



## Teachers' Pedagogical Challenges and Solutions in Finnish Adult Education Home Economics Online Courses

Pirjo Lehtiniemi  
*University of Helsinki, Finland*

Sirpa Kokko  
*University of Eastern Finland, Finland*

Erja Syrjäläinen  
*University of Helsinki, Finland*

Päivi Palojoki  
*University of Helsinki, Finland*

### Abstract

*The aim of this research was to examine the pedagogical tools, methods and prerequisites that teachers use to enable the learning of food preparation skills in adult education online courses organised by Finnish adult education centres (AECs) and The Martha Association (hereinafter, the Marthas). By applying the sociocultural approach, this study examined these pedagogical challenges and solutions from the perspective of embodied, material and social mediations. The data used in this study were obtained from six online interviews with home economics teachers in three AECs and two Martha clubs. The data were analysed using a theory-driven qualitative content analysis. The results can be summarised by three key elements: the challenge of achieving teachers' triple proficiency, teachers' pedagogical responsibility and understanding the specific nature of the social interaction in online courses. Teachers need a new kind of proficiency that emphasises their digital skills, the strong role of their experiential knowledge and their multilevel accessible social interaction. The results highlight the need for teachers' continuous development to find pedagogical solutions. However, organisations are also responsible for providing facilities and teacher support. Pedagogically well-planned and conducted online courses are important for participants who cannot attend ordinary face-to-face courses.*

**KEYWORDS:** HOME ECONOMICS PEDAGOGY, ONLINE EDUCATION, ADULT EDUCATION, EMBODIED KNOWLEDGE, SOCIOCULTURAL PERSPECTIVE

### Introduction

Recent years have highlighted the importance of research that could support the use of information and communication technology (ICT) in a pedagogically reasonable way by home economics teachers. Pendergast et al. (2012) argued over a decade ago that ICT brings opportunities, in addition to challenges, to home economics, as it provides new constantly

Lehtiniemi, P., Kokko, S., Syrjäläinen, E., & Palojoki, P. (2024). Teachers' Pedagogical Challenges and Solutions in Finnish Adult Education Home Economics Online Courses. *International Journal of Home Economics*, 17(2), 62-76.

developing channels to teach. Digital learning environments have many benefits such as the option to participate in courses without place restrictions (Palovaara Sørberg & Müller, 2021). However, in home economics education, ICT has not been intensively used in many countries before the COVID-19 pandemic (e.g. Carrillo & Assunção Flores, 2020; Sundqvist et al., 2020; Taar & Koppel, 2021).

Before the pandemic, experiential studies have been conducted, including promoting part of the learning of food preparation through podcasting (Surgenor et al., 2016) or promoting home economics through videos (Matthews & Macaskill, 2015). However, in the bigger picture, home economics (e.g. food preparation skills) is mostly taught face-to-face for several reasons. For example, Phua et al. (2011) studied the behavioural intention to use the internet as a teaching-learning tool in home economics in Malaysia. They noticed that teachers' attitudes towards the internet, its perceived usefulness, ease of use and enjoyment correlated positively to their willingness to use the internet in their teaching practice. Many teachers had good intentions to use the internet but they needed more encouragement and training to actually start using ICT as a pedagogical tool (Phua et al., 2011).

More recently, in Finland, Sundqvist et al. (2020) studied home economics teachers' beliefs, frequency and purpose of ICT use in lower secondary education. The data used in their study were collected in 2016, before the COVID-19 pandemic. Their results revealed that the use of ICT for learning purposes was rather infrequent among home economics teachers and that the most frequently used digital device was a data projector. Many practical skills teachers used ICT only to support face-to-face learning (e.g. Sundqvist et al., 2020) even though ICT played a strong role in various functions in Finnish society before the COVID-19 pandemic. The situation was similar in other countries such as Estonia (Taar & Koppel, 2021).

Previous research (Phua et al., 2011; Sundqvist et al., 2020; Taar & Koppel, 2021) has shown that home economic teachers did not find ICT very useful or were not confident enough to use it in their teaching, especially in online environments. Among the most important factors that influenced their decision not to use ICT was their belief that teaching online would be pedagogically challenging in home economics because of the strong role of embodied and material mediations in teaching practical skills (e.g. Sundqvist et al., 2020). According to Renwick (2015), teaching home economics requires teachers not only to produce something but also to know how and why something can be produced in a particular way. Therefore, it is pedagogically challenging to combine this practical knowledge of food preparation with online environments.

However, the COVID-19 pandemic forced all teachers to adapt to the requirements of remote teaching (Kouhia et al., 2021). Kouhia et al. (2021) argued that the digital environment and remote teaching highlight the role of the teacher as a course facilitator. Aquino and Briones (2022) studied ninth-grade students' food preparation skills in remote learning and observed that they needed the teacher's guidance quite frequently. They concluded that online teachers should be provided constant training, coaching and mentoring in virtual teaching and sufficient facilities and equipment to manage online courses in the school context (Aquino & Briones, 2022). Thus, understanding how teachers can support learning in home economics online courses has become crucial, both in schools and in adult education.

