PEER-REVIEWED PAPER

Pupils' Negotiations and Dialogical Argumentation in the Home Economics Classroom

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Abstract

The aim of this study was to make visible and understand the informal and spontaneous negotiations between pupils in the home economics (HE) classroom by examining what is negotiated and how negotiations are constructed through dialogical argumentation. Eighteen pupils (13–14 years old) from three HE study groups participated in the study. Ten lessons were video recorded at a lower secondary school in Finland. The transcribed video data related to hands-on group activities were analysed using interpretive content analysis. The study shows how pupils negotiate various issues such as food preparation, aesthetics and roles in the group in decision-making situations. Negotiations are constructed through different types of questions and argumentative moves, such as proposing, challenging and rejecting. In addition to practical food preparation skills, food-related learning encourages pupils to practice simultaneously other important skills, such as decision-making, negotiation and argumentation. Teachers can support and teach these skills by valuing the HE classroom as a learning space for negotiations and food preparation as a multiphase, dialogical and collaborative learning activity.

KEYWORDS: **ARGUMENTATION, HOME ECONOMICS CLASSROOM, NEGOTIATION, PUPIL-PUPIL INTERACTION, VIDEOGRAPHY**

Introduction

To meet the demands of our changing societies, schools must evolve and facilitate the development of the 21st-century skills students need to thrive—both at and outside of work—including problem-solving, decision-making, communication and collaboration (Binkley et al., 2012). Home economics (HE) education is deeply rooted in people's everyday lives and integrates skills that students should master to succeed in their lives in a unique way (Taar & Palojoki, 2022).

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In HE, collaboration is the rule, not the exception, and it is almost impossible to finish learning tasks without negotiating (Venäläinen, 2010). Negotiations serve many purposes in the classroom. For example, they can manifest as procedural meaning discussions related to different interests and problem-solving. Additionally, they can also serve as personal, unobservable mental processes or as ongoing interactive, spontaneous occurrences during social activities. (Breen & Littlejohn, 2000.) In schools, negotiations can be characterised as communication in which teachers and pupils engage to settle small disagreements (Frelin & Grannäs, 2010) to reach a mutual agreement (Overman et al., 2019) or at least a reasonable settlement they can live with (Walton, 2009) to proceed with planned classroom activities. Negotiation is also a means of attaining responsible membership within the classroom community. The aim of such membership is to reduce uncertainty during learning and communication and to construct and reflect learning as an emancipatory process. (Breen & Littlejohn, 2000.) In this study, negotiations are considered informal, spontaneous, interactive and procedural decision-making or problem-solving situations to proceed with HE learning activities and are probably not even recognised as negotiations by the pupils.

In addition to practical work and information management, collaboration and interaction skills are one of the main objectives of teaching in the Finnish National Core Curriculum (FNCC) of HE. Negotiation skills are intertwined with collaboration and interaction skills as the curriculum states, for example, to instruct pupils to work in a group, as well as to negotiate for division of work and participate in decision-making of tasks and time management. Likewise, aim of teaching is to instruct pupils to practice listening, constructive conversation and argumentation concerning the planning and practicing of learning tasks. (FNCC, 2014.) Negotiation skills are integrated into the curriculum and are one of the core elements at the level of action in the HE classroom. However, we argue that Finnish HE education and teaching focus strongly on practical skills connected to food preparation. Besides the skills pupils learn through the formal national curriculum, they learn interaction skills while engaging with their peers during classroom activities through the informal, social curriculum (McGregor, 2022). Negotiations enable students to practice their active agency in learning (Breen & Littlejohn, 2000). Dixon (2017) found that HE teachers in New Zealand value the social aspect of learning in their classrooms, as it allows students to develop collaboration and problem-solving skills that are not necessarily learned in other subjects. Interthinking (Taar & Palojoki, 2022) is a medium to develop 21st century skills during lessons, and it adapts to the aims and context of HE education. HE teachers consider especially collaboration skills and thinking as a group important for students, including negotiation and problem-solving, and emphasise teaching them together with substance-related skills (Kuusisaari et al., 2021).

Dialogical argumentation in the classroom

The following sections review the literature related to argumentation connecting it to negotiation in the educational context. An argumentative environment can be described with the dimension of social negotiation, meaning that students can discuss, defend and debunk arguments to build consensus (Nam & Chen, 2017). The term negotiation emphasises the fundamental goal of argumentation in the classroom, which is to interact with peers in dialogue and reach an agreement (Chen et al., 2016). Traditional negotiation mechanisms include the basic linguistic elements of communication (e.g. locutions such as proposing, accepting and rejecting). In argumentation-based negotiation, agents can exchange information and proposals as well as argue about their beliefs, preferences and goals. (Rahwan et al., 2003.) Argumentation is seen as a dynamic process of connecting arguments in a dialogue for some

purpose (Walton, 1996) and as a dialogic process of having an argument, that is, a construction and critique of claims (Nussbaum, 2021). Furthermore, argumentation refers to a process in which the acceptability of standpoints is communicated and tested to resolve differences of opinion (van Eemeren et al., 2015). In practice, people try to convince others of the validity of their claims by reasoning and providing explanations to reach mutual agreement (Chen et al., 2016).

