Student craft teachers' garment-fitting process analysed using qualitative video analysis

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We studied student craft teachers' garment-fitting activity as a demanding learning task that is indicative of students' understanding of garment fit. Studying fit is essential in garment making. Simultaneously, fit is a complicated issue. As part of this clothing course, the students were given a form that listed areas to examine (bust, seams, darts etc.). They were instructed to think aloud, mark problematic areas and the placement of darts on a picture, and make written notes. While appreciating the potentially challenging social character of this peer-evaluation situation, this research aimed to understand how student craft teachers assess garment fit on a master's-level clothing course. Two research questions were set: 1) What roles did the students take on during the fitting sessions? 2) How did the students assess garment fit? Eleven students provided their informed consent to participate and their video recordings of their fitting sessions. The study results are based on a qualitative content analysis of these participants' videos. The results show that the students' understanding of fit and the fitting activity was underdeveloped. Students missed or explained away even obvious fit issues (e.g., horizontal or vertical folds of fabric, horizontal or diagonal drag lines, bagging, overly long/short sleeves or bodices), and their discussions showed that a basic understanding of fitting-related vocabulary and technical structures was underdeveloped. Three different ways to handle fit issues were identified: through peer dialogue, independently and through confirmatory questions. We conclude with some future directions for refreshing the teaching of garment fitting in teacher education.

Keywords: student craft teacher, garment fitting, history of teaching clothing, teacher education, video-based qualitative content analysis

Introduction

Sewing one's own garments is a motivating pastime for amateur dressmakers. While sewing as such can be easy, getting the fit right can be challenging (Martindale & McKinney, 2020). Garment fit involves interactions among multiple factors, such as the size, proportions and posture of the wearer, and the dimensions and drape of the garment (Ashdown & O'Connell, 2006). While fit and fit problems can be recognised by external experts, such as pattern makers and dressmakers (Song et al., 2021), the ultimate judgement call depends on an individual user's personal preferences, current fashion trends and topical expectations regarding how garments should look (Salo-Mattila, 2009, 2013). Ashdown and O'Connell (2006, p. 137) state: 'The issues involved in defining good fit can be overwhelmingly complex, but fit is such a critical factor in the acceptance or rejection of clothing that it must be addressed.' As size and fit issues have been identified as one of the top reasons for the premature disposal of clothing (Laitala & Boks, 2012), fit appears as too important a topic to be left only to experts. People routinely and regularly assess fit when trying on a garment and considering buying it, when seeing garments with a poor fit and when wearing poorly fitting garments that make one feel uncomfortable.

In Finnish basic education, clothing – that is, producing a garment – has been part of craft studies since the late 19th century. Similarly, clothing has been an important part of Finnish teacher education since the very first textile craft teaching guidelines were published in 1892 (Salo-Mattila, 2018). However, since the national curriculum change in 2016, several schools have curtailed the teaching of clothing, which is visible in incoming student craft teachers' readiness for university-level clothing courses. Their experience varies substantially from absolute novices to active hobbyists, while some have a prior vocational degree in clothing.

Research appears scarce on the history of Finnish craft education (Marjanen & Kaipainen, 2016) and on the history of Finnish craft teacher education. Research targeting clothing design and garment sewing in craft education or craft teacher education after 2000 is lacking. Today, clothing courses in craft teacher education include pattern drafting and sewing garments, but the extent varies from one university to another. For instance, when reading the course titles, words related to clothing, sewing or apparel making cannot be found in all the Finnish craft teacher education curricula. As part of basic studies, courses in sewing technology and garment sewing are offered at the University of Eastern Finland (UEF) with 4 European Credit Transfer and Accumulation System (ECTS) credits and at the University of Turku (UTU) with 3 ECTS credits. At the level of intermediate studies, the UEF provides 5 ECTS credits in clothing and the UTU provides 3 ECTS credits. Advanced studies involve an occupational 5-ECTS course at the UTU and an elective 5-ETCS course at the UEF (UEF Core Curriculum of Teacher Education 2021–2022; UTU Core Curriculum of Teacher Education 2020–2022). At the University of Helsinki, clothing and sewing technology belong to courses that also include other material technologies, leaving limited room for clothing: at the basic level, approximately 1–1.5 ECTS credits; at the intermediate level, an elective 2.5 ECTS credits; and at the advanced level, an elective 5 ECTS credits (UH Core Curriculum of Teacher Education 2020–2023; H. Lahti, personal communication, June 3, 2022).

The above-mentioned university-level clothing studies include designing and producing a garment: designing, pattern drafting, cutting, sewing, fitting and finalising the pattern. For clothing, pattern drafting has a crucial role: nothing overcomes bad form, not even quality sewing or meticulous finishing (Tiihonen & Kivimäki, 2008). Pattern drafting, in turn, relies heavily on good-quality measurements (Tiihonen & Kivimäki, 2008). However, good-quality measurements without fitting rarely yield a good fit (Salo-Mattila, 2009). Therefore, fitting is of utmost importance. However, despite its essential role in clothing, pattern drafting and pattern design, didactic research related to fitting is rare (Salo-Mattila, 2014). In this study, we are keen to examine how student craft teachers conduct fitting activities.