ICT plays a significant role in people's lives, and many are increasingly accustomed to using it in their everyday lives. The demand to use ICT as a teaching tool is also increasing. However, the nature of food preparation as a practical skill challenges home economics teachers to search for new pedagogical solutions to their online courses. Although many studies have investigated distance education, studies focusing on pedagogical challenges and solutions applied to online courses in home economics and food preparation skills are still lacking, especially in adult education. To fill this knowledge gap, this study was aimed at determining how Finnish home economics teachers support the development of food preparation skills in their online courses. The research context of this study is nonformal adult education in Finland, which is provided by Finnish adult education centres (AECs) and The Martha Association (hereinafter, the Marthas). Both AECs and the Marthas provide unique learning environments that are tailor-made for adult learners. However, turning from ordinary home economics classroom learning to online courses presents additional challenges.

### **Conceptual framework of this study**

Lev Vygotsky (1978) argued that an individual's development cannot be separated from the social and cultural contexts in which it is situated. This means mental processes can only be understood when social interactions, material tools and psychological tools such as the language, signs and symbols that mediate them are acknowledged (Glăveanu, 2020; Verenikina, 2003; Vygotsky, 1978). For this research, the sociocultural approach to teaching and learning deepens the comprehension of the nature of the teaching and learning of food preparation skills in home economics and provides a focus on the aspects to be considered when teaching and learning online among adult learners.

All artefacts manufactured or created by people are influenced by the cultural development of the surrounding society (Verenikina, 2003). Material tools and other artefacts such as recipes are essential for learning food preparation skills in home economics. De Léon (2003) indicated that a physical place for cooking is a highly structured environment that requires several tools and ingredients. He argued that the person working in the kitchen must pay attention to various things such as timing and coordination simultaneously (de Léon, 2003). According to De Léon, food preparation is a combination of using tools, handling ingredients and understanding the cultural heritage of a particular meal.

In addition to the key role of material tools in the learning of food preparation skills, the role of embodied actions such as hand movements, senses and perception, is crucial in the learning process. As Sutton (2009) pointed out, a person preparing a meal should have knowledge ranging from "melting, stirring, handling different substances, to finding the relevant ingredients and utensils within the layout of the kitchen." These sensory components can be learned only through experience, "from the kinesthetic of various cooking procedures, chopping, mixing, etc. to the use of the tongue and nose as 'tools' to mark the progress of the dish and make the constant judgments and adjustments that are part and parcel of skillful cooking" (Sutton, 2009). Patel (2008) calls this embodied thinking, referring to how body movements, handling of tools and materials and actions in space are related to thinking processes. That is, as Baurley et al. (2020) described, learners' embodied knowledge is bound in both their experiences and the material and environmental contexts in which they cook.

Actively and analytically used senses are also central to thinking and learning practical skills. Trubek and Belliveau (2009) argued that the kitchen creates “an ideal framework for multisensory learning, because of its smells, sounds, sights, textures and tastes.” For example, when baking bread, experts know the right consistency of the dough by touching it. They know the correct hand movements to shape the dough into bread and can see and smell the right moment when the bread is ready to be removed from the oven. Therefore, the senses not only enable the gathering of information but also provide a real-time analysis of the process (Patel, 2008).

By preparing a meal, learners gain more skills in preparing that particular meal. In this internalisation process from external to internal, the tools modify and transform the learners’ thought processes as they begin to use these new tools to express their thinking (Hedegaard, 2004; Kozulin, 2002; Vygotsky, 1978). According to the sociocultural theory, this learning occurs in social interactions with others such as teachers or more capable pairs (Hall, 2007; Kozulin, 2002; Vygotsky, 1978). Both material and psychological tools are social by nature (Kozulin, 2002). Social interaction is often emphasised in adult nonformal courses. As Rothes et al. (2014) suggested, some adults may participate in a certain course mostly for social motives such as meeting new people. The interaction between participants sharing the learning situation determines the meaningfulness of the learning process (Hall, 2007).

The sociocultural theory was originally developed to understand child development and learning (Vygotsky, 1978). However, the same learning process also applies to adults who are learning new skills (Rosser-Mims et al., 2017; Shah & Rashid, 2017). In this article, our focus is on adult learning in the context of nonformal food preparation courses.

## **Aims and methods**

### **Aim and research question**

The aim of this study was to examine teachers’ pedagogical challenges and solutions in the online learning environment in home economics online courses in Finnish adult education.

The research question is as follows:

1. What pedagogical tools, methods and prerequisites do teachers use to enable the learning of food preparation skills in adult education online courses?

### **Research context**

The context of this research is courses for teaching food preparation skills in AECs and the Marthas in Finland. AECs are educational institutions chiefly maintained by local authorities (Ministry of Education and Culture, 2024). AECs are available to everyone, regardless of age or educational background. Learning is largely self-motivated and, as a rule, is not aimed at achieving a formal qualification. The courses are paid, but the course fees remain highly reasonable, as the central government and local authorities subsidise them. Classes are offered for a wide variety of subjects. The most popular courses are in crafts and home economics. The choice of a course on offer varies between centres, and each centre is responsible for designing its own curriculum to ensure that it best reflects the demand in its locality. AECs have become an integral part of the Finnish liberal adult education system. Every year, more than one in ten Finns, a total of more than 600,000 people, attend courses in AECs (Kansalaisopistot.fi).

