Teachers' professional learning through mentor education: a longitudinal mixed-methods study

Elise Sivertsen Arnsby, Jessica Aspfors & Katharina Jacobsson

Published online: 23 Oct 2023.

Submit your article to this journal ⇗

View related articles ⇗

View Crossmark data ⇗

Routledge
Taylor & Francis Group

Teachers' professional learning through mentor education: a longitudinal mixed-methods study

Elise Sivertsen Arnsby [a], Jessica Aspfors [a,b] and Katharina Jacobsson [a]

aFaculty of Education and Arts, Nord University, Bodø, Norway; bFaculty of Education and Welfare Studies, Åbo Akademi University, Turku, Finland

ABSTRACT

Mentor education for practice teachers and mentors' professional learning has been described as an underdeveloped area in research. Therefore, the aim of this study was to gain a deeper understanding and knowledge of teachers' professional learning during and after completing mentor education in Norway. The research questions examine teachers' experiences of learning through mentor education and the implementation of mentor education in practice. Using a longitudinal mixed-methods research design, quantitative and qualitative data were collected in different phases, providing an opportunity to explore teachers' professional learning during and 1.5 years after completing a two-year university-based mentor education programme. Through its longitudinal mixed-methods design and collective and school-based participation in mentor education, this study offers new perspectives on teachers' professional learning and mentor education. The results show that participants experience professional learning as mentors and as teachers because of the content focus, duration, and collective participation of the mentor education programme. Moreover, the results show that the knowledge and skills acquired through mentor education have been implemented into the participants' own and collective mentoring, teaching, and collaborative practices.

Introduction

In initial teacher education and the following induction period, mentoring has been described as a key strategy for supporting beginner teachers (Jones, 2009). The focus is often on the mentee (Walters, Robinson, & Walters, 2020); consequently, attention to how mentors are prepared for their role and the impact of mentor education is sparse (Hobson, Ashby, Malderez, & Tomlinson, 2009; Ulvik & Sunde, 2013). Therefore, studies that focus on and explore ways in which mentoring can benefit mentors themselves and their professional needs and knowledge are called for (Aspfors & Fransson, 2015; Fredriksen & Halse, 2022; Lejonberg, Elstad, & Christophersen, 2015; Walters, Robinson, & Walters, 2020).

In Norway, mentors and mentor education have been in focus for several years. The importance of mentor education as a tool for teachers' professional learning is shown in a number of white papers and national strategies (Ministry of Education and Research, 2009, 2015, 2017a, 2017b). Mentor education is organised at higher education institutions offering teacher education. Although mentor education has existed for years, the scale has been small, and the goal of all school-based mentors receiving mentor education has not been fulfiled (Sandvik, Solhaug, Lejonberg, Elstad, & Christophersen, 2020). In studies, six out of ten pre-service teachers stated that they were mentored by teachers without formalised mentor education (Pedagogstudentene, 2021), and four out of ten newly qualified teachers (NQTs) were not offered mentoring as required during their first 2 years as teachers (Ministry of Education and Research, 2017b).

As part of a university – school partnership project in Norway, four university – schools participated in the current study. One goal of such a partnership is to ensure close collaboration between schools and teacher education programmes, quality practice for pre-service teachers, and professional learning through professional development initiatives. In this partnership, the focus was on mentor education, with all teachers and leaders collectively completing a university-based mentor education programme with academic credit points (ECTS) administered by one teacher education institution. The programme followed the nationally mandated framework for mentor education for school-based mentors (Norwegian Directorate for Education and Training, 2019). Unlike a more traditional approach to mentor education, this programme was completed over a period of two years instead of one, organised collectively, and school-based, compared with more individual and campus-based mentor education. Collective participation in mentor education entailed that all teachers and leaders at the four schools took mentor education at the same time and as a unit. That mentor education was school-based, and not campus-based, involved that all activities including lectures, practical exercises and practicum periods in mentor education was organised at the schools. The collective and school-based mentor education described in this study is to be understood as four schools that collectively participated in mentor education at their own workplace. This article therefore places focus on teachers' professional learning in school through on-going and dynamic processes through interaction in collective processes between teachers (Hauge & Wan, 2019; Little, 2012; Timperley, 2011).

