking, are neglected, the relation between the cook/student and cooking categories is made invisible (Sutton, 2015).

The teachers did not pay much attention to the organisation of cooking, as defined by Short (2003). Organising, in this context, is about organising the cooking process on the basis of the planned outcome, that is, a dish or a meal. Organising is closely related to product evaluation—the evaluation of products and cooking processes and the final result, in relation to the planned final product. However, when the teaching of organisation and product evaluation is *ambiguous* and/or *meaningless* and unrelated to the planned outcome, students will lack references for organizing and evaluating during the cooking process. Without a planned dish or meal as frame of reference, the student will not be able to see that organising and product evaluation steps need to be made in a specific order. This can quickly create chaos rather than the routine that enables students to find out how they can organize their own actions and choreograph their own steps (Ehn & Löfgren, 2010; Grimen, 1997). This study shows that when teachers make didactic choices about presenting cooking methods that are *meaningless*, students have less of a chance of learning how to cook. Teachers often argue that cooking skills are needed to be able to cook from scratch (Granberg, 2018, s. 51). A lack of focus on subject-related concepts and the practical skills of handling food will make it difficult for students to see the nuances of cooking methods, such as simmering versus boiling (Granberg, 2018). When students both boil/cook and fry in the school kitchen, without conceptualizing what they do or being helped by their teacher (Lindblom, 2016, s. 60), it will be their own individual knowledge and skills that determine what they can routinize.

Recipes seem to play an important role in cooking classes, but when teachers present them in a meaningless manner it will not be possible for students to routinize how to use them. However, this may work to the students' advantage; not being able to routinize recipes means that students must reflect and make choices themselves. And this might give them deeper knowledge about foods and safe food (food hygiene, order and cleaning) (Lange, 2017). In our study, this was the case for *food hygiene*, but not for *order* and *cleaning*. The teaching of *order* is ambiguous or meaningless, while teaching of cleaning is ambiguous and robotic. There are no opportunities for reflection when subject content is presented in a meaningless, ambiguous or robot-like way. If actions are not reflected on and there is no substantial content, they will be atomized and thus difficult to transfer to situations outside of the classroom. Grimen (1997) has a more nuanced view of routines. He considers that routines are never completely automatized; they will always require a degree of attention and, over time, have to be adapted to new contexts.

What goes on in the cooking class varies in a number of ways. Teachers make didactic choices, which means that the different ways in which they present the same subject content will produce different meanings. The use of recipes is one example; in one situation it is presented flexibly and meaningfully

while in another it is presented in a meaningless, rigid manner. Students will have different possibilities to routinize safe cooking, and this will depend upon the degree of clarity with which teachers present the different stages of the cooking process.

The results of this study show that it is teachers' didactic choices in areas that can especially hinder students from learning routines. Firstly, the teaching of food safety, order and cleaning is characterised by ambiguity or meaninglessness. Secondly, the teaching of organising and product evaluation is not clearly related to a planned end product. When there are no clear links to a final result it becomes difficult for the students to routinize, and practice what Sutton (2015) argues is important in learning how to cook: trying, failing and making changes in relation to the planned product, that is, conscious risk taking.

This means that the teachers' didactic choices, on the one hand, give students the possibility to routinize fragments of the cooking process. This study also shows that teachers challenge individual students on the interaction between themselves, kitchen utensils, recipes and foods if the different steps in cooking are at the centre of conversations, reflections and actions.

### **Routinizing of the cooking process and *bildung***

Food and health education should provide a foundation for formative *bildung* (The Norwegian Directorate for Education and Training, 2006). Formative *bildung* possibilities are linked to students' development; through their insights into the subject, of being able to communicate using subject-specific concepts and through action, on the basis of critical and creative thinking, in order to assume responsibility and co-responsibility (Dale, 2010). The possibility of material *bildung* is linked first and foremost to the transmission of subject content and norms (Myhre, 1978).

When teachers choose to offer a routinisation of fragments of the cooking process (cooking methods, foods hygiene, etc.) they also routinize the use of everyday concepts. The students then communicate, and critically and creatively evaluate their cooking using those everyday concepts. When, in this way, the teacher de-emphasizes subject-specific concepts, it means that details and nuances are not visible to students, and the opportunities for formative *bildung* diminish.

This study shows that teaching cleaning has a normative character, and that it has an ambiguous content. Teachers organise their lessons so that the students can take responsibility and co-responsibility for cleaning; however, it is not always the case that students do so, since teachers choose to command them to carry out these tasks. This might be because keeping order and cleaning are regarded as low-status, everyday chores (Ehn & Löfgren, 2010; Short, 2003). The lack of a strong conceptual apparatus in the subject of food and health makes it difficult not only to raise the status of cleaning through discussions (Sutton, 2015), or to produce an interest in the different aspects of this topic. It seems that neither formal nor material opportunities for *bildung* are present when cleaning is taught, due to the weak and normative way in which it is taught.

The teachers in this study do not give students much of an opportunity to routinize cooking in relation to a clear picture of the final result—a dish or a meal—as a basis for risk-taking and decision-making. From a *bildung* perspective, this reduces the students' possibilities to practice critical and creative thinking and action early on in the process of learning how to cook. This reduces the possibility to conceptualise issues related to nutrition, health, sustainability, sensory and identity and thus acquire a more solid foundation for taking responsibility and co-responsibility in cooking.

Around the middle of the school year, the teachers tended to transfer the organization of cooking to the different student groups. Even if we do not know for sure what subject content the students routinize, this change gives them the opportunity to discuss, conceptualize and take responsibility and co-responsibility for the benefit of the group and its members. This way of organising group work becomes an arena where formal *bildung* ideas can be trained.

The students prepare dishes and full meals all the time during the cooking lessons. Nevertheless, this study shows that they only get the opportunity to routinize fragments, and this is because there is no focus on the interaction between students, utensils and foodstuffs. Such fragmentation will limit students' opportunity to see how they can participate and influence the cooking process. This can mean that they just learn to pass on what has gone before them, and that they merely experience a material *bildung*.

However, this study also finds that teachers organise the cooking classes so that there is an interaction between students, kitchen utensils, recipes and foods, and that where the steps involved in cooking are central to conversations, reflections and actions. In such situations, students are taught according to formal *bildung* ideas.

## Conclusion

A number of teachers give student groups the opportunity to organise their cooking, at the same time as they conceptualize and teach safe food as steps in a choreographed order where interaction between students and the different components of the cooking process are emphasized. Such teachers give their students opportunities to routinize theoretical and practical actions and to reflect. Their students are thus exposed to the formal *bildung* processes that are a part of the National Curriculum.

The study shows that teachers' different and more or less conscious didactic choices give students different opportunities to choreograph and conceptualize their own cooking. This is a challenge to teacher education. There is a need to train future teachers to direct their academic gaze on the concept of cooking, and their didactic gaze on how didactic nuances can limit or promote students' opportunities for learning and *bildung*.

## Author Biographies

**Associate Professor Karen Lassen** worked as a teacher educator for more than 20 years, and before that as a Home Economics teacher in high school. Now retired, but still active as researcher; active in The Norwegian Association for Food & health in Education and as an author of articles about the subject Home Economics in Great Norwegian Encyclopedia.

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