Following Eldstål-Ahrens (2024), we consider that a dialogical perspective on argumentation acknowledges the context, the roles of the arguers and the meaning created between them. Thus, in this study, argumentation refers to a dialogical and joint process between pupils constructing negotiations in the classroom by presenting questions and making argumentative moves during group work to reach sufficient agreement to proceed with learning activities.

During collaborative interaction between students, any contradiction can induce argumentative discourse, creating a need for consensus-building, negotiation and constructing questions and explanations to justify their viewpoints (Chin & Osborne, 2010). Governor et al. (2021) found that more questions are presented in negotiations that achieve a consensus than in those that do not. Questions are a key component of discursive interaction in sustained dialogue, as they can be used to challenge the views of the speaker or justify one's own viewpoints (Chin & Osborne, 2010). Constructing and sharing arguments engages students in improving their decision-making skills (Nam & Chen, 2017). In addition, engagement in collaborative argumentation on important issues and contested values can enhance learning reasoning, reflection and critical thinking (Andriessen & Baker, 2014).

In HE classrooms, previous studies have highlighted the importance of researching various interactions, including questions posed by students, disturbances and teachers' tool use in multicultural HE classrooms (Venäläinen, 2010), group work (Lindblom et al., 2016a; Lindblom et al., 2025), students' interthinking (Taar, 2017) and students' decision-making during food preparation (Gelinder et al., 2020). However, little is known about negotiations and argumentation in HE education. Even if negotiation and argumentation skills are not stated in the national curriculums, they are essential elements in HE education due to collaboration, group work and process-oriented learning approach (see Lindblom et al., 2025). This study contributes to the literature on interaction in the HE classroom by highlighting how questions and dialogical argumentation construct negotiations and by raising pupils as active learners through the informal, social curriculum. Educational research on argumentation has mainly focused on science classrooms (e.g. Governor et al., 2021; Nam & Chen, 2017; Park, 2016), as argumentation is recognised as an essential goal and core practice in science education (see Nam & Chen, 2017). Eldstål-Ahrens's (2024) study emphasized the importance of researching pupils' argumentative participation and tasks in primary school, but HE education remains under-researched.

The overall purpose of this study is to explore spontaneous negotiations between pupils in an HE classroom, especially how they use questions and argumentation in decision-making and problem-solving to proceed with joint learning activities. Thus, our research questions are as follows:

RQ1: What is negotiated between pupils during HE classroom activities?

RQ2: How are negotiations constructed through dialogical argumentation?

Methodology

Research Context and Participants

This qualitative case study (Yin, 2018) was conducted at a lower secondary school in the metropolitan area of Helsinki, Finland to capture the complexities of simultaneous social interactions. The case in this study was an HE classroom. Compulsory HE is primarily taught in 7th grade (for all genders) and typically involves three hours of classes per week. It can also be an elective subject in 8th and 9th grades as well as in primary school depending on the local curriculum. The FNCC (2014) states the objectives, main content areas and criteria for the assessment of HE; however, teachers have considerable autonomy in terms of pedagogical decisions and methods. The participants (n = 18) comprised 7th grade pupils (13–14 years old) from three different study groups (n = 7, n = 4 and n = 7). Pupils participated in lessons once a week and had approximately seven months of experience studying HE. The observed lessons were each scheduled for 135 minutes (3 × 45 minutes). During practical learning activities, pupils worked in kitchen units in groups of three or four. Usually, the teacher grouped the pupils into working groups and rotated them regularly during the semester, but in this study, the division was based on the research consent of pupils.

Videography

According to the principles of classroom ethnography, there is a need to make habitual and familiar actions visible in order to see them because habit sometimes makes daily classroom practices invisible to teachers (Erickson, 2010). To capture simultaneous interactions between pupils, the data were collected through video recordings by the first author between March and May 2022. Previous research (e.g. Beinert et al., 2021; Berg et al., 2019; Lindblom et al., 2016a, 2016b; Venäläinen, 2010) has shown the significance of video data, as it reveals hidden and unconscious practices, especially in HE lessons that are strongly characterised by collaboration and simultaneous classroom activities (see Heath et al., 2010; Knoblauch et al., 2014). In addition, due to various opportunities for movement and the use of artefacts in HE, videography is a good method of capturing events that unfold quickly (Bohm & Lindblom, 2024).