This study offers new perspectives on teachers' professional learning to become mentors through a longitudinal and mixed-methods (MM) research design. The aim was to gain a deeper understanding and knowledge of teachers' professional learning during and after completing mentor education. The following research questions guided the study:

(1) What experiences of professional learning do teachers express after completing mentor education?
(2) How do teachers experience the knowledge and skills acquired through mentor education being implemented in practice?

In the Norwegian context, the term "supervisor" is traditionally linked to initial teacher education and pre-service teachers, and the term "mentor" is more commonly used in relation to NQTs. The term "mentor" will be used for those mentoring a "mentee", who may be a pre-service teacher or NQT. The organisation of mentor education in Norway is considered distinctive as mentor education is designed and aimed at school-based mentors of pre-service teachers *and* NQTs. Despite the extended aim of this programme, the term "mentor education" will be used throughout this article when referring to this particular programmme.

Theoretical landscape

In line with the aim to gain a deeper understanding of teachers' professional learning during and after completing mentor education, the following section presents the theoretical landscape guiding this study. Research related to mentors and mentor education is presented first, followed by research on teachers' professional learning. Finally, Desimone's (2009) core features of teachers' learning through professional development programmes are presented and related to the mentor education programme in this study.

Mentors and mentor education

In teacher education, mentoring during a critical period of another person's career is often performed by mentors without formal education (Ulvik & Sunde, 2013). Mentors without mentor education tend to rely on their previous experiences and focus on solving problems and providing support (Bullough, 2005; Hobson, Ashby, Malderez, & Tomlinson, 2009; Jones, 2009). Educated mentors are reported to be more secure and confident in their roles as mentors (Thornton, 2014). Mentor education programmes have also been shown to develop mentors' knowledge about mentoring (Tang & Choi, 2005; Ulvik & Sunde, 2013), strengthen their professional identities (Hobson, Ashby, Malderez, & Tomlinson, 2009), and improve their teaching (Giebelhaus & Bowman, 2002) and communication skills (Evertson & Smithey, 2000).

Despite this, there is still limited knowledge about mentor education and whether it can lead to increases in mentors' skills (Ulvik & Sunde, 2013). In a review of research on mentor education, Aspfors and Fransson (2015, p. 76) defined mentor education as (a) formal courses or education involving universities, teacher education institutions, or researchers; (b) professional development activities, such as coaching or reflective seminars for mentors; and (c) action research projects involving mentors and researchers. They argued for the benefits and importance of long-term, research-informed mentor education that "should be well integrated into the educational context, well balanced with theoretical and practical components, including rich possibilities for interaction and critical reflection" (Aspfors & Fransson, 2015, p. 85). Similarly, Fredriksen and Halse (2022) concluded that mentor education that extends over time is significant as it allows mentor teachers to see new theories, knowledge, and skills in relation to practice through reflection. In addition to time, they found that mentor education that focuses on critical reflection, educational mentoring, action research, and how to build and maintain relationships provides mentors with a good foundation

in working with beginning teachers' professional learning. Likewise, Bjerkholt (2017) emphasised the importance of considering mentoring and mentors' competence in a larger context because of its benefits for learning cultures and collective learning. Although the importance of mentors and mentoring in education has been given increasing attention in research, more research on the effects of mentor education and empirical data on mentoring practices and mentors' competence is called for (Bjerkholt, 2017; Lejonberg, Elstad, & Christophersen, 2015).

Teachers' professional learning

Hudson (2013) found that mentoring can act as professional development for both mentees and mentors. To attain professional learning, mentors must be prepared for their role by engaging with knowledge and skills that can be used to advance their own and mentees' practices. Therefore, Hudson (2013) urged educational departments to prioritise mentors and invest in professional development programmes for teachers to become educated and well-informed mentors. Similarly, Szymańska-Tworek (2022) found that mentors develop professionally through mentoring as it increases their capacity for self-reflection and impacts leadership skills, willingness to develop, and commitment to teaching.

In educational research, numerous terms are used to describe professional learning and professional development practices (Aharonian, 2021). The importance of teachers' professional learning and how teachers can progress during their career has been given little attention (Snoek, Dengering, & de Wit, 2019), but a broader understanding is emerging, and teacher education is considered a career-long continuum of perpetual learning. As a result, the in-service education and significance of professional learning opportunities for teachers are more broadly recognised (O'Brien & Jones, 2014). According to Kennedy (2005), there is an international interest in teachers' continuing professional development (CPD), but although aspects of CPD are described, the spectrum of CPD models is rarely addressed. Kennedy (2005) presented a framework showing nine CPD models and explored the forms of knowledge that can be developed in different models. Here, the forms of knowledge that can be developed range from transmission to transitional and transformative categories (Kennedy, 2005). Edwards-Groves and Rönnerman (2013) identified a slight shift in the meaning of CPD from individual in-service teacher education to site-based, collective, and collaborative initiatives that focus on capacity building and teachers' learning within professional learning communities.