The Marthas is a Finnish nonprofit organisation that is well known for its dedication to educating the public in matters of home economics. Founded in 1899, the Marthas offer advices on food, nutrition, gardening, environment, family finances and consumer issues. It provides cultural and civic education, engages in advocacy work in Finland and is active in the field of cooperation with women's NGOs in Africa. Home economics is the Marthas' main activity. In addition, they participate in various campaigns in collaboration with other organisations and the authorities. Adult education is an important field of activities and implemented in study groups. The themes vary from human relations, women and development, gardening and environment to cooking and healthy eating. The Marthas is a member of the International Federation for Home Economics. They work on an organisational basis both in rural areas and towns. The current membership count is 38,500, most of whom are women. Members are organised into 1000 local clubs headed by elected leaders. The organisation is divided into 13 districts. Each district association has an executive director, employed home economics specialists and elected board members. The central association Marttaliitto (The Martha Association) has its headquarters in Helsinki. The funding comes from different sources such as dues, paid courses and organised happenings. The organisation has been receiving state subsidies since 1907 for the expenses incurred by home economics counselling (The Martha Association, 2024). Except for club members, they also organise food preparation courses for everyone interested.

In this study, we focused on courses for food preparation skills that are offered to the public. Despite the different organisational bases, the approaches to these food preparation courses are similar. Both AECs and the Marthas emphasise the learning of different food preparation techniques and skills and healthy eating. In addition, social interactions and new experiences are important for the adults participating in the courses (Kansalaisopistot.fi, 2024; The Martha Association, 2024). As Sutton (2009) observed, the kitchen is "a mix of practices that blur the distinctions between the social and the technical." Many of the goals defined already in Finnish home economics basic education at the school level, such as to support the growth of individuals into responsible consumers, to develop the ability to maintain the preconditions of everyday life or to contribute as active members of the family and society (Finnish National Agency for Education, 2024) are important, along with the learning to prepare a particular meal.

In the face-to-face food preparation courses, the main target is to learn a particular skill such as baking pastry or learning to cook, for example, Asian or Italian cuisine. The main motivation for many participants is to gather together to learn how to cook. The cooking is often done in pairs and when the meals are ready, participants eat and discuss how they experienced the food preparation process. The course offers many ways of learning. The teacher supervises and shows the critical points in the cooking process. The participants support each other when they are preparing food. After the food preparation, they sit together around the same table, reflect on the preparation process and taste different dishes, deepening their learning experience.

## **Data collection**

The data gathering started by searching for all the available food preparation online courses in the service of the Finnish Association of Adult Education Centres, an umbrella organisation for AECs in Finland. They provide information on all the online courses in different AECs in Finland. To obtain more detailed information about the courses, the 30 major AEC course offerings were identified in their course programmes. As a result, we found that very few AECs continue to offer food preparation online courses, and the highest proportion of the courses are available

in larger AECs in the capital district. The three largest AECs in the cities of Helsinki, Espoo and Vantaa were selected because they offered the most number of online courses. In these cities, teachers had more experience in teaching online courses. The teachers teaching online courses in those AECs were asked by email for their willingness to be interviewed. Four teachers were interviewed, including one from an AEC in Espoo, one from an AEC in Vantaa and two from AEC in Helsinki.

As the number of teachers from AECs who were available for the interview was quite small, teachers from the Marthas were also asked to participate. In this study, that decision turned out to be good, as it deepened the analysis and brought interesting new perspectives to the research. Two more teachers from the Marthas were interviewed, one from the capital district and another from North Carelia. Altogether, the data were obtained from six interviews of four teachers in three AECs and two teachers from the Marthas in two locations. All the interviewed teachers had teacher's qualifications and had been teaching several online courses since March 2020. None of them taught in online courses before the COVID-19 pandemic and, at that time, had to transfer their teaching to online mode suddenly and in a short time.

The interview guide was designed on the basis of the results of previous research (Lehtiniemi et al., 2023) and the literature reviewed in this study. The guide consisted of 23 open-ended questions. The interviews were interactive, semistructured conversations, where the interviewee's experiences and reflections influenced the course of the interview. The interviews were conducted in October and November 2023. Each interview lasted approximately 60 minutes. The interviews were conducted online via Zoom and audio recorded. This data collection method was time-saving and made it easier to arrange times for interviews. The questions were divided into five critical sets from the point of view of this study: demographic information, questions about the learning environment and the facilities available for the teacher, the pedagogic methods that the teachers used in online teaching and the methods of support that the teachers used in social interactions during the online course. Finally, the interviewees were free to share experiences, thoughts and wishes about the development of teaching food preparation skills online in the future.

## **Data analysis**

We began our qualitative theoretical thematic analysis (Schreier, 2012) by transcribing the recorded audio data. On the basis of a previous study (Lehtiniemi et al., 2023) and the theory that emphasised the role of material tools, embodied actions and social interactions during the data processing, three main dimensions (material, embodied and social) were formed and used as bases for the categories. The transcribed data were read several times and encoded within the three categories. After that, the data were systematically reviewed by marking meaningful aspects of the material with different colours. This task was repeated several times to ensure that the data were coded correctly. The data were then presented in a table, with fragments marked with the same colour in their own columns, and the teachers' answers were coded IN1-IN6. After reading the fragments in the table again, meaningful elements concerning the same issue were divided into groups, forming subcategories.