A total of ten lessons were video recorded. The first author was responsible for setting up the cameras in the classroom before the lessons began. To capture pupil–pupil interactions in the kitchen unit, one camera was mounted on a tripod on top of a kitchen cabinet. Another camera was positioned at the back of the classroom to record teacher-led learning. The researcher was present during every lesson and adjusted the camera angle to ensure that pupils without consent would not be recorded. In line with Bohm and Lindblom's (2024) suggestion, the researcher observed the classroom, complemented the video data with field notes and visited the classroom beforehand to plan the camera positions. We also considered important to participate in some lessons before doing any recording to become familiar to the pupils and establish trust.

Data analysis

To analyse what was negotiated and how negotiations were constructed between pupils during group work, the data analysis was conducted by the first author in several phases. Between the phases, interpretations were shared with the two other researchers, and joint critical discussions were held about the analysis and how to proceed.

Lessons primarily began with teacher-led situations, with the teacher introducing the theme of the lesson and learning activities, teaching the important content knowledge and examining the recipes with the pupils. The pupils were then divided into groups; they started working in the kitchen units and ate the prepared food together. A total of 25 hours of video recordings were observed. Out of this data, 15 hours were included for further analysis. The data showing pupil–pupil interactions during practical learning activities were observed again, and units with bad audio quality were excluded from the dataset, resulting 13 hours of video data. Next, the data were analysed focusing on identifying negotiations, that is, spontaneous decision-making or problem-solving situations between pupils during food preparation. In previous HE studies related to decision-making, Gelinder et al. (2020) used the concept of 'gaps' to refer to problematic situations that cause students to stop working and need to decide how to proceed and the concept of 'relations' to analyse the suggestions, reasoning and arguments involved in reaching such decisions. Taar (2017) referred to gap-closing process, when critical moments expressed as questions, reconsiderations and confusions caused students to react and decide how to continue while engaged in group work.

Forty-two episodes identified as negotiations were arranged in a table, including the duration, participants and verbatim transcriptions, which included utterances and, to some extent, body movements, gestures and materials. To identify what was negotiated (RQ1), we conducted detailed video observations and thematic content analysis. Episodes were renamed meaning units, which were condensed and coded as a guiding question (condensed meaning unit) based on the issue of negotiations and further categorised as sub-themes and main themes (see Graneheim & Lundman, 2004).

Next, to determine how negotiations were constructed through dialogical argumentation (RQ2), interpretive content analysis was used. The structure of the negotiations corresponded to Walton's (2009) three stages of negotiation dialogue: opening, argumentation and closing. We developed a coding scheme to support our analysis, applying the concepts of Nam and Chen (2017) concerning social negotiation patterns and Larrain et al.'s (2020) coding scheme for peer group work argumentation and questions. Negotiations were analysed using a coding scheme (Table 1) that included three types of questions (gap, argumentative and justificative) and seven argumentative moves (cf. van Eemeren et al., 2015): proposing, supporting, recognising, clarifying, challenging, rejecting and defending.

Table 1 Coding for argumentation, definitions and quotations from data

Codes	Definitions	Examples
Questions		
1) Gap Questions	Questions asked when encountering a problem, conflict or decision-making situation	So, what are we doing now? Can you help? Do I put that one or what?
2) Argumentative questions	Questions inviting others to agree or disagree	Daniel, isn't this beautiful? I will prepare the cake. Is that okay?
3) Justificative questions	Questions asked to request reasons or justifications	Why did you do that? Why should we stop?
Argumentative Moves		
4) Proposing	Presenting a new idea, suggestion or explanation to solve a situational problem	Topi, since you have nothing to do, you could wipe. I can do something else.
5) Supporting	Accepting or agreeing with someone else's idea or claim	Okay, let's add it. Yes, chilli tastes good.
6) Recognising	Acknowledging and realising the existence of factors affecting the current situation or problem	And it cannot be too cold, it will dry. Look how thick. Well, I suppose it doesn't affect taste.
7) Clarifying	Presenting an explanation or an example to clarify the idea or suggestion	Mustard is better than soya sauce. I think I will use milk because it has an effect on colour.
8) Challenging	Criticising others' ideas or arguments	I want to do it myself. Yes, I know. I'm not stupid. Leave me alone.
9) Rejecting	Disagreeing with all or part of others' ideas	No, not yet! Not yet! I don't like mustard, don't add it.
10) Defending	Providing an alternative idea that differs from or conflicts with others' ideas	Caramel is the best. I do the salad. I do the salad.

Ethical Considerations

This study followed the ethical principles of the Finnish Advisory Board on Research Integrity (2019). The study was approved by the school principal and the city's department of education. To ensure that the participants understood the purpose of the research, oral and written informed consent was obtained from the pupils and teacher before data collection. Due to the age of pupils (under 15 years old), their guardians were asked to provide written informed consent (electronically and on paper). Both pupil's and his/her guardian's consent were needed to include the pupil in the study. Although the pupils responded positively to the presence of cameras, they were informed that they had the right to refuse not to participate and withdraw

from the research at any stage. In addition, the researcher was present during data collection and pupils had a chance to ask questions concerning video recordings and the research in general.