Within the terms described above, O'Brien and Jones (2014) defined development as "systematic career progression" and learning as less performative and more "critically reflective" (p. 648). Taylor (2020) explained that the terms learning and development are often used interchangeably and referred to the distinction made by Timperley (2011), who associated professional development with "delivery" (p. 4) through "someone else's *desire to tell*" (p. 14, original emphasis) and teacher professional learning with "meaning-making" (p. 4) motivated by one's "own *need to know*" (p. 14, original emphasis). As part of this study, mentor education was collective and school-based, in contrast to more traditional in-service training of individual teachers that has been the standard model in Norway (Sandvik, Solhaug,

Lejonberg, Elstad, & Christophersen, 2020). The collective aspect of teachers' professional learning is not accentuated in Timperley's (2011) definition. Therefore, this study look to Olin, Francisco, Salo, Pörn, and Karlberg-Granlund (2020) and their understanding of professional learning as "dynamic, organic and open-ended, individual, and collaborative learning processes, inspired and informed by the conditions characteristic to a certain educational site" (p. 143). This way of understanding teachers' professional learning is relevant to this study as it sought to understand how mentors' knowledge, and practices are developed on site through collaborative learning processes.

Core features of teachers' learning through professional development programs

How and what teachers learn from different forms of initiatives need to be examined as research for decades has focused on "documenting teacher satisfaction, attitude change, or commitment to innovation rather than its results or the process by which it worked" (Desimone, 2009, p. 181). Desimone (2009) argued that there is a need for a common conceptual framework with a set of core features to elevate the quality of research and understand how to implement teacher learning opportunities. As a result, Desimone (2009, p. 185) presented a model that shows the interactive relationships between core features of professional development programmes, teachers' knowledge and beliefs, classroom practice, and student outcomes. The core features of professional development programmes presented in the model include content focus, active learning, coherence, duration, and collective participation. In relation to the current study, the *content focus* of mentor education is set by the nationally mandated framework for mentor education (Norwegian Directorate for Education and Training, 2019). The framework sets standards for mentor education programmes with requirements to include the following topics: (a) mentoring, communication, and relations; (b) research and theories about professional knowledge and development; (c) organisation and learning cultures; (d) the profession's knowledge base and professional ethics; and (e) the philosophy of science and methodology (Norwegian Directorate for Education and Training, 2019). In addition, the framework includes recommendations for *active learning* through feedback, discussions, and practice, for example, through observation or peer mentoring. The framework describes mentor education to be *coherent* with the introduction to mentoring given in initial teacher education and to be a continuum of teachers' knowledge of learning, development, and pedagogy. Mentor education is organised as a university-based programme, often taken on campus and part time (*duration*). In the current study, participants *participated collectively* as part of a larger partnership project and completed school-based mentor education over four semesters.

Methods

This study employed a longitudinal MM research design because of the possible advantages over single-method or cross-sectional designs (Reynolds, Cross, Millard, &

Figure 1. Data collection.

Pattengale, 2010). An initial quantitative survey (Phase 1) informed and guided the qualitative data collection from two different collection points (Phases 2 and 3).

Mixed methods research and the interest in combining methods in research has a long history, but has according to Timans, Wouters, and Heilbron (2019) gained new momentum through a research strand that aims to offer a framework for combining methods. In addition, Schumacher et al. (2021), emphasised both a growing interest in and use of longitudinal MM research. They explained that both quantitative and qualitative approaches are considered relevant in longitudinal research, but until recently, mixing the two within one longitudinal study was rarely seen. Reynolds, Cross, Millard, and Pattengale (2010, p. 56) clarified that despite literature recognising the longitudinal nature of educational research, few educational researchers use methods that incorporate temporal aspects in their analytical and conceptual models. In this study, a sequential design was used, which can be useful when the researcher wants to follow up a quantitative survey with more rich, qualitative data (Morgan, 1998). Similarly, Reynolds, Cross, Millard, and Pattengale (2010) combined statistical methods with group interviews, arguing that this makes it possible to gain deeper insight into the relationship between programme content and programme effects and enhance the validity of conclusions. In addition, with a second qualitative data collection, this study offers a longitudinal perspective on teachers' professional learning through mentor education. Figure 1 shows the timeline and phases of data collection in this study.