Clothing and pattern making in Finnish craft education from the 19th to the 21st century

In Finland, the subject of crafts was introduced to public schools in the 1860s by the father of the Finnish public school system, Uno Cygnaeus. He emphasised growing into a member of society through work education (Marjanen, 2014; Marjanen & Metsärinne, 2019). In 1884, a teacher training course for girls' craft introduced a curriculum with pattern drafting, cutting and sewing a shirt and a dress (Salo-Mattila, 2018). Starting in 1885, formal teacher education for girls' craft keenly followed international trends in pattern drafting and clothing, such as a French method that involved fitting (Salo-Mattila, 2011, 2018). However, these innovations were not transmitted to girls at public schools, as most teachers had neither textbooks nor clear instructions for teaching crafts, teaching methods were lacking and teachers had insufficient knowledge and skills for craft teaching (Marjanen & Kaipainen, 2016; Marjanen & Metsärinne, 2019).

The emphasis on pattern drafting and garment sewing techniques has varied from decade to decade (Marjanen & Kaipainen, 2016). First, the aim was to provide skills necessary for everyday life, manufacturing and repairing, as girls were to learn cutting and sewing as early as possible (Marjanen, 2014; Marjanen & Kaipainen, 2016). The so-called model series provided a didactical basis for gradual skill development (Marjanen & Metsärinne, 2019; Simpanen, 2003). The first half of the 20th century saw several didactical turns. In the early 20th century, girls practiced sewing and garment production by making dolls' clothes; the aim was to teach self-sufficiency (Marjanen & Kaipainen, 2016). Between 1910 and 1930, teaching was focused on sewing clothes rather than on producing garments suited for individual pupils (Marjanen & Kaipainen, 2016), even though in craft teacher education, drafting basic patterns based on individual body measurements was taught (Salo-Mattila, 2018). A major turn took place in the 1950s, as girls were taught to draft simple patterns based on individual body measurements

and basic patterns, as well as fitting (Marjanen & Kaipainen, 2016). From the 1960s to the 1990s, craft textbooks included several ready-to-use patterns for various garments (Marjanen & Kaipainen, 2016).

The next turning point took place in the 1970s: individuality and creativity became learning goals for clothing design, yet basic patterns and pattern drafting were essentially abandoned (Marjanen & Kaipainen, 2016). The pupils' creative freedom was limited to variations in clothing lengths, widths and details. After designing and sketching a picture of their preferred garment, pupils were instructed to select the proper pattern and size from textbook pattern sheets (Marjanen & Kaipainen, 2016). This paradox dominated throughout the 1980s and 1990s; pupils were instructed to produce their own visual design but to use a commercial or textbook pattern (Marjanen & Kaipainen, 2016).

According to our experience, based on various conversations with craft teachers and experience in supervising teaching practicums during the last 20 years, commercial patterns appear to have secured their position as cornerstones of teaching clothing in primary and secondary education. In addition, a series of basic patterns (e.g., t-shirts or sweatpants) have been bought for schools to speed up pattern drafting. A standard aim is to sew clothes suitable for oneself, with minimum changes in length and width. In primary school, pupils typically sew a simple lower-body garment, and in secondary school, they sew an upper-body garment (such as a hoodie or sweatshirt). Typically, more demanding garments can be produced during elective courses in grades 8 and 9, as well as during an elective craft diploma course in upper secondary school.

To conclude, clothing has been an acknowledged aspect of craft teaching and craft teacher education, even though its aims, focus and weight have evolved. Aspirations related to pattern drafting at the craft teacher level have been rather high, but have translated rather poorly to the school level. What is of note is the lack of fitting-related comments in all the above-mentioned historical reviews. The history of teaching fitting at school appears to have started in the 1950s and was reduced to an examination of lengths and widths in the 1970s. It is difficult to understand how pattern drafting and sewing activities could produce clothes that fit well unless the process involves properly fitting them.

Fitting as a clothing learning task in contemporary craft teacher education

Designing and producing a garment requires high spatial visualisation ability (Workman & Caldwell, 2007). Clothing involves translating illusions into two-dimensional designs and patterns as well as implementing a three-dimensional product using two-dimensional patterns, complex mental transformations and dimensionality crossing (Salo-Mattila, 2014). A trial garment is usually used to evaluate how design and fit correspond to the original vision of the garment (Workman & Caldwell, 2007). Fitting requires abstract thinking and analytical skills: noticing and interpreting visual and three-dimensional cues, deciding whether a cue indicates an issue that needs to be adjusted or that can be tolerated, observing conditions connected with the issue, reasoning to reach a solution and active experimenting with the solution (Salo-Mattila, 2014). Furthermore, fitting requires the capability to perceive details and proceed in a stepwise fashion, but also the capability to integrate the details into a satisfying whole (Salo-Mattila, 2014). Pattern, design and form are interactively adaptive: producing a garment is a spiral-like process in which fitting has an important role (Salo-Mattila, 2009).

In craft teacher education, students typically design and produce clothes for themselves, and fitting is typically conducted as a pair (or team) activity. While physical components (such as garment balance, grain and size) can be evaluated by experts (Gill, 2015), psychological preferences (such as style and comfort) can only be evaluated by the garment wearer. Furthermore, assessing the dynamic measures necessary for garment functionality requires simulating the actual conditions of use, such as reaching out or taking on a forward-bending stance. Therefore, a dialogue is necessary between the model and the fitting partner. As a learning task in craft teacher education, assessing garment fit includes both self-assessment (by the maker of the garment who is also wearing the garment) and peer feedback (by the fitting partner). Giving peer feedback involves two different tasks: 1) gathering information and using it to evaluate a peer's performance in relation to standards or aims and 2) using this information to phrase

appropriate feedback to the peer (Bürgermeister et al., 2021). In addition to understanding the concept of fit, these tasks require having a command of the related subject-specific vocabulary.