Findings

Negotiating food preparation, group work roles and aesthetics

For the findings pertaining to RQ1, that is, what is negotiated during HE lesson's learning activities, three issues were identified: food preparation (Theme I), roles in the group (Theme II) and aesthetics (Theme III). Table 2 presents the three themes and six sub-themes. A condensed meaning unit (guiding question) represents an interpretation of the decision to make or problem to solve to proceed with activities, that is, what characterised the issues of negotiations.

Table 2 Themes and condensed meaning units of negotiations

Themes of Negotiation	Number of meaning units	Examples of condensed meaning units
I. Food Preparation	15	
1. Cooking Methods		How to fill the cake?
2. Cooking Utensils		Which frying pan do we choose?
II. Roles in the Group	14	
3. Division of work		Who can peel the carrot?
4. Power Dynamics		Who can talk and with whom?
III. Aesthetics	13	
5. Taste		Is there enough spice in the soup?
6. Visuality		Does the cake look fine?
	n=42	

Food Preparation

Negotiations concerning food preparation were characterised by feelings of uncertainty and pupils' need for peer support, which triggered collaborative decision-making. Food preparation comprised two sub-themes: cooking methods and the use of cooking utensils. The most predominant sub-theme of all the negotiations pertained to cooking methods (Sub-theme 1), including guiding questions linked to timing, ingredient amounts, food choices and methods. Timing was negotiated when pupils needed support regarding when to add ingredients, such as when to add thickener to a vanilla fool or oil to a pan. Decision-making about the right amount of ingredients manifested as questions, such as how much chilli to add to a soup or how much flour to add to a sauce. Negotiations concerning food choices or methods were rather problem-solving situations (e.g. how to fill a cake or start preparing a berry fool). Pupils were also uncertain when choosing cooking utensils (Sub-theme 2) and sought other pupils' opinions or support.

Roles in the Group

Negotiations concerning roles in the group were connected to the division of work and power dynamics. Besides cooking methods, division of work (Sub-theme 3) was the predominant theme in the negotiations. When pupils began the kitchen activities together in a group, they had the

autonomy to make decisions about how to divide the given food preparation tasks, which triggered negotiations. During food preparation, negotiations were more specific (e.g. who will peel the carrot or who will make the cake). Only a few negotiations emerged related to washing the dishes and cleaning the kitchen because those tasks were assigned by the teacher. Power dynamics (Sub-theme 4) refers to negotiations connected to social connections, control and influencing others' behaviour. Pupils negotiated issues such as who can sit where at the dining table, who can talk to whom and the possibility of calming down and concentrating on their work.

Aesthetics

Negotiations concerning aesthetics were characterised by the need for opinions and differences of opinion. During food preparation, pupils negotiated the taste of the food (Sub-theme 5)—e.g. whether the mustard tastes good and whether there are enough spices in the soup. Food preparation also triggered negotiations not linked to the task at hand (e.g. which cakes taste delicious in general). More frequently than taste, negotiations concerning aesthetics pertained to the visuality (Sub-theme 6) of the food or table setting. When pupils were uncertain and needed an opinion on the visuality of the food, they negotiated for example whether the pastry looks right, whether the fried fish is too dark and how the bread or fool should look when it is ready. In addition, the visuality of the food was connected to food preparation such as how to decorate the cake attractively and how to pipe the cream beautifully. Visuality linked to table setting concerned what to place on the table and where to place everything such that it looked good and correct.

Types of questions and argumentative moves

Negotiations between pupils were constructed in multiple ways throughout all the analysed questions and argumentative moves. However, gap questions—which indicated when pupils were uncertain about how to proceed, sought an opinion or encountered a problem or conflict—were the most frequent questions. Typically, gap questions triggered negotiations, but they also emerged during negotiations, especially if the other pupil was also uncertain or the task had multiple phases. Argumentative questions were typically posed when pupils invited others to agree or disagree, and justificative questions were posed to request reasons or justifications.

Dialogical argumentation was characterised by seven argumentative moves that constructed the negotiations: supporting, recognising, clarifying, proposing, challenging, rejecting and defending. The six excerpts shown below represent an interpretation of dialogical argumentation and illustrate in detail what was negotiated. They include verbal utterances and some essential embodied actions (enclosed in square brackets). The excerpts were translated from Finnish to English with the intention of keeping the original expression as similar as possible. The participants were given pseudonyms. The numbers at the top left indicate the durations of the meaning units.