Quantitative data collection and analysis

The quantitative survey was tested in a pilot study with 12 participants, which resulted in minor changes and revisions. The survey employed a 7-point Likert scale ranging from 1 (*a low degree*) to 7 (*a high degree*). The survey included questions about the participants' backgrounds and experiences, teacher education, practical training, mentoring of pre-service teachers, mentor education, and professional development. The survey was answered anonymously by 83 teachers at four elementary and lower secondary schools where all teachers and leaders took mentor education collectively. In total, 88 teachers were registered as participants in this mentor education programme. Quantitative data were analysed using SPSS, focused on descriptive analyses such as frequencies, mean scores, standard deviation, and percentages to look at central tendencies and triangulate these with qualitative data to obtain more detailed descriptions. The initial analysis gave direction to the following two qualitative phases that

aimed at eliciting participants' reflections on their individual and collective professional learning through mentor education.

Qualitative data collection

Focus group interviews

The last question in the survey asked whether participants were willing to be contacted for a follow-up interview. All participants who consented to an interview were contacted, and nine participants were divided into two groups: five in one group and four in the other. The interviews were conducted during the final semester of mentor education. Focus group interviews were chosen to promote interaction between the group members with the researcher as a mediator to ensure that the participants stayed on topic (Stewart, Shamdasani, & Rook, 2009). The intention was to involve the participants in a group discussion based on an interview guide that included the topics: experience with mentor education, collective and school-based mentor education, professional development, and coherence in teacher education.

Open-ended survey

With the possibility of gaining an understanding of teachers' professional learning from a longitudinal perspective, qualitative data were again collected 1.5–2 years after participants completed mentor education. A qualitative open-ended survey was sent out to all teachers who answered the quantitative survey. Some changes in staff at the schools were expected. In total, 17 participants answered the survey anonymously online. The intention of the qualitative survey was to include open questions that invited the participants to reflect on mentor education close to 2 years after completing it. The form included three topics: content of mentor education and use of mentor education in practice, individual development, and collective development.

Qualitative analysis

The qualitative data were analysed using a thematic analysis following the steps Braun and Clarke (2006) described. Thematic analysis is a flexible research tool that can "provide a rich and detailed, yet complex, account of data" (Braun & Clarke, 2006, p. 78). Table 1 presents a summary of the thematic analysis (Braun & Clarke, 2006, p. 78) combined with a description of the analytic process in this study, shown in the grey cells.

Table 1 presents the thematic analysis in phases, but Braun and Clarke (2006) emphasised that these are guidelines and not strict rules. Through the analysis, the first author moved back and forth in a process of analysis, not in a linear way as the table might suggest. The two sets of qualitative data are different in that one consists of interviews resulting in longer transcripts and the other consists of open-ended answers ranging from a few words to full paragraphs. Therefore, there were slight differences in how data could be coded and analysed. When analysing the qualitative data together,

Table 1. Phases and description of thematic analysis (Braun & Clarke, 2006).

Phase	Description of the process	Focus group interviews	Open-ended survey
(1) Familiarising yourself with your data	Transcription, reading and re-reading the data, noting down initial ideas	Transcribing interviews from audio recordings, re-reading interviews and notes, highlighting relevant parts	Retrieving answers from online surveys, reading through all answers to each question
(2) Generating initial codes	Coding interesting features systematically across the entire data set	Coding according to interesting features, forming initial codes	Sorting data according to the open-ended reflection questions that served as initial codes
(3) Searching for themes	Collating codes into potential themes with all data relevant to each theme	Sorting and, if relevant, combining codes in code groups to find relevant themes	Searching the initial codes for relevant data in relation to the codes from the focus group interviews and generated themes
(4) Reviewing themes	Checking if themes work, thematic "map" of the analysis	Reviewing themes and checking relevance in relation to quantitative data and between qualitative data sets	
(5) Defining and naming themes	Generating clear definitions and names for each theme	Reviewing themes in relation to each other, generating common themes and subthemes	
(6) Producing the repost	Final opportunity for analysis, selecting extracts, relating back to the research questions and literature	Final analysis and writing out results considering qualitative data in relation to each other and quantitative data	

a more abductive approach than Braun and Clarke (2006) described was used. During analysis, it was logical to lean on the core features Desimone (2009) described when giving names to codes and themes as they were seen as closely connected. The final themes were elaborated and discussed between all the authors.