In general, feedback can involve unidirectional information transmission (in the spirit of from-supervisor-to-trainee), or dialogical negotiation, which seeks a shared understanding of performance and aims, as well as agreement on further action (Telio et al., 2015). For student teachers, giving formative feedback is a learning objective and a basic pedagogical skill that is essential for their future occupation. However, providing peer feedback is a challenging task that is potentially subject to social pressure, even though this sensitive issue has received little attention in the research literature (Bürgermeister et al., 2012; Liu & Carless, 2006). In this study, we appreciated the potentially challenging social character of this peer-evaluation situation but restricted our study to observable student roles and dialogue rather than to unspoken power or social issues.

Research questions

We studied student craft teachers' garment-fitting activity as a demanding learning task that is indicative of students' understanding of clothing fit. While appreciating the potentially challenging social character of this peer-evaluation situation, this research aimed to understand how student craft teachers assess garment fit through student-provided video recordings from a master's-level clothing course. Two research questions (RQs) were set:

RQ1. What roles did the students take on during the fitting sessions?

RQ2. How did the students assess garment fit?

The following first introduces the studied garment-fitting task and collected data, continues with details of the video-based qualitative content analysis, then illustrates the results with representative vignettes and finally rounds up with concluding suggestions.

Methods

Study design

The study data was gathered during a master's-level clothing course for student craft teachers at a Finnish university; the final course on garment making that the students take as part of their craft teacher education. Two researchers were involved: one university lecturer taught the course, while the other researcher studied the process and the garments only via the video recordings. Both researchers contributed to the writing of the article. Seventeen students gave their informed consent to participate in this study, of which eleven provided the video recordings of their fitting sessions. Therefore, the actual number of participants in this research was eleven.

The coursework comprised designing and making a demanding outfit. During their studies in craft teacher education, the students had designed and sewn one garment prior to the course. They had been taught the basics of pattern design and simple pattern modifications, but no personal basic pattern drafting. No background information about their level of experience in garment making or fitting was acquired for research purposes. However, each student's level of experience was reflected in the coursework agreed upon by the teacher, as the coursework was instructed to be 'demanding'. The word 'demanding' translated differently for students with different levels of experience in garment sewing. In this course, demanding upper-body garments included structures, such as darts, fitted sleeves and details, or pockets in lower-body garments. Non-stretch fabrics were preferred. For all the students, 'demanding' translated into a good fit (i.e., no obvious fit issues, such as horizontal or vertical folds of fabric, horizontal or diagonal drag lines, bagging or overly long/short sleeves or bodices).

After visual sketching and technical planning, the students were advised on the correct procedure for taking body measurements, adjusting commercial patterns and shaping, as well as analysing garment fit. Prior to continuing with cutting and sewing the actual coursework garment, the students were required to prepare a trial garment (a prototype) for fitting purposes. The students chose a commercial pattern to use as a starting point for shaping. Working in pairs, students took each other's body measurements and

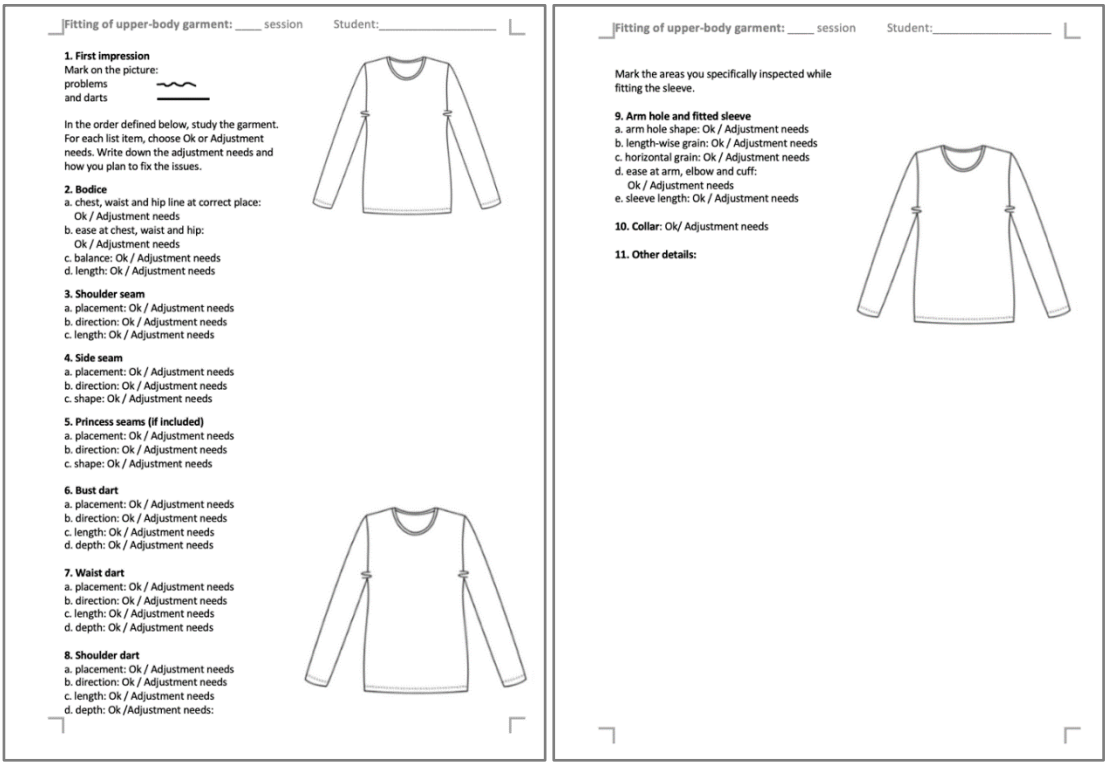
later analysed each other's garment fit. The lecturer participated in the fitting sessions only when the students specifically asked for her help, which occurred in none of the presented cases (Iku, Oka, Etl and Ujr).