Excerpt 1 Negotiating Cooking Methods

0:45	Eino:	Lauri, could you help me a little?
	Lauri:	What?
	Eino:	Can you help? Do I add, well, that one or what? [points at a bottle of cooking oil]
	Lauri:	I'm not sure. Yeah, well, if you fry, so…
	Eino:	Can you add that? Or maybe not yet, or I don't know?
	Lauri:	Yeah. Well, if you start to heat it…
	Eino:	Now it is heating.
	Lauri:	Oh. [pours cooking oil into the pan]

In Excerpt 1, Eino is uncertain about how to fry fish and as an opening move asks if Lauri could help (gap question). He repeats the question and continues asking what cooking oil he should add (gap question). In the argumentation stage, Lauri is also uncertain, but he confirms that this is the right choice (supporting). Eino is still uncertain, asks if Lauri could add the cooking oil and continues hesitating when it should be added (gap question). Lauri agrees to add the oil (supporting) on the condition that Eino begins to warm the pan (proposing). In the closing stage, Eino explains that it is already warming (clarifying).

In Excerpt 2, two pupils work in their own kitchen units. The food preparation of meatballs stops because they must decide whether to use water or milk in the mixture. Both read the food recipe. In the opening stage, Jacob cannot decide and asks Anton's opinion (gap question). Anton is also uncertain and does not answer. An argumentation stage is constructed from a variety of questions and argumentative moves. First, Jacob repeats the question and asks Anton to make a decision (gap question). Anton is uncertain, but then decides hesitating, to use milk and explains the decision (clarifying). Jacob still asks the reason for the decision (justificative question). Anton repeats the explanation (clarifying), which confuses Jacob, and he gives a new idea and suggests water (proposing). Anton changes his mind and agrees (supporting). The teacher hears their discussion and clarifies the effect of the milk in the mixture. Then, as a closing move, Jacob suggests milk again (proposing) and they continue preparing the mixture.

Excerpt 2 Negotiating Cooking Methods

1:50	Jacob:	Anton? Do you use water or milk? Do you get it? Water or milk? [Both lean close to the table, look under the shelf at each other. Anton waves the book. Jacob starts putting the cutlery in the box.]
	Jacob:	Anton, look, I don't get it. Which one do you use?
	Anton:	[leans down to look at the book] I will use, well...
	Jacob:	[walks into Anton's kitchen]
	Anton:	I will probably use milk; it affects the colour.
	Jacob:	[goes back to his kitchen] What? Why?
	Anton:	Because milk affects the colour.
	Jacob:	So, water?
	Anton:	Yes, I probably use water too. [The teacher overhears the conversation and says, 'So it gets browner if you use milk.']
	Jacob:	So, milk?

In Excerpt 3, Kaya and Selena prepare sausage sauce. Kaya reads the recipe and talks to herself, saying that, next, she must add mustard. Topi overhears the word 'mustard' (opening stage) and asks Kaya if there will be mustard in the sauce (gap question). Kaya ignores the question

and poses a counter-question about measuring spoons due to her uncertainty (gap question). Topi agrees that the spoon is correct (supporting). The argumentation stage related to taste begins when Kaya adds mustard to the sauce. Selena notices this and shows her disgust with mustard and requests not to add it (rejecting). Topi criticises Selena's argument (challenging). Then, he strengthens his argument by asserting that mustard is better than soya sauce (clarifying). As a closing move, Selena shows her disagreement by expressing disgust (rejecting).

Excerpt 3 Negotiating Taste

0:35	Kaya:	[takes the book] Where are we? We were… hmm… [reads aloud] Mustard, mustard… [picks up a measuring set]
	Topi:	[comes next to Kaya] Mustard, will there be mustard in it?
	Kaya:	Is this a teaspoon?
	Topi:	Yeah, it's a teaspoon.
	Kaya:	Yeah, thanks. [adds more mustard to a spoon and then adds it to the sausage sauce]
	Selena:	I don't like mustard; please, don't add it.
	Topi:	You don't even taste it; there must be mustard. Mustard is better than soya sauce.
	Selena:	Yuck!

Instead of opening negotiations by posing question, sometimes proposals were used. In Excerpt 4, pupils begin to work in the kitchen, and they must decide how to divide the given tasks. Negotiation begins when Aapo states twice that he wants to prepare the salad (proposing). Topi criticises by stating that salad will be prepared last (challenging), which starts the argumentative stage. Aapo is very determined and repeats his suggestion multiple times, trying to persuade others to accept it (defending). Kaya gives a new idea to solve the problem by suggesting that they will make the sausage sauce (proposing). Aapo continues repeating his suggestion (defending). Topi accepts by summarising the division of work (supporting), after which Aapo confirms the agreement (supporting). Kaya wants to ensure agreement (argumentative question), and as a closing move, Aapo repeats Topi's suggestion (supporting). In this excerpt, Aapo's argumentative moves could be interpreted as statements rather than collaborative suggestions.