It is important to note that the authors were not part of organising the mentor education programme in this study. The first and second authors were not involved in teaching in the programme; the third author gave two guest lectures before the start of this project. This was before the researcher was involved in this research project, and therefore, this did not affect the research or participants in any way. The project was approved by the Norwegian Center for Research Data, and data were treated according to ethical research guidelines. When presenting the results, quotes are anonymised and marked according to the data collection phases, followed by a given number to show which participant the quote came from. Quotes from the quantitative survey (Phase 1) are labelled P1, participants in the focus group interviews (Phase 2) are marked P2-1-7, and quotes from the open-ended survey (Phase 3) are labelled P3–6, 7, 11, 12, 14 and 15.

Results

The results are organised according to the research questions guiding the study. First, the results from the quantitative survey are presented to provide an overview of the participants' experience of professional learning through mentor education. Second, the qualitative results are structured according to three themes regarding participants' professional learning and implementation of mentor education in practice.

Teachers' professional learning through mentor education: quantitative results

The quantitative survey was distributed at the end of the third semester and beginning of the final semester of the mentor education programme and asked whether participants believed that mentor education would lead to changes in their mentoring and teaching practices. The results show that 88% of participants ($N = 75$) believed that in the final semester of mentor education, they have or will change their mentoring practices based on what they have learned. In addition, 58.7% ($N = 75$) believed that mentor education have or will influence their teaching practices.

The participants were then asked about their experience of development as mentors to get an idea of the perception of the whole group that participated in mentor education collectively. In addition, questions about their experience of development as teachers and personally were included in the quantitative survey (phase 1) to see whether participants felt that mentor education had a greater impact than their mentor role when completing the programme. Table 2 shows the frequency of participants' answers on a scale from 1 to 7.

The marked cells show the percentage of participants who responded that they had experienced development to some or a high degree. The results show that 78% of participants felt that they had developed as mentors after 2 years of mentor education.

Table 2. Quantitative results regarding development because of mentor education on a scale from 1 (to a low degree) to 7 (to a high degree), (N = 77).

To what degree do you feel that you have developed as a … because of mentor education?	1	2	3	4	5	6	7
Mentor	0%	3.9%	5.2%	13%	24.7%	36.4%	16.9%
Teacher	2.6%	6.5%	10.4%	16.9%	23.4%	32.6%	7.8%
Personally	3.9%	3.9%	13%	15.6%	33.8%	20.8%	9.1%

Moreover, 63.8% indicated that they had developed as teachers, which suggests that the knowledge and skills in focus in this mentor education programme are relevant and used in the participants' everyday work as teachers. Similarly, 63.7% of participants experienced having developed personally to some or a high degree. Looking closer at whether the relationships between the items were significant, correlations were analysed. According to analysis of these relationships, the correlations were overall quite high, which may indicate that the participants understood their roles as mentors and teachers as being somewhat similar. However, despite being slightly high, there was a statistically significant correlation of .619 between development as mentors and as teachers and .562 between development as mentors and personally. This statistically significant correlation between the development participants experienced as mentors, teachers, and personally indicates that the knowledge and skills needed in the different roles are related and considered beneficial to participants in their mentoring, teaching, and personal lives. The correlation between development as teachers and personally was .870, which is high, and indicates that the participants considered the two items very similar or the same.

Teachers' implementation of mentor education: qualitative results

The qualitative analysis revealed three relevant themes in trying to understand the participants' professional learning through and implementation of mentor education in practice: *content focus*, *duration*, and *collective participation*. In the following, the qualitative results will be presented according to these themes and related subthemes.

Content focus

The content focus is related to the subject matter of mentor education, which participants described as relevant because of theories about *mentoring* and *communication and relations*. In addition, the content was made relatable through being *practice-oriented* and connected to their workplace.