The outfit was fitted several times during the course: first, the trial garment and, later, the actual garment. Students were free to choose their fitting partner from among the course participants. Students were advised that the person wearing the garment should stand, while the partner conducting the session should advise on how the other one should move, stretch or change posture as the garment should move. The instructions emphasised that the middle front and middle back should be marked on the garment. Furthermore, the students were instructed to think aloud during fitting:

Say aloud everything you are thinking. Think aloud as if you (two) were alone. Don't explain what you are doing, but say aloud everything you are thinking and how you understand the fit of the garment and any need to change it.

To support learning, the students were given a fitting form on which they were asked to register their findings. Prior to the fitting sessions, the students were instructed on how to use the fitting form. Different fitting forms were provided for the upper-body and lower-body garments. (An English translation of the upper-body fitting form is shown in Figure 1 and the original Finnish version is available in Appendix A.)

Students were encouraged to sketch their own garments onto the form, but several students settled with a simple line drawing representing the general garment type and marked their findings on top of that. In the case of upper-body garments, the fitting form advises the students to begin with the first impression and overall look of a garment and then study whether the ease and balance is correct (or not). The central details to be examined were the fit of the bodice, shoulder seams and inside seams, if the darts were in the right position at the bosom, waist or shoulder, as well as how the sleeve and armhole would settle. Other details involved the collar, while additional free space was reserved for custom details, such as pockets.


Fitting of upper-body garment: ____ session Student:_____

1. First impression
Mark on the picture:
problems
and darts

In the order defined below, study the garment. For each list item, choose Ok or Adjustment needs. Write down the adjustment needs and how you plan to fix the issues.

2. Bodice
a. chest, waist and hip line at correct place: Ok / Adjustment needs
b. ease at chest, waist and hip: Ok / Adjustment needs
c. balance: Ok / Adjustment needs
d. length: Ok / Adjustment needs

3. Shoulder seam
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. length: Ok / Adjustment needs

4. Side seam
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. shape: Ok / Adjustment needs

5. Princess seams (if included)
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. shape: Ok / Adjustment needs

6. Bust dart
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. length: Ok / Adjustment needs
d. depth: Ok / Adjustment needs

7. Waist dart
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. length: Ok / Adjustment needs
d. depth: Ok / Adjustment needs

8. Shoulder dart
a. placement: Ok / Adjustment needs
b. direction: Ok / Adjustment needs
c. length: Ok / Adjustment needs
d. depth: Ok /Adjustment needs:

Fitting of upper-body garment: ____ session Student:_____

Mark the areas you specifically inspected while fitting the sleeve.

9. Arm hole and fitted sleeve
a. arm hole shape: Ok / Adjustment needs
b. length-wise grain: Ok / Adjustment needs
c. horizontal grain: Ok / Adjustment needs
d. ease at arm, elbow and cuff: Ok / Adjustment needs
e. sleeve length: Ok / Adjustment needs

10. Collar: Ok/ Adjustment needs

11. Other details:

Figure 1. Upper-body garment-fitting form (English translation).

Data collection and analysis

The students were instructed to video-record and document their first garment-fitting session and then upload their files onto the university's cloud service. However, not all of the student-provided video recordings were from their first session. For the sake of comparison, the intended, ideal data would have included videos from the students' first sessions, as it is likely that the number of fit issues was largest in the first session. However, as this study did not focus on, for example, the number of fit issues but on the roles taken and differing ways of assessing garment fit in the given learning task, all of the provided recordings were included in this study. This resulted in 11 videos, with a total length of 66 minutes. The length of the individual videos varied from 1.75 minutes to 17.5 minutes. Students' fitting forms (one per student; a total of eleven) were also collected.

The students' video recordings were analysed using a video-based qualitative content analysis (Härkki, 2018). This method has been developed for the analysis of embodied interactions involving humans and material objects, following the assumption of interaction analysis (Jordan & Henderson, 1994), whereby knowledge and action are fundamentally social in origin, organisation and use, and it is situated within social and material ecologies. The goal of interaction analysis is to identify how participants utilise the resources of the social and material worlds (Jordan & Henderson, 1994). In this study, the most important resources were the garments to be fitted, the fitting process explicated in the fitting form given to students and the knowledge of student peers.

For RQ1, identifying the students' roles in the video recordings, a macro-level analysis was chosen, as the same roles continued throughout the fitting session. For RQ2, the video data was segmented into events, which aimed at capturing students' areas of interest (such as the bodice, shoulder seams, side seams or darts). These events were coded using conventional coding (Hsieh & Shannon, 2005). The first author coded the data, after which the second author independently verified the coding results, ensuring the reliability of the coding. The developed coding structure is shown in Table 1, while examples of the coded data are provided in the Findings section.

Table 1. Coding structure: Categories, subcategories and explanations per research question

Research question	Categories & subcategories	Explanation
1) Student roles	Session leader: • Maker • Fitting partner	Student orchestrating fitting activity: Pointing out which areas to focus on next.
	Assessor: • Maker • Fitting partner	Student raising questions about whether the garment fitted or not.
	Decision maker: • Both together • Maker • Fitting partner	Student deciding if an adjustment was necessary.
	Pinner: • Both together • Maker • Fitting partner	Student pinning adjustments on the garment.
2) Handling of fit issues	Actions regarding an explicated fit issue o Registered o Analysed and registered o Analysed and pinned o Pinned at the end of the session	Actions taken after a fit issue had been identified and explicated: • Marked onto the fitting form. • Ways to correct the issue analysed and the issue marked onto the fitting form. • Ways to correct the issue analysed, marked onto the fitting form and adjustments pinned onto the garment immediately. • Adjustments were pinned onto the garment only at the end of the session.