Excerpt 4 Negotiating Division of Work

1:15	Aapo:	I want to prepare a salad. I only make a salad.
	Topi:	But a salad is prepared at the very end.
	Aapo:	[repeats several times] I prepare a salad. [goes to the teacher's desk and continues to repeat] I prepare a salad. [comes back to his kitchen and repeats again] I prepare a salad.
	Kaya:	We make a sausage sauce. We make a sausage sauce.
	Aapo:	I prepare a salad. [raises his hand in the air]
	Topi:	You prepare a sausage sauce [speaking to Selena and Kaya], Aapo makes a salad and I cook spaghetti.
	Selena:	[claps her hands]
	Aapo:	I prepare a salad.
	Kaya:	We prepare a sausage sauce, right?
	Aapo:	Topi cooks pasta, and I prepare a salad.

Proposing as an argumentative move also appeared in a more sophisticated and collaborative way in the negotiations (Excerpt 5). Two pupils have prepared a cake and already decorated it with the berries. Next, they must pipe the cream. Annika opens the dialogue by noting the

visuality of the cake (recognising). Elisa acknowledges that piping is a difficult task and feels nervous (recognising), after which Annika agrees (supporting) and asks how they should do it (gap question). She extends the question by inviting Elisa to agree with the suggestion (argumentative question). Elisa disagrees by making a counter-suggestion (proposing), but Annika disagrees (rejecting) and explains that she wants to decorate the cake such that it looks as good as possible (clarifying). Elisa is unsure how to proceed and proposes an alternative suggestion (argumentative question). Likewise, Annika is uncertain and turns to a cookery book, after which she criticises Elisa's suggestion by comparing it with a photo of a cake (challenging). Elisa offers a new explanation (proposing), which Annika understands and accepts (supporting). Even though many counterarguments were presented, the argumentation stage in this negotiation can be interpreted as collaborative and constructive. In the closing stage, Elisa starts to pipe the cream, after which Annika offers yet another suggestion (proposing) while Elisa continues piping.

Excerpt 5 Negotiating Visuality

1:25	Annika:	Actually, this is really beautiful.
	Elisa:	It's just that I always feel nervous of the cake's sides. [holds the piping bag]
	Annika:	Yeah. How do we do it? Do you put the cream at different spots and I just smooth?
	Elisa:	I was thinking that we just pipe the cream like this, one by one.
	Annika:	Well, I don't know. I am just thinking how it would look the most beautiful. You know?
	Elisa:	Well, should we coat these? If we smooth these and then these?
	Annika:	[leans down to look at the recipe and photo of the cake in the book] Here, look, it doesn't go like that.
	Elisa:	I'm thinking, well, like this. That we don't smooth the icing on a cake. So that we don't smooth. [points to a picture in the book]
	Annika:	Ah, okay!
	Elisa:	[begins to pipe the cream on the cake]
	Annika:	Leave that... First here and then pipe over. [points to the cake's sides]

Negotiations are also triggered in situations that could be interpreted as conflicts rather than decision-making or problem-solving situations. These negotiations were characterised by power dynamics within the group involved in the control and the need to influence another's behaviour. In Excerpt 6, conflict emerges between three pupils while two pupils cook, and the third one is provoked by the others' reactions. Selena fries minced meat in a pan, and oil splatters a little. She exaggerates her reaction and squeals (recognising), indicating that she is afraid (opening stage). Kaya stands next to her and joins in the exaggerated reaction by squealing (supporting). Topi gets provoked and criticises the reaction by repeating Selena's name multiple times (challenging), which annoys Selena and leads to reciprocal criticising (challenging). Additionally, Topi strengthens his argument by providing an explanation (clarifying). He then whispers something to Kaya, which triggers her to criticise Topi (challenging). Both agree and reinforce the claim (supporting). Selena is uncertain how to proceed with the cooking and asks Topi what to do (gap question). Kaya reacts to the question with a hidden meaning of disagreement (rejecting), saying that Selena should not talk with Topi. Despite this, Topi moves next to Selena and suggests how to stir the meat (proposing). Selena criticises Topi's action by telling him that he must go away and strengthens the order with a rule regarding a 'girls' zone' (challenging). Topi specifies the conflict by asking where the line is (gap question), and Kaya gives an explanation (clarifying). As a closing move, Topi expresses his familiarity with the situation (recognising).