The results show that learning theories about *mentoring* was important to how participants perceived the relevance of mentor education. Mentor education was described as providing opportunities to read and discuss theories and methods in mentoring, enabling them to become better technical mentors. One participant described increased knowledge about mentoring as reassuring, resulting in becoming more confident in the role of mentor. Another participant expressed the following: "These techniques and theories about mentoring have become second nature, making

us appear clearer and more confident when meeting the next generation of teachers" (P2–1).

Almost 2 years after completing mentor education, several participants stated that they had used specific theories about mentoring and how to structure mentoring in practice. One participant reflected, "I have used the knowledge and skills when mentoring colleagues, pupils, parents and especially with pre-service teachers. In mentoring, I have particularly enjoyed using different tools and techniques in practice" (P3–14). This participant has used the theories about mentoring in particular with pre-service teachers, but this is also seen as relevant in more than students' practice periods. Quite a few participants highlighted extended use of mentor education beyond pre-service teachers as the theories and methods have become integrated into how they mentor colleagues, pupils, and parents.

In addition to content focusing on mentoring, theories about *communication and relations* were highlighted as relevant. One participant described mentor education as useful because "it is about communication in a larger perspective" (P2–2). Several participants described developing their communication skills, which was seen as useful when working with different groups, as described above. Techniques for how to ask questions, listen more actively, and give time to each other were highlighted as valuable. Participants described becoming more aware of their own role in communication and the importance of relations, as seen in this description: "We understand the importance of relations to a much higher degree after this two-year course; even though we knew it was important before, we have developed both as mentors and teacher in that regard" (P2–3).

The importance of learning about communication and relations was also evident in participants' reflections 2 years after completing mentor education. When asked what they had learned, "communication" and "building relations" were mentioned several times. Related concepts such as how to ask questions and giving time for reflection have also become integrated into participants' practice. When asked to reflect on how this is shown in practice, participants described how learning about communication and relations have developed their practices as mentors and teachers. One participant explained it as follows:

> I notice that I am a much better practice teacher for my students after I took mentor education. I notice this best in that I ask open-ended questions, and I think that I am more aware of my role as a teacher, so that the students get the best possible insight into the everyday life of a teacher. (P3–11)

The results show that participants experienced learning theories about communication and relations as valuable, and such knowledge has been integrated into their everyday practices as both mentors and teachers.

The results show that the content was made relatable through being experienced as *practice-oriented* and connected to participants' workplace. In this study, mentor education was collective and school-based, making it possible to discuss topics and cases connected to the workplace. One participant stated, "We have discussed real issues concerning our workplace and what a strength it is that we do not have to stand alone when facing challenges; we have each other to consult" (P2–1).

Being able to discuss and relate the content of mentor education to the reality the teachers experience at school is seen as a strength as it provides a feeling of support and community. Most participants expressed positive experiences with being able to reflect and discuss with colleagues, resulting in them growing closer as a group. Looking back on the two years, one participant commented on the collective learning at the school:

> Mentor education has changed the community and the culture at the school in that we know each other even better, have tools that can help us further in discussions and conversations, and that we dare to challenge each other while knowing that it is about us developing our professional culture. (P3–7)

This quote exemplifies a change in the culture and community at the school after completing mentor education because of the increased ability to discuss and reflect with colleagues on topics concerning their workplace.

Duration

Mentor education programmes in Norway are traditionally taken by teachers part time and on campus over one or two semesters, depending on the scope of the programme. In this study, because mentor education was collective and school-based, it was given over four semesters, but followed the same framework and content as more conventional programmes. The results show that participants had positive experiences with the *persistency* of mentor education over time, which provided room for *active learning* with practice and feedback in line with Desimone's (2009) core features of professional development programmes.

Participants valued *persistency*, and one participant described mentor education as "becoming more than just a happening" (P2–4) of professional development. This participant reflected on preferring a formalised programme with academic credits compared with shorter and/or more informal courses or seminars, which were experienced as happenings, not necessarily professional learning. In addition, the participant described persistently working on mentor education as providing an opportunity to work with others and build a foundation of knowledge over time. Another participant reflected on spending time on mentor education and explained the following:

> I have several times thought that this program is something that could be completed in an afternoon, thinking, does this have to be this much? But there is something to letting it seep in over time; it is a subject that needs to mature in a way. (P2–5)

Although several participants described the workload of mentor education as being more than what was expected, it was seen as necessary in order to be left with something in the end. In relation to that, the following years were also considered valuable to one participant, who, 2 years after completing mentor education, stated, "I would like to say that I myself have been through a practice period since finishing mentor education where I have been able to test out what I learned in my studies" (P3–12). The results show that the time spent on mentor education and the persistency of the programme are important because they might provide a way to connect the content to the teachers' practice over time.