## **Results**

In this section, we focus especially on the pedagogical tools, methods and prerequisites that teachers use to enable the learning of food preparation skills in adult education online courses and to achieve the pedagogical goals of the course. The results are discussed according to the material, embodied and social dimensions of food preparation skills. These dimensions are intertwined in the learning process, but as they play different roles, examining them separately clarifies their role as a whole.

Table 1 Pedagogical tools, methods and prerequisites in teaching food preparation skills online

	Material Dimension	Embodied Dimension	Social Dimension
<b>Tools</b>	<p><b>ICT equipment, digital competence and conditions as a pedagogical tool</b></p> <ul style="list-style-type: none"> <li>Importance of proper technical supplies</li> <li>Importance of teachers' and learners' digital competence and support</li> <li>Appropriate teaching conditions for online teaching (e.g. settings, lightning and working environment)</li> </ul> <p><b>Appropriate food preparation tools and ingredients</b></p> <ul style="list-style-type: none"> <li>Equipment found in every home</li> <li>Ingredients that are easy to find in grocery stores</li> </ul>	<p><b>Sensory Awareness</b></p> <ul style="list-style-type: none"> <li>Pedagogical use of cameras to support sense of sight</li> <li>Description and metaphors as a substitute for the sense of sight, touch and smell</li> <li>Short videos and clips to support learning</li> </ul>	<p><b>Multi-channel interactions throughout the course</b></p> <ul style="list-style-type: none"> <li>Carefully thought-out and advance instructions via email or special internet platforms</li> <li>Interactions using chat, photos and camera during the course</li> <li>Discussions at the beginning of the course and when the dishes are ready</li> <li>Collecting feedback after the course</li> </ul>
<b>Method</b>	<p><b>Adaptation of home circumstances in planning and pedagogical solutions</b></p> <ul style="list-style-type: none"> <li>Planning the course according to the tools and ingredients found at home</li> <li>Taking clarity, price and availability of food ingredients into account in recipes used and the feasibility of using the recipes at home</li> </ul>	<p><b>Topic selection</b></p> <ul style="list-style-type: none"> <li>Selecting the most suitable meals for online teaching</li> <li>Considering the best ways to teach a particular topic online</li> </ul> <p><b>Simultaneous food preparation</b></p> <ul style="list-style-type: none"> <li>Supporting learning through simultaneous food preparation with students</li> <li>Awareness of the exact timing of the course</li> <li>Taking all participants into account by taking an easy-to-follow teaching pace</li> </ul>	<p><b>Multi-level social interactions</b></p> <ul style="list-style-type: none"> <li>Teacher's leading role in implementing teaching events</li> <li>Families' and friends' roles in preparing food at home</li> <li>Organised courses for special occasions and groups</li> <li>Differentiation of food preparation stages by taking into account household members</li> </ul>
<b>Prerequisites</b>	<p><b>Challenge of teachers' triple proficiency</b></p> <ul style="list-style-type: none"> <li>Strong knowledge of teaching food preparation skills</li> <li>Knowledge of technical facilities that can be used as pedagogical tools</li> <li>Knowledge of pedagogically reasonable ways of integrating the teaching of food preparation into the online setting</li> </ul>	<p><b>Teacher's experiential knowledge</b></p> <ul style="list-style-type: none"> <li>Strong pedagogical approach/experience in teaching food preparation skills</li> <li>Knowledge of the critical points of each food preparation stage</li> <li>Ability to foresee potential critical points in the preparation of the food in question</li> <li>Understanding which food preparation processes can be implemented in a distance learning environment</li> </ul>	<p><b>Accessibility of participation</b></p> <ul style="list-style-type: none"> <li>Using common platforms to ensure accessibility</li> <li>Enabling participation, networking and social support for learning regardless of location</li> <li>Enabling the participation of people with reduced mobility</li> <li>Enabling the participation of families with small children</li> </ul>

In the material dimension, the tools that teachers used in teaching were divided into four subcategories: ICT equipment, competencies and conditions as a pedagogical tool; appropriate food preparation tools and ingredients; sensory awareness; and multi-channel interactions throughout the course (Table 1).

ICT equipment plays a vital role in successful online teaching and learning experiences. The teachers stressed the importance of using proper equipment: “Everything is specifically based on what the students see, so it would be important to make sure that the equipment is decent” (IN2). However, proper equipment is not yet enough; both teachers and students must have sufficient digital competence. Even when planning the lesson, teachers must be aware of the platforms or programs that best support the teaching of food preparation and are easy to use and accessible to students. They must take into account the functionality of the equipment and advise students on its use. In this study, the teachers were not in an equal position; the support for online teaching varied significantly depending on the organisation. Some organisations had strongly invested in the development of online education, and others had established projects to support organising online courses after the COVID-19 pandemic, as one interviewee disclosed: “We have had such an online food course project, and instructions were very precise as to what to pay attention to and what are involved” (IN6). In some cases, organisations offered technical support even to students who participated in the courses. On the other hand, many teachers received very little support and hoped for a stronger contribution to continuing education for teachers and support in the use of ICT equipment from their own organisation so that they could start teaching online more easily. One teacher observed that “in particular, the technical issues are probably the most important, as well as what many people think about and whether they could start teaching online even if they don’t have enough technical skills” (IN1).