	○ Dismissed	• Downplayed or explained away.
	Assessment type: ○ Peer dialogue ○ Confirmation through questions ○ Independent	Type of student assessment activity: • Both students participate equally and actively in the dialogue. • The assessor asks confirmatory questions from the student wearing the garment. • One student makes assessments independently.

The following describes the findings in the order of the RQs, and then wraps up with a discussion and conclusive recommendations for craft teacher education.

Findings

The following findings and conclusions pertain only to the behaviour and learning of the students who provided their informed consent and video recordings of their fitting sessions, not to all students on the course or to all student craft teachers.

RQ1: Roles taken by the students during fitting sessions

The instructions given to the students pictured clear roles for the maker of the garment and the fitting partner. The maker of the garment was to wear the garment, stand still, answer questions and move according to the instructions provided by the fitting partner. The partner was to assess the garment, ask questions about the fit, identify and analyse adjustment needs, as well as pin the adjustments to the garment. According to the video data, very few fitting sessions proceeded according to these guidelines or followed the roles pictured beforehand for the maker and the partner. Instead, when scrutinising the roles taken by the students during fitting sessions, four roles were identified: 1) session leader, 2) assessor, 3) pinner and 4) decision maker. These roles appeared in various combinations.

Almost all sessions had a clear session leader who orchestrated the activity by pointing out which area to focus on next. Most cases (6) were led by the fitting partner, some by the maker (3), and in two cases, both were equally active. Usually, the session leader was also the assessor: the one who raised questions about fit problems. In two cases, the leader and assessor roles were separated, as exemplified by the following case. The leader (Sl on the right in Figure 2 with the pin cushion) followed the process on the fitting form and the maker (Iku, in Figure 2 on the left) made judgement calls.

> Sl [with questioning voice, reading from the form]: Ease at waist, hips?
>
> Iku [trying to collect excess fabric from the waist to the back, while having a mobile phone hanging from the trouser waist band]: Ease at waist, too large.
>
> Sl [reaching for pins]: So, a pin there [looking at Iku's gesture showing the area where to put the pin].
>
> Iku: A dart here [holding excess fabric].
>
> Sl: So there [inserts a pin per each location held by Iku].

Figure 2. Partner-leader Sl on the right, with maker-assessor Iku on the left. The Iku case (0:39–0:53), with the video related to the fitting of the actual coursework garment.

In this Iku case, the fitting partner–session leader also pinned the identified adjustments. As this was not always the case, the role of the pinner was identified and analysed. In four cases, it was the fitting partner who pinned, and in one case, both the partner and the maker wearing the garment actively pinned adjustments on the garment. An example of the latter is shown in Figure 3.

Figure 3. Both the partner (on the left) and the maker (on the right) pinning the adjustments. The Oka case (10:36), with the video related to trial garment fitting.

In the rest of the cases, no pinning took place. However, a lack of pinning was not an indication of a perfect fit. Students' action sequences of proposing, analysing and deciding on adjustment needs varied, as did the students' roles in deciding whether an adjustment was necessary or not. In three cases, the students discussed the needs; in three cases, the fitting partner–assessor explicated the decisions after some confirmatory questions on the feel of the garment; and in five cases, one of the students made the judgement calls independently.

To summarise, students took on the four roles (leader, assessor, pinner, decision maker) in various combinations, even if these roles were originally intended to overlap and were all held by the fitting partner. In two cases, the students were equally active in leading the sessions. When considering the functions related to the four identified roles, the session leader can be either one, yet only the fitting partner can move freely to have good visibility regarding the garment fit details and to pin the adjustments. The role of the decision maker appeared to be a clear candidate for showing power relations in handling fit issues. The second research question focused on this topic.

RQ2: How did the students handle fit issues?

All the garments had fit issues. Nearly all students identified most of the issues during the fitting sessions. The following vignettes exemplify qualitatively different cases for handling fit issues: first, the maker deciding independently on an adjustment need; second, the partner asking confirmatory questions while the maker explains that the issue is a functional feature; and third, students dialogically and iteratively negotiating adjustment needs and ways to treat them.

Some assessors pointed out fit issues independently in a straightforward manner, as in the following vignette for the Etl case and his fitting partner, Mri.

Etl [firmly]: The shoulder seam is too long [Figure 4a].

Mri: It could end a bit higher. Like one centimetre [folds the adjustment onto the garment and pints it, Figure 4b].

Etl [firmly]: I'd rather say that something like that [folds a substantially larger amount of fabric]. How much is that? [folds and looks at the gathered fabric, Figure 4c]. That's three centimetres of excess.

Mri: OK [takes some pins].

Etl: Put the pins here [Mri pins the adjustment, as asked]. So, much better now [Figure 4d].

Figures 4a–d. Maker–leader–assessor Etl (on the right) and partner–pinner Mri (on the left) analysing and adjusting the length of the shoulder seam. The Etl case (0:16–0:46), in which the video is related to trial garment fitting.

What was typical of this kind of directness was that the maker was also the assessor. Makers had the confidence and mandate to make definite judgement calls, as they were assessing their own work to be worn by themselves. Typically, these judgements were also registered on the fitting form.

When the fitting partner was the assessor, the suggestions were more subtle and probing. The following provides an example of an assessment using confirmatory questions.

Vk: The front fits nicely, shoulders fit nicely, and ... dunno if this [grasps jacket sleeve near elbow, Figure 5a] is for ease of movement or for what reason [Figure 5b], but some small pouching starts to emerge [Figure 5c] here.