In addition to results showing the importance of persistency in mentor education, the time spent allowed for *active learning* including practice and feedback during mentor education. Several participants described practice periods and practical exercises as important and relevant. In the final semester, one participant described the following:

> It has been a good mix between lectures and practice; plenty of time has been set aside for practice, which I found very useful. During the last round, we got to try being the mentor, mentee, and observer. That observational role gave something new to me, where I got useful information from both the mentor and mentee. (P2–3)

Reflecting on the benefits of having time for practice during mentor education can be seen in relation to the overall positive outlook on mentor education in this study. A written comment described that there was good variation between theory and practice, whereas another said that there should have been even more practice. The importance of practice was, however, overall very clear. One participant explained, "It is not always easy to see the theoretical perspectives as important or relevant before you get to see them in a practical setting" (P1). Similarly, 2 years after completing mentor education, another participant reflected, "I have found a nice calmness in the role as mentor as a result of the knowledge I have acquired, as well as the exercises we had during the studies" (P3–15). Participants described having time to practice different methods and getting feedback from lecturers and peers as important and something they learned from.

Collective participation

An important aspect of this study is that participants engaged in collective, school-based mentor education with all teachers and leaders at four schools participating in and completing mentor education. The overall results indicate that participants experienced mentor education with colleagues as beneficial because of the opportunities for *collaboration*, which resulted in *unifying* the schools as a collective.

During interviews, participants described learning with colleagues through *collaboration*. Being able to discuss and collaborate with colleagues was described as beneficial. Several participants indicated that taking mentor education with colleagues and having to collaborate and work together held them accountable for doing the work which was crucial for them to complete the programme and not quit when the workload was high. Experiencing support from colleagues was described as important:

> Taking it with a whole group of colleagues makes it easier because then you can support each other and have more understanding because we know times are busy, but we can discuss, "How did you solve that assignment?" or "What do you think about that?" (P2–6)

Most participants expressed being able to discuss and reflect with colleagues as an advantage and something they learned from. One participant described learning from tasks and assignments requiring collaboration but less from individual assignments or exams. Two years after completing mentor education, participants were asked to reflect on whether mentor education had influenced the community and/or the culture at the schools. Participants reflected that as a group, that is as collective schools, they are

listening more to each other, have a more common perception of what mentoring is, and to a higher degree value having pre-service teachers in practice at their school. One participant described that they were a close group before mentor education but that this was reinforced and strengthened. Two years after completing mentor education, multiple participants reflected on mentor education influencing the schools' decision-making processes. One participant stated, "It has changed the culture and the way we arrive at decisions and changes. We don't say no just to say no anymore. There is a process behind what we do" (P3–6).

This was also exemplified by other participants reflecting on development in the way of thinking at the school, reinforcing a culture of speaking about "us". Similarly, one participant experienced that "the community/culture is marked by the fact that the entire group has participated in the same study, and it is often felt that we discuss good tools that can be used in different types of mentoring" (P3–14). Participants expressed an experience of change that started when taking mentor education collectively that continued and was still evident 2 years after they completed the programme.

In addition, participants described collective mentor education as being *unifying* because it provided something they had in common no matter what academic background they came from. In the final semester of mentor education, one participant described the following:

> It is positive that it is collective with everyone because I find it very unifying for the group, and I have become much more familiar with colleagues I haven't worked much with, and I have been able to get an understanding of challenges they might face at different grades, which in turn leads to more understanding of what colleagues deal with. (P2–7)

Several participants explained that mentor education provided an opportunity for them to become more familiar with colleagues because they had to discuss and reflect together. Two years later, when asked to reflect on whether mentor education had resulted in more collective mentoring practices at the schools, most answered that it had (15 out of 17 answers). Participants described experiencing more collective practices in mentoring, which they described as a quality assurance: "We have become an even more unified practice school. Everyone can now, even if not everyone has students, it is easier for everyone to make contact with the students when they arrive" (P3–12). The results show that collective mentor education was seen as a benefit to participants when completing the programme, and moreover, 2 years after completing mentor education, participants described a more unified culture at the schools.