In addition to the functionality of the ICT equipment and teacher competencies, the teaching environment must be optimally organised for online teaching. Online teaching is very much based on visual sense, the quality and locations of the cameras are critical for learning, and the importance of proper lighting was emphasised, as in the following statement: “When we taught online there in the old kitchen, the dimness of the premises, the colours and textures of the food did not show correctly” (IN5). In addition, the kitchen layout is also important for teaching. The settings of the food preparation tools and ingredients had to be easily accessible to ensure smooth teaching and learning experiences.

When planning online teaching, the appropriate food preparation tools and ingredients must be considered. Teachers must plan the course based on the fact that students participate in the courses from their own homes. The food ingredients must be easily obtainable, and no special equipment should be needed for the meal preparation to ensure that it is easy to prepare at home, as reflected in following answer: “We have tried to ensure that the raw materials are affordable and the recipes are simple so that they are available or more accessible to everyone in everyday life” (IN5).

In the embodied dimension, the fact that not all the participants are in the same location is a special challenge for the teachers, as engaging the senses and embodied actions is difficult when teaching online. Thus, teachers use sensory awareness tools to overcome this challenge. This requires teachers’ ability to find the best possible tools to take notice of and replace all the senses needed in learning to prepare a certain meal, including the pedagogical use of cameras, descriptive words/sentences and metaphors and small videos and clips.



The sense of sight is emphasised; hence, the pedagogical use of cameras, small videos and clips plays an important role in supporting learning. In the pedagogical use of cameras, the cameras should be placed in such a way that provides the best possible view of the food preparation process and the food being prepared to the students at a distance. One teacher suggested, "You had to think very carefully that the camera is in just the right place, that the camera looks just close enough to, for example, a bowl of dough" (IN3). The teachers preferred using two cameras whenever possible, one showing a picture directly from the top of the food preparation bowl or pan and the other providing a more general view of the space. In this way, the students would have the best view of both the tools used in the food preparation and the composition of the food or dough being prepared. "I have two cameras and I switch between them. The smaller webcam then always zooms in on what I'm doing with my hands at that moment," one teacher explained (IN2).

In addition, the use of short videos and clips can also be a good way to support learning. They can be used at the beginning of the course or sent to students before or after the course. According to a teacher,

If there are challenging techniques to demonstrate, then may be some videos are needed. For example, short video clips before the actual course can already provide some kind of preview of how to do a technique and so the students can easier follow teaching in the course (IN2).

However, teachers support students' learning not only with a video but also by verbalising simultaneously everything they do. One teacher said that "you have to be able to describe the making process in detail" (IN3). Here, metaphors and descriptive words also play important roles. By using language as a pedagogical tool, teachers must also think about the quality of students' equipment and that they may have trouble following the video. Here, verbalising plays a vital role in learning and makes it possible to convey tacit knowledge. Another teacher explained that

you have to describe the process in great detail, and some verbalised tacit information is related to the process. Somehow keeping in mind that even though I have the cameras and the idea for shooting all the time, these don't necessarily get through to the homes and it could be that they are completely dependent on my speech (IN4).

In the social dimension, the interactions that occur during the online course are multichannel. Teachers can interact in many ways. The tools used here were the precise instructions sent through email or special webpage before the course, interaction via chat, cameras and photos during the course and feedback after the course. Before the actual course, the teachers sent thorough and well-considered instructions to students: "There is a shopping list and recipes in order of preparation and what is needed. I have thought a lot about the everyday life of the course participants when I have prepared the instructions" (IN5). This is important for orientation to the course. The students can do shopping beforehand to get all the ingredients needed and search all the tools that need to be ready on the working table before the course. They can also email the teacher if they want to clarify something in the instructions.

During the course, teachers support learning by asking how students are doing, answering questions and encouraging students to ask and show their dishes, as one teacher disclosed in the interview: “I ask students working in their home kitchens straight questions about how they are doing” (IN4). Teachers cannot see what students do at home unless somebody asks something. Even then, they give advice via camera or photos. Not all students want to talk or open their cameras, but in those cases, sending messages or photos via chat is a good way to communicate. “Not everyone has opened their cameras, but then they can put pictures to chat, so that I can see a little where things are going,” one teacher explained (IN6).

After the course, students can give feedback on the course, which is an important part of course communication. This may be the only way teacher can get to know what the students think about the course. Feedback is an important tool in course development.

### **Methods of teaching food preparation skills online**

The teachers’ pedagogical methods were divided into four subcategories: adaptation of home circumstances to the planning and pedagogical solutions, topic selection, simultaneous food preparation and multilevel social relations (Table 1).