Ujr: It is just ease; another jacket will be worn underneath this one.

Vk: So … so, that's that.

Figures 5a–c. Partner–assessor (on the left, only the hand is visible) questioning excess ease in Ujr's jacket sleeve by grasping and pulling the garment. The Ujr case (0:11–0:30), with the video related to fitting the actual coursework garment.

Several fit issues were dismissed as planned features with a certain functional value. In the above case, Ujr, the maker, explained that the extra ease of the hunting jacket was necessary because the jacket was to be worn on top of another thicker jacket. (However, after his first hunting trip with this jacket, he admitted that the sleeves were unnecessarily long.)

In several cases, students missed fit issues that seemed obvious (such as horizontal or vertical folds of fabric, horizontal or diagonal drag lines, bagging or overly long/short sleeves or bodices). On the videos, students appeared to ponder these kinds of fit problems, but still marked 'OK' on the fitting form. Downplaying and explaining away were normal strategies. When issues were downplayed, they were not registered on the fitting form, even if, in some cases, they were discussed at length. In three cases, all identified fit issues were dismissed.

In more than half of the cases, the decisions on adjustment needs were based on discussions: in three cases, on a peer dialogue in which both students participated as equal partners, and in three cases, on confirmatory questions asked by leader–assessors and answered by the maker wearing the garment. However, in four cases, the session leader, who was also the maker, independently made the judgement calls. In one extreme case, the partner–leader ignored the maker's opinion that adjustments were necessary.

In the following case (Oka), students conduct the session as peer dialogue, relying on each other's emerging understanding of the terminology and garment fit, while frequently coming back to the issue of the trousers' waist and hip ease.

> Oka [readjusting waistband]: This is good; the waist [fingers the waistband, Figure 6a].
>
> Sl: Yeah.
>
> Oka: Nothing needs to be done to it. […] It feels good, the waist.
>
> […]
>
> Two minutes later, the students discuss excess fabric at the hip.
>
> […]
>
> Eight minutes later, students read their notes and start thinking about darts.

Sl [reading the fitting form]: Ease at waist and hip, OK. Darts.

Oka: No darts. No need for darts because we can take in here [fingers the waist]. No need for a dart [at the front].

Sl: Are there darts here? Yeah, here at the back.

Oka: Yeah, those are fine.

[…]

A minute later, they revisit the waist and the darts.

Sl: Is there some bagging there [points at the hip] now when the waist has settled a bit lower?

Oka [adjusts the waistband and pulls the trousers up]: Here? Anyway, should it be a bit like tighter?

Sl: The waist?

Oka: In a way...

Sl: Now it is too tight here [points at the inner seams at thigh level].

Oka: So maybe a little [fingers the waistband again].

Sl: So, should something be taken off from the waist?

Oka: Yeah [puts a pin on the waistband, Figure 6b].

[...]

After three minutes, students revisit the dart, hip and waist for the last time.

Sl [reading the fitting form]: Waist dart.

Oka [points at the darts]: These at the back; these are quite OK.

Sl: Yes. The backside looks good. Crotch looks good, too.

Oka: If I'd like the hip a bit [a gesture suggesting tighter], then one can make these [grasps the darts at the back and pulls, Figure 6c] a bit tighter. A bit larger darts. That should do it.

Sl: Does it create a bag? Does it create a bag over here if you take the waist a bit lower?

Oka: I'm not certain. That needs to be checked [pulls the waist darts at the back].

Sl: Because now the backside fits fine if you look at your backside in the mirror.

Oka [turns around and looks at the mirror, Figure 6d]: Yes.

Figures 6a–d. Maker Oka (on the left) and partner Sl (on the right) dialogically analyse hip and waist ease during several revisits. The Oka case (0:04–17:16), with the video related to trial garment fitting.

Oka's case was exceptional because the students repeatedly came back to analyse and rethink ease at the hip and waist and possible adjustments. Usually, students settled on the first idea for making an adjustment. Only in three cases were options for adjustments mentioned at all, and this case (Oka) was the only case in which the students considered and analysed alternative ways of correcting the fit issue.

To summarise, the assessor made the judgement calls very firmly in four cases, and for three of those, the maker was also the assessor. However, firmness and a clear understanding of fit and fitting activities coincided in only one case. In three cases, the assessor's suggestions showed firmness, but the decision was made only after the maker had answered confirmatory questions. These cases also missed or explained away obvious fit issues. A more thorough analysis that showed an emerging understanding of fit and fitting as an activity was observable in three cases, in which the maker and partner engaged in a peer dialogue to validate fit issues and the required corrections. There was still room for improvement, but the dialogue showed promise. Of a total of eleven cases, three were deemed as 'no corrections needed', while in eight cases, students registered at least one fit issue. However, the number of issues registered on the fitting form matched with the explicated issues in only three cases.

Discussion

This research aimed to understand how master's-level student craft teachers assessed garment fit through student-provided video recordings from a master's-level clothing course. These students had already completed one university-level clothing course; patterning, fitting and producing a garment was not a totally novel task for them. This course tasked them to design and make a demanding outfit, which for different students translated differently, as their previous experience in garment sewing varied greatly. The vignettes presented in the Findings section represent some of the most demanding products. Considering their previous opportunities to learn clothing and cultivate their understanding of garment fit, RQ2's results show an underdeveloped understanding of fit and fitting activity. The wearer's preferences regarding style issues and ease (not only when standing still but when moving according to intended functionality) cannot be accounted for without dialogue, without confirmatory questions and without taking into account the wearer's subjective feelings.