Limitations

Before discussing the results, some limitations of the study should be noted. Challenges in relation to sampling in MM studies is well known due to different sample sizes, and in addition, in longitudinal MM studies, there are challenges with timing (Schumacher et al, 2020). In this study, almost everyone taking mentor education responded to the quantitative survey; however, the number of participants willing to be contacted for the focus group interviews was significantly lower. In the second qualitative data collection phase, the overall participation was low, but the data have been included because the longitudinal approach made it possible to gain insight into participants' experience with

mentor education and its impact over time. Perhaps the more active and positive participants were those willing to participate, and more critical perspectives might have been silenced. That said, the results are valuable regardless of the limitations due to their contribution to the field. In the analysis, all researchers questioned each other in Phases 5 and 6 (Table 1). This process contributed to researcher triangulation as described by Creswell and Miller (2000) and strengthened the inter-rater reliability of the analytical work. The detailed descriptions of the context and the study results may make it possible to relate to similar contexts, which Stake and Trumbull (1982) described as naturalistic generalisation.

Discussion and conclusions

Based on the literature, there is a call for more research exploring mentor education (Aspfors & Fransson, 2015; Ulvik & Sunde, 2013). Therefore, this study aimed to gain a deeper understanding of teachers' professional learning during and after completing mentor education. By employing a longitudinal MM research design, this study offers a distinctive perspective on mentor education, and the different types of data collected enhance the validity of the conclusions. In the following section, the discussion focuses on four themes permeating the results: (a) professional learning as mentors, (b) learning and developing as teachers, (c) change in practice, and (d) benefits of collective and school-based mentor education.

First, the results show that participants experienced professional learning as mentors and developed in their role because of mentor education. Hudson (2013) found that mentoring in itself can act as professional development for both mentor and mentee and urged researchers to increase their focus on mentor education programmes. This study's results show that mentors experience learning through mentor education and highlight the importance of content focus, duration, and forming professional learning communities of mentors. This study indicates that mentors that have undertaken formalised professional learning and development as mentors use the knowledge and skills acquired in their practices and express confidence and security in their role as mentors. This is supported by others who emphasised the importance of educated mentors in schools (Hobson, Ashby, Malderez, & Tomlinson, 2009; Szymańska-Tworek, 2022; Thornton, 2014). The qualitative results show that content focused on theories about mentoring, relations and communication and having time to reflect with colleagues increase participants' confidence in their role as mentors. This is consistent with previous studies that showed that mentor education programmes develop mentors' knowledge about mentoring (Tang & Choi, 2005; Ulvik & Sunde, 2013) and communication skills (Evertson & Smithey, 2000).

Second, the results indicate that mentor education resulted in participants experiencing learning and development as teachers. Mentor education programmes have been shown to strengthen teachers' professional identities (Hobson, Ashby, Malderez, & Tomlinson, 2009). In this study, more than half of participants experienced development as teachers, indicating that the content of and skills acquired through mentor education are transferable to tasks and challenges they face as teachers. Participants experienced the use of skills related to mentoring, communication, and relation in working and collaborating with pupils, parents, and colleagues, in addition to more

traditional mentoring situations. The importance of professional learning opportunities for teachers is described as one of the keys to improving quality in teacher education and the teaching profession (Desimone, 2009; O'Brien & Jones, 2014). Participants described their learning and use of mentor education in more than mentoring pre-service teachers and NQTs, indicating that the skills and knowledge in focus, especially in relation to communication and relations, are considered valuable to them as teachers and their daily work. In Norway, the importance of mentor education as a tool for teachers' professional learning is shown through a number of white papers and national strategies. Despite this focus, many are still being mentored by teachers without mentor education. This study demonstrates the value of competence in mentoring for individual teachers and schools.

Third, in the final semester of mentor education (phase 1 of data collection), nearly 90% of participants indicated that they had changed or would change their mentoring practices because of mentor education, and more than half believed that mentor education influenced their teaching practices. In line with this, the qualitative results show that the knowledge and skills acquired through mentor education have been integrated into the participants' mentoring and teaching practices. The benefits of long-term, research-informed mentor education have been documented by both Aspfors and Fransson (2015) and Fredriksen and Halse (2022), arguing that mentor education over a longer time allows teachers to see new theories, knowledge, and skills in relation to practice through reflection. Because