In the material dimension, adaptation of home circumstances to the planning and pedagogical solutions means that when planning the teaching of the course, it is important to be aware of clarity and the price and availability of the ingredients, and the recipes used in the course must be applicable to home conditions. Sometimes, it can be a little bit challenging, as one teacher expressed: “It is perhaps somehow always a challenge to think about what can reasonably be done at home” (IN3). However, preparing food at home could also make it easier for the participants to cook or bake after the course. “On the good side, I think that when the food preparation takes place in their own kitchen, then maybe the instructions will remain in their everyday lives more easily” (IN1).

The choice of dishes to be prepared plays an important role in planning a successful course. In the embodied dimension, this planning process is called in this study topic selection. Some meals are easier to prepare online than others. Multistep meals and those that demand precise techniques can be challenging to teach online. In addition, if the meal preparation demands special tools or ingredients that are difficult to find in grocery stores, they would be easier to prepare in face-to-face courses in organisations’ well-equipped kitchens.

In this study, to support embodied learning, one of the most important pedagogical methods for teaching online that differs from face-to-face teaching is simultaneous food preparation. This means that teachers support students’ learning by showing all food preparation by preparing the food simultaneously with the students. Together with the verbalisation of every movement performed, this forms the body of the teaching. In this way, missing sensory experiences can be replaced. In addition, teachers must be aware of the correct timing and prepare food at a sufficiently slow pace, taking into account students’ different skill levels. As one teacher mentioned, “it helps a lot that the teacher proceeds slowly enough; it is much easier to follow” (IN6). Here, a challenging task for the teacher is giving advice from a distance. In critical moments, teachers cannot come near the student to support learning, as reported by one interviewee: “In an online course, the teacher is not able to come close to the student to teach and show the work by hand” (IN4).

In the social dimension, one important result of this study shows that the concept of social interaction can be expanded from what it has been in traditional face-to-face teaching. Online courses are teacher led. On the other hand, according to the students' feedback, participants of an online course do not necessarily wait for interactions with other students. They come to the course primarily to learn the skills of preparing certain meals and are satisfied with this.

In online courses, social interactions cover the interactivity of the course itself, but the sense of community can also increase by the interactions that take place at home during the course. We call these multilevel social interactions. The fact that social relations also happen behind the screen at home is an integral aspect of the online course. Often, more than one person participates in the meal preparation, as described in the following: "Quite often, the diamond of social interaction is right there at home, where students are cooking with family or friends, and they want that experience with their loved ones" (IN5). Pedagogically, this means that teachers should orientate and consider everyone present in the experience. That is, as a teacher explained, "If there are more than one person, I try to give tips about what the others can do" (IN6). There are also special courses organised for friends or occasions with family and friends. In these cases, the course is planned for several people from the beginning.

#### **Prerequisites for teaching food preparation skills online**

The prerequisites for a successful online course in the material dimension are overcoming the challenge of teachers' triple proficiency, experiential knowledge and accessibility of participation (Table 1). The challenge of achieving teachers' triple proficiency consists of three main components: Teachers must possess a strong knowledge of how to teach food preparation skills, how to use technical facilities in the best possible way as pedagogical tools and to find pedagogically reasonable ways to teach food preparation skills online.

The senses and hands play important roles in food preparation. One prerequisite for a successful online course in the embodied dimension is teachers' good experiential knowledge of teaching food preparation skills. This means that they are aware of the critical points of the food preparation in question beforehand. They know what dishes are most suitable for teaching online and can verbalise the process of preparing the meal. This can be summarised by the fact that they know the stages of preparing the meal by heart. One teacher explained,

It places more demands on the teacher's competence and professionalism; that is, if students show you some dough on camera, you immediately know at what stage they are and what needs to be done next or what has gone wrong with it (IN3).

The teachers felt that teaching in online courses deepens their experiential knowledge and professional skills in general. One of the teachers summarised online teaching as follows: "I feel like my own expertise has deepened because now I have actually made every dish from start to finish and hundreds of times. I will then be able to provide much more tacit knowledge or experiential expertise" (IN4).

In terms of social interactions, the research clearly shows that an online course is an entity with many levels. The prerequisites for participating in the course and all the social communication starts from a basic fact: to make the course accessible. The course should be organised in a commonly used platform so that as many as possible can participate. Online courses enable participation and the learning of new skills regardless of the students' locations or life situations. They offer students a good opportunity to participate, especially those living

far from course venues, people with reduced mobility or parents with small children who cannot leave home after work. This was evident in student feedback. According to one teacher,

The best feedback is given to us by people who, for one reason or another, are unable to participate in a face-to-face course, such as families with small children or those who live so far from where a face-to-face course is organised (IN5).

## **Discussion**

Although ICT has played a strong role in Finnish society and in the educational system for a long time, many home economics teachers have used ICT mainly to support face-to-face teaching (Sundqvist et al., 2020). However, online courses have many benefits such as the option to participate in courses without place restrictions (Palovaara Sørberg & Müller, 2021). The findings of this study expand the scope of teaching food preparation skills to adults in online courses. The results of this study can be summarised in three key elements: the challenge of teachers' triple proficiency, teachers' pedagogical responsibility and understanding of the specific nature of the social interaction in online courses.