Based on the results, it is clear that teaching methods need to be developed to ensure that students recognise indications of obvious fit issues. However, the results also leave room for speculation regarding whether students were reticent about analysing their peers' work. Tai et al. (2014) identified three major challenges for peer evaluation: peers' hesitance to provide constructive feedback, a lack of trust in peers' knowledge or performance, and feeling uncomfortable giving constructive feedback. Further reasons included a lack of trust in one's own knowledge and not having a framework for evaluation (Tai et al., 2014). The situation could be considered socially challenging. One student dominated decision making in four cases, and in three of these cases it was the maker and in one it was the partner who dominated. This could be related to the students' general behaviour, but a lack of further data prevents us from speculating on this topic. Yet, the results for RQ1 and RQ2 related to roles and decision making suggest that, rather than social pressure, a lack of knowledge regarding indications of poor fit and technical structures (such as darts), as well as an underdeveloped command of the fitting-related vocabulary, prevented the dialogue from reaching a level indicating that the students had a good command of fitting.

The characteristics of students' dialogue could be connected to two central craft teacher competences: understanding fit and the capability of formulating constructive feedback based on observations of products/performance. The current national core curriculum for basic education (NCCBE) emphasises formative feedback during the craft process (Finnish National Bureau of Education [FNBE], 2014). Practicing constructive feedback entails practicing a central pedagogical skill. These results showed that, at its best, student dialogue represented a relationship in which students expressed their emerging

understanding of fit and adjustment needs and reasoned together. Future clothing courses could explicate this part of the fitting activity and cultivate a course climate for peer feedback (Liu & Carless, 2006) and dialogical knowledge building. An additional reason for determinedly building a safe dialogical learning environment is the personal character of clothing. A large proportion of the students participating in this course did not grant research permission; several of them were skilled in garment sewing. We are not aware of the underlying reasons, but we acknowledge that discussing and evaluating clothing could touch on several personal issues and cause feelings of insecurity.

The course learning objectives included understanding garment fit and the command of demanding technical structures. Assessing fit, especially ease, appeared challenging. Obvious indications of adjustment need, such as traction in the side seams or bagging at the back of a shirt, were often missed or explained away. Furthermore, personal preferences can only be accounted for through discussions on garment feel; these discussions were realised in six cases. These discussions revealed unfamiliarity with basic structures and vocabulary: typical misunderstandings were related to darts (a waist dart mistaken as a bust dart and darts in the back not recognised at all) and mistaking cuffs as armholes. The provision of a fitting form and related instructions prior to the fitting sessions aimed at supporting the students' dialogue and fitting activity. Many students read the form aloud but neither used the vocabulary in their own speech nor elaborated on the issues. The words in the fitting form, such as ease, balance and darts, had not become part of their active craft teacher vocabulary. We conclude that, based on the students' explicated fit assessments (or lack thereof), the above-mentioned learning objectives were not met.

Even though fitting is central to producing good-quality clothing, fitting activity in general – and teaching of fitting especially – is understudied. When pondering the role of master's-level clothing courses, one must consider the basis of students' views on fit and attitudes towards learning clothing and fitting. The students mainly represented Generation Z (born in the late 1990s–early 2010s; Generation Z, 2022), who are used to accessing a vast and rapidly changing selection of ready-to-wear clothes. Ready-to-wear clothes – especially fast fashion – all too often have a poor fit and carelessly implemented details combined with low-quality materials (see e.g., Bye & McKinney, 2007; Joy et al., 2012). The clothing industry has taught customers to accept flaws and a less-than-optimal fit in ready-to-wear clothes (Joy et al., 2012; Salo-Mattila, 2013). It appears that students have learnt the lesson taught by the fashion industry: be content with poorly fitting clothes. Therefore, it is understandable that they set the bar low when assessing the fit of the garments they had tailored for themselves. Future research could ask what characteristics of clothes are important for student craft teachers and how they define good-quality garments and fit, as this has implications for their teaching of clothing in schools and in other educational institutions.

Conclusion

Clothing affects a person's external appearance but also impressions of a person's identity (Koskennurmi-Sivonen, 2000), which could be a valuable motivating factor for both student craft teachers and pupils at schools. The NCCBE emphasises a holistic understanding of phenomena and links the learning objectives and contents of craft to innovation, creativity and design, spatial thinking and problem-solving skills (FNBE, 2014). Clothing provides an opportunity to learn all of these through personally meaningful projects. The historical developments in the role of clothing and pattern drafting, both in craft in basic education and in craft teacher education, indicate that these opportunities are currently not being exploited.