Excerpt 6 Negotiating Power Dynamics

1:25	Selena:	[fries minced meat in a frying pan, the oil splatters a little and she holds the lid in front of her for protection, trying to stir at the same time] Eek, I'm scared!
	Kaya:	Eek! [squeals next to Selena]
	Topi:	[turns to look from the other side of the kitchen] Selena. Selena, Selena. Selena.
	Selena:	Stop it.
	Topi:	You stop it. That lid is not your shield.
	Selena:	[continues stirring the meat]
	[Topi and Kaya turn to look at each other]	
	Topi:	[whispers something to Kaya]
	Kaya:	Shhhh. You are a troll. I don't even know you.
	Topi:	Me neither.
	Kaya:	Likewise.
	Selena:	[turns towards Topi and stops stirring the minced meat] Well, what should I do?
	Kaya:	Selena, you are talking to some random boy.
	Topi:	[comes next to Selena and grabs the spatula] You stir it like this.
	Selena:	Go away. This is a girls' zone. [draws an imaginary line with her hand on the floor]
	Topi:	Where is the line?
	Kaya:	The line goes here. [shows with her hand on the floor]
	Topi:	I have seen a prophecy. I can predict this. I'm having déjà vu.

Discussion

The aim of this study was to make visible and understand the informal and spontaneous negotiations between pupils in the HE classroom and examine what is negotiated and how negotiations are constructed through argumentation. Our findings show that the HE classroom as a learning space invites pupils to negotiate together and that a variety of negotiations are used to deal with different issues, such as cooking methods, the taste of food and the roles of group members, during hands-on activities (RQ1). The micro-level analysis highlighted the construction of dialogical argumentation and negotiations as a multifaceted process consisting of different questions and argumentative moves. Negotiating involved presenting questions and argumentative moves such as proposing, recognising, supporting, rejecting, clarifying, challenging and defending.

The most frequent issue in negotiations concerned food preparation, which was characterised by feelings of uncertainty and pupils' need for peer support in relation to cooking methods. In line with our results, a previous study concerning group work in the HE classroom (Lindblom et al., 2016a) showed that when group work was integrated, pupils discussed cooking methods, recipes and division of work to solve learning tasks collaboratively. Although integrated group work was present in our study, the video analysis revealed that group work did not automatically entail collaborative and integrated work, as pupils also frequently worked independently.

One of the goals of HE education in Finland is to encourage pupils to take aesthetics into account (FNCC, 2014). In our study, aesthetics was an essential part of the learning situations, as pupils negotiated the taste and visuality of food and the visuality of table settings. In line with Gelinder et al. (2020) and Berg et al. (2019), our findings demonstrate the importance of

taste in food preparation in HE lessons. Although definitions of taste vary across disciplines (Christensen & Wistoft, 2016), taste can refer to the sense in the mouth and to aesthetic preferences (Gelinder et al., 2020). This was apparent in the negotiations, which were characterised by the seeking of opinions regarding the taste of food and differences of opinion. Pupils tasted the food and sought opinions (e.g. about whether there were enough spices in the soup) and expressed opposing opinions (e.g. about which cakes are the most delicious). Likewise, Berg et al. (2019) demonstrated how students use aesthetic judgements such as taste as an argument when they negotiated choice of ingredients during cooking. Christensen and Wistoft (2016) suggest that teachers need to include taste as a didactic element. Furthermore, it is essential to understand how aesthetic judgements participate in learning, especially in HE classes related to food preparation (Gelinder et al., 2020).

Negotiations in the classroom are affected by contextual (i.e. physical and temporal) conditions (Frelin & Grannäs, 2010). The HE classroom as a learning space triggered spontaneous negotiations related to various issues. Joint food preparation and a wide range of hands-on activities led pupils to negotiate not only food-related issues but also group members' roles related to the division of work. This is in line with the FNCC of HE, which states that one of the goals is to guide students in negotiating the division of work and use of time (see FNCC, 2014). Although the use of time did not appear to be an issue in the negotiations in this case study, time frames may have affected the pupils we studied, since they were unsure and had disagreements, which triggered negotiations. The importance of finishing the given tasks on time in HE lessons can affect pupils in the forms of stress, disagreement and insecurity during cooking activities (Lindblom et al., 2016b). Although negotiations play an important role in everyday classroom activities, not everything is negotiable; limiting what is negotiable can foster pupils' feelings of security but then again exclude them from the communication process (Frelin & Grannäs, 2010). Nevertheless, teachers should encourage pupils to engage in collaborative argumentation during group work and value pupils' autonomy in decision-making and problem-solving, which enables joint negotiations.

Negotiations were constructed through dialogical argumentation via questions and argumentative moves (RQ2). In most meaning units, gap questions and proposals triggered the negotiations and the use of argumentative and justificative questions complemented the dialogue and helped the pupils proceed in the negotiation. In line with the findings of Venäläinen (2010), our video analysis revealed that practical hands-on learning activities in the HE classroom triggered more questions than teacher-led learning situations. While students solve different tasks in HE lessons, critical moments become apparent through students' questions and confusion—when they must decide how to proceed as a group (Taar, 2017). Likewise, decision-making situations were characterised by uncertainty or opinion seeking, triggering pupils to pose questions or make proposals. Besides questions, negotiations are constructed of multiple argumentative moves, such as proposing, justifying, rejecting and challenging. Following Chen and Steenhoek (2013), we suggest that constructive negotiating in the classroom involves encouraging others to join the discussion by presenting questions, providing evidence for claims or ideas, challenging by proposing or making counterarguments with clarification and listening to and supporting others' ideas. Negotiations actualise jointly and dialogically, and negotiation skills are learned collaboratively.