Online teaching inevitably means working with a digital tool and platform. This means that teachers must adapt their teaching according to the requirements of the platform. The overview of the general outcomes emphasises the importance of teachers' triple role in teaching online. They must be technically skilled, have a strong competence in their subject area and have understanding of how best to integrate the teaching of food preparation into an online learning environment. Learners' embodied knowledge is shaped by both their experiences and the material and environmental contexts in which they cook (Baurley et al., 2020). Teachers must know every critical stage of the ongoing food preparation process in advance to help their students and to understand at which stage their students are working. They must have strong pedagogical skills and the ability to understand the needs of students at all levels. This means that they need a new kind of proficiency, which stresses their digital skills and the strong role of their experiential knowledge and understanding of multilevel accessible social interactions.

The results emphasise the concept of pedagogical responsibility. All the interviewed teachers thought a lot about pedagogical models of teaching that would support students' learning in the best possible way. The basis of pedagogical solutions is a thorough understanding of the steps involved in food preparation. Teachers need strong pedagogical experience to teach food preparation skills. Our results highlight the need for continuous pedagogical development of teachers' teaching. However, it is not right to emphasise only the teacher's responsibility, as organisations who provide the courses are also responsible for the implementation of teaching. Teachers cannot be left alone to cope with all the challenges of digital education. They need support in implementing online courses and for a deeper understanding of the most proper ways to pedagogically use the digital platforms provided to them. Our data show that if organisations have enough resources to support online courses, teachers' work become much easier. This can be observed, for example, in the Marthas' courses, where two teachers are assigned to each course. One of them advises the students via chat messaging and maintains a conversational connection with them, allowing the other teacher to focus on preparing the meal. In this case, the course can be a little bit more expensive, but both the learning and teaching experiences will be better. In addition, collegial support from other teachers is useful, and the two teachers in the same course can support each other in the best possible ways.


Digital tools are not a purpose in themselves but only tools for implementing teaching properly. According to Väättäjä and Ruokamo (2021), teachers must believe in their own pedagogical choices without increasing their workload with technologies that do not serve the goal. Teachers have attained digital competence when they understand the proper way of using digital devices and programs in every situation.

The results of this study emphasise the importance of online courses in adult education settings. Online courses enable the participation of people who cannot participate in ordinary face-to-face courses. Social motives for participating in adult nonformal courses are often emphasised (e.g. Rothes et al., 2014). Although the amount of interaction between students decreases in online courses compared with face-to-face courses, online courses enable a new kind of gathering around preparing a meal together with family and friends, which strengthens social interactions in the home environment. The interaction take place in different forms and thus requires special attention from the teacher.


The online education we investigated in this study brings a completely new dimension to the teaching of food preparation in home economics. It has many challenges but also many advantages, as summarised by one of the teachers interviewed: “These face-to-face courses and online courses, you can’t really even compare them; they’re just so different” (IN3).

## Biographies


*Pirjo Lehtiniemi is a doctoral researcher at the University of Helsinki, Finland. Her research focuses on home economics and craft teachers pedagogical challenges and solutions in online environment, especially in adult education context. Email: pirjo.lehtiniemi@helsinki.fi*

 <https://orcid.org/0000-0003-0030-8075>


*Sirpa Kokko is a Professor of Craft Science at the University of Eastern Finland and a Visiting Professor at the University of Tartu. Her research focuses on various aspects of crafts including elements such as gender, well-being, cultural heritage, and education. She has worked in development cooperation in Africa, been a Fulbright Visiting Scholar in the USA, and visited many European and overseas universities as a researcher and educator. She actively develops craft research and education in national and international research collaborations and projects. Email: sirpa.kokko@uef.fi*

 <https://orcid.org/0000-0001-7484-3543>

*Erja Syrjäläinen is a professor emerita of Craft Education at the University of Helsinki. Her major research interests have been craft teachers’ pedagogical thinking and teaching of craft skills. Email: erja.syrjalainen@outlook.com*

 <https://orcid.org/0000-0002-9198-8768>

*Päivi Palojoki is a professor in Home Economics Pedagogy at the University of Helsinki, Finland, and an affiliated professor in Food and Nutrition Science at the University of Gothenburg, Sweden. Her research focuses on subject-didactic questions related to the teaching and learning of home economics in basic education and teacher education. Email: paivi.palojoki@helsinki.fi*