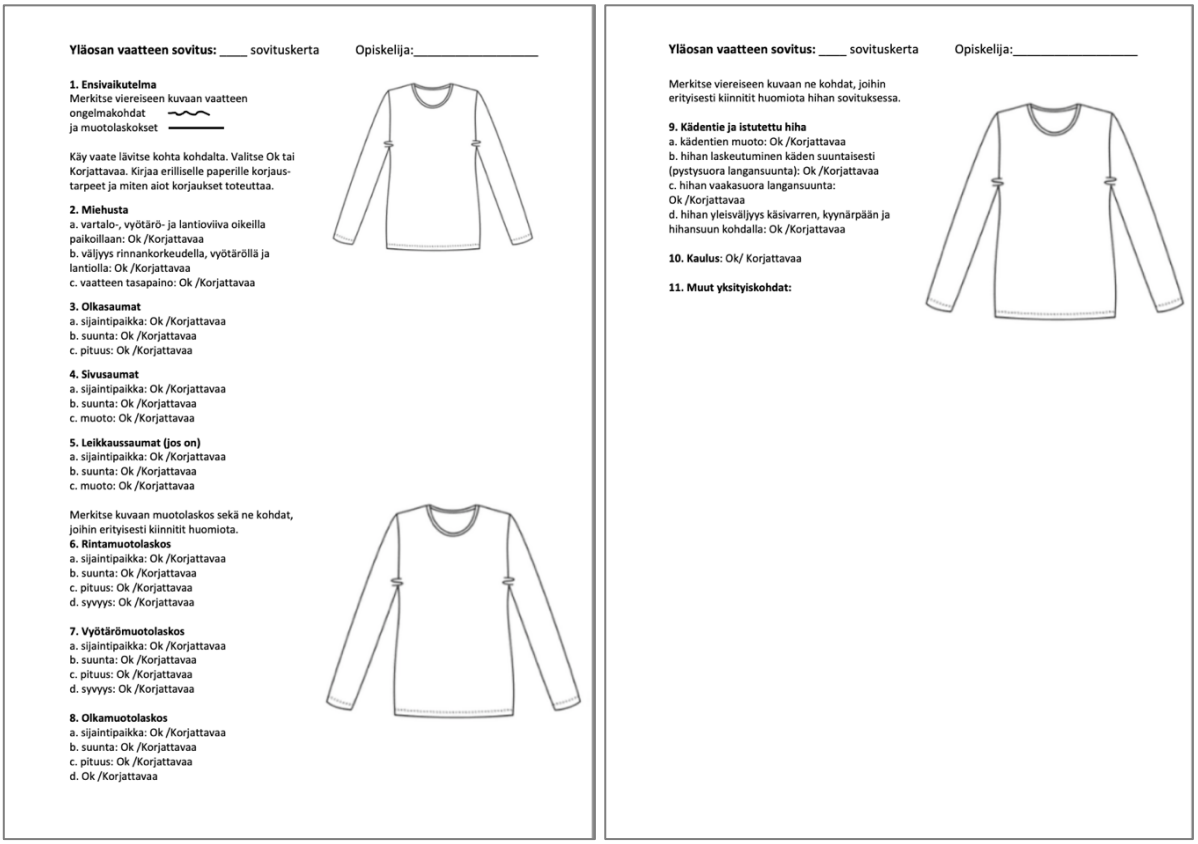
Understanding the interactions between the moving body, the garment silhouette (formed by the pattern), the fabric and the technical/structural decisions is elemental for creativity in clothing design (Ashdown, 2013), but also for understanding the factors required to feel comfortable in one's clothes. The students' video-recorded discussions could also be taken as an implication of them tolerating (*tyytyä*

in Finnish) rather than being satisfied with (*tyytyväinen* in Finnish) their garments, which is far from the expected behaviour for master's-level student craft teachers. This begs the question of whether this reflects the future of craft teacher education: tolerating rather than being satisfied with the garments/products that are produced.

For the future teaching of clothing, fitting could be reframed as a learning task for clothing *and* for giving formative constructive feedback, which is an essential teaching skill. Gaining first-hand experience in building an emerging understanding of the standard against which performance is to be evaluated (in this case, the good fit of a garment) and practicing giving not only positive but also constructive feedback could provide a meaningful learning experience, which the students could build on in the future when instructing their pupils regarding peer assessments.

Appendix A.

Fitting form for upper-body garments (the original Finnish version).



Yläosan vaatteen sovitus: ____ sovituskerta Opiskelija:_____

1. Ensivaikutelma
Merkitse viereiseen kuvaan vaatteen
ongelmakohdat
ja muotolaskokset

Käy vaate lävitse kohta kohdalta. Valitse Ok tai Korjattavaa. Kirjaa erilliselle paperille korjaustarpeet ja miten aiot korjaukset toteuttaa.

2. Miehusta
a. vartalo-, vyötärö- ja lantioviiva oikeilla paikoillaan: Ok /Korjattavaa
b. väljyys rinnankorkeudella, vyötäröllä ja lantiolla: Ok /Korjattavaa
c. vaatteen tasapaino: Ok /Korjattavaa

3. Olkasaumat
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. pituus: Ok /Korjattavaa

4. Sivusaumat
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. muoto: Ok /Korjattavaa

5. Leikkaussaumat (jos on)
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. muoto: Ok /Korjattavaa

Merkitse kuvaan muotolaskos sekä ne kohdat, joihin erityisesti kiinnitit huomiota.
6. Rintamuotolaskos
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. pituus: Ok /Korjattavaa
d. syvyys: Ok /Korjattavaa

7. Vyötärömuotolaskos
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. pituus: Ok /Korjattavaa
d. syvyys: Ok /Korjattavaa

8. Olkamuotolaskos
a. sijaintipaikka: Ok /Korjattavaa
b. suunta: Ok /Korjattavaa
c. pituus: Ok /Korjattavaa
d. Ok /Korjattavaa

Yläosan vaatteen sovitus: ____ sovituskerta Opiskelija:_____

Merkitse viereiseen kuvaan ne kohdat, joihin erityisesti kiinnitit huomiota hihan sovituksessa.

9. Kädentie ja istutettu hiha
a. kädentien muoto: Ok /Korjattavaa
b. hihan laskeutuminen käden suuntaisesti (pystysuora langansuunta): Ok /Korjattavaa
c. hihan vaakasuora langansuunta:
Ok /Korjattavaa
d. hihan yleisväljyys käsivarren, kyynärpään ja hihansuun kohdalla: Ok /Korjattavaa

10. Kaulus: Ok/ Korjattavaa

11. Muut yksityiskohdat:

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