Argumentation (i.e. expressing opinions and justifying them) is a type of discourse that needs to be learned to participate in democratic societies (Eldstål-Ahrens, 2024). Within the educational sciences, two perspectives concentrate on the main epistemic outcomes of educational argumentation: learning to argue and arguing to learn. In practice, these perspectives intermingle, as they are pedagogical objectives and outcomes of learning interactions (see, e.g. Andriessen & Baker, 2014; Rapanta & Christodoulou, 2022.) Learning to argue focuses on the development of argumentation skills, such as the construction of valid arguments and counterarguments, justification, rebuttals and adequate replies (Kuhn, 2005; Rapanta & Christodoulou, 2022). By contrast, arguing to learn refers to a collaborative process of collective knowledge building when the main intention is not to convince each other but to engage in 'cooperative explorations of a dialogical space of solutions to problems and fundamental concepts underlying them' (Andriessen & Baker, 2014, 442).

Since pupils' expressions are not always visible in their body language, teacher's reflections should not be grounded only by 'scanning' the classroom (Lindblom et al., 2016b). By making negotiations visible and identifying micro-level dialogues and argumentation in practice, this study can enhance teachers' understanding of everyday classroom talk and value it as a productive discourse. Joint hands-on learning activities and group-based learning seem to promote spontaneous negotiations between peers. However, since HE typically involves group work, high-quality collaborative communication needs to be taught for example providing problem-solving tasks (Lindblom et al., 2025). This study's findings enhance our understanding of negotiating and argumentation as classroom practices. This can promote teachers create a learning environment that Lilja (2012) describes as a 'communicative ecology of negotiation', which both demands and creates space for negotiation, argumentation and meaning-making. Through co-constructing in-between spaces that build on informal interaction (see Frelin & Grannäs, 2010), teachers and pupils can create inter-subjective negotiations and opportunities for learning to argue.

However, it can be challenging for teachers to design and provide student-activating tasks in which dialogue, discussion and constructive argumentation are central (Beinert et al., 2021). Our findings demonstrate that even if interaction and collaboration skills are not included in the national curriculums beyond Finland, HE offers a natural context to develop negotiation skills simultaneously with practical learning activities. In line with our findings, Chin and Osborne (2010) emphasise the importance of scaffolding student questioning to support productive discourse. Additionally, to foster productive negotiations in the classrooms, not only in the HE classrooms, we suggest for the teachers:

- to scaffold pupils' joint decision-making and problem-solving with each other by valuing their agency
- to encourage pupils to express proposals, counterarguments and to justify them during group work
- to value hands-on learning activities as a collaborative and dialogical process

Although videography offers a detailed view of natural classroom interactions and highlights simultaneous and versatile interactions between pupils, it has some limitations. Recording quality is crucial, so good camera positions and careful planning are essential to capturing relevant data and clear sound recordings. Some of the data had to be excluded due to background noise or pupils' quiet or overlapping speech. In addition, during the first few video

recordings, some COVID-19 recommendations were still in place, and the use of masks influenced sound quality to some extent. The presence of the researcher or video camera may have affected the pupils' behaviour. Although the researcher was present during several lessons before recording anything, observing at the back of the classroom, the camera was not moved and was positioned several metres away from the pupils. We suggest that future studies should be undertaken to explore the implementation of dialogical argumentation as a pedagogical method and how teachers can facilitate and support the development of students' negotiation skills. In addition, examining interaction from multimodal perspective where embodied communication is equally crucial to collaboration than language, could broaden our understanding of negotiations in the classrooms.

Conclusion

This study extends previous research related to interaction and collaboration in HE classrooms by exploring how negotiations are constructed between pupils. Our findings show that, in addition to practical food preparation skills, food-related learning triggers pupils to practice other important skills, such as decision-making, critical thinking and negotiation skills. The HE classroom is not only a natural environment for learning skills needed in daily life but also an environment of spontaneous negotiations between pupils. Although the results showed that pupils are active learners through the social curriculum, negotiation skills need to be taught. Changing established classroom practices requires teachers to value collaboration skills and understand the potential of food-related learning from a wider viewpoint. By encouraging pupils to engage in collaborative argumentation through questions, proposals and counterarguments, teachers can create a discursive learning environment that facilitates the development of essential 21st century skills.

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