 <https://orcid.org/0000-0001-7323-7015>

## References

- Aquino, G. M., & Briones, E. O. (2022). Distance learning home experience and the food preparation skills of grade 9 students in technology and livelihood education. *Asia Pacific Journal of Advanced Education and Technology*, Special Issue, 351-365.
- Baurley, S., Petreca, B., Selinas, P., Selby, M., & Flintham, M. (2020). Modalities of expression: Capturing embodied knowledge in cooking. In *Proceedings of the Fourteenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI'20)* (pp. 785-797). Association for Computing Machinery.
- Carrillo, C., & Assunção Flores, M. (2020). COVID-19 and teacher education: A literature review of online teaching and learning practices. *European Journal of Teacher Education*, 43(4), 466-487.
- De León, D. (2003). Actions, artefacts and the cognition: An ethnography of cooking. *Lund University Cognitive Studies*, 104, 1-15.
- Finnish National Agency for Education. (2024). *Primary and lower secondary education* (<https://www.oph.fi/en/education-system/basic-education>)
- Glăveanu, V. P. (2020). A sociocultural theory of creativity: Bridging the social, the material, and the psychological. *Review of General Psychology*, 24(4), 335-354.
- Hall, A. (2007). Vygotsky goes online: Learning design from a socio-cultural perspective. Learning and Socio-cultural Theory: Exploring Modern Vygotskian Perspectives International Workshop 2007, 1(1). <https://ro.uow.edu.au/llrg/vol1/iss1/6>
- Hedegaard, M. (2004). A cultural-historical approach to learning in classrooms. *Outlines. Critical Practice Studies*, 6(1), 21-34.
- Kansalaisopistot.fi. (2024). *What are Adult Education Centres?* <https://kansalaisopistot.fi/kielet/english/>
- Kouhia, A., Kangas, K., & Kokko, S. (2021). The effects of remote pandemic education on crafts pedagogy: Opportunities, challenges, and interaction. *CEPS Journal*, 11(Special Issue), 309-333.
- Kozulin, A. (2002). Sociocultural theory and the mediated learning experience. *School Psychology International*, 23(1), 7-35.
- Lehtiniemi, P., Syrjäläinen, E., Palojoki, P., & Kokko, S. (2023). Teachers' experiences of using ICT in teaching practical skills in adult education. *Teche Series: Research in Sloyd Education and Craft Science A*, 30(1), 18-30.
- Matthews, J. & Macaskill, L. (2015). Engaging the YouTube learner: Promoting home economics through videos. *International Journal of Home Economics*, 8(1), 53-63.
- Ministry of Education and Culture (2024). *Liberal adult education*. <https://okm.fi/en/liberal-adult-education>
- Palovaara Sørberg, L., & Müller, H. (2021). Teacher educators' experiences when changing to the digital teaching during the COVID-19 pandemic in subject Food and Health. *International Journal of Home Economics*, 14(1), 123-133.
- Patel, K. (2008). Thinkers in the kitchen. *Embodied thinking and learning in practice*. UMI Dissertation Services.
- Pendergast, D., McGregor, S. L., & Turkki, K. (2012). Deaths, disasters and tasty treats: Challenging public perceptions of home economics. In D. Pendergast, S. McGregor, & K. Turkki (Eds.), *The next 100 years—Creating home economics futures* (pp. 75-87). Australian Academic Press.
- Phua, P. L., Wong, S. L., & Abu, R. (2011). Factors influencing the behavioural intention to use the internet as a teaching-learning tool in home economics. *Procedia-Social and Behavioral Sciences*, 59, 180-187.
- Renwick, K. (2015). Home economics as professional practice. *International Journal of Home Economics*, 8(2), 19-35.
- Rosser-Mims, D., Dawson, G., & Saltiel, I. M. (2017). Vygotsky's influence on adult and higher education. In V. C. X. Wang (Ed.), *Theory and practice of adult and higher education* (pp. 423-438). Information Age Publishing.
- Roths, A., Marina, S., Lemos, M. S., & Gonçalves, T. (2014). Motives and beliefs of learners enrolled in adult education. *Procedia-Social and Behavioral Sciences*, 112, 939-948.
- Schreier, M. (2012). *Qualitative content analysis in practice*. Sage.
- Shah, T. A., & Rashid, S. (2017). *Applying Vygotsky to adult learning*. ResearchGate. [https://www.researchgate.net/publication/322517416\\_Applying\\_Vygotsky\\_to\\_Adult\\_Learning](https://www.researchgate.net/publication/322517416_Applying_Vygotsky_to_Adult_Learning)
- Sundqvist, K., Korhonen, J., & Eklund, G. (2020). Finnish subject teachers' beliefs and use of information and communication technology in Home Economics. *Nordic Journal of Digital Literacy*, 15(3-2020), 202-222.
- Surgenor, D., McMahon-Beattie, U. S. M, Burns, A., & Hollywood, L. E. (2016). Promoting creativity in the kitchen: Digital lessons from the learning environment. *The Journal of Creative Behavior*, 50(3), 186-192.
- Sutton, D. (2009). The mindful kitchen, the embodied cook: Tools, technology and knowledge transmission on a Greek island. *Material Culture Review*, 70, 63-68.
- Taar, J., & Koppel, K. (2021). Random survival or conscious development: Estonian handicraft and home economics teachers' experiences during distance education. *International Journal of Home Economics*, 14(1), 134-142.
- The Martha Association (2024). *The organization in English*. <https://www.martat.fi/in-english/>

- Trubek, A. B., & Belliveau, C. (2009, April). Cooking as a pedagogy. Engaging the senses through experiential learning. *Anthropology News*, 50(4), 16.
- Väätäjä, J. O., & Ruokamo, H. (2021). Conceptualizing dimensions and a model for digital pedagogy. *Journal of Pacific Rim Psychology*, 15, 1-12.
- Verenikina, I. (2003). Vygotsky's socio-cultural theory and the zone of proximal development. In H. Hasan, E. Gould, & I. Verenikina (Eds.), *Information Systems and Activity Theory: Expanding the Horizon* (pp. 4-14). University of Wollongong Press.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological functions*. Harvard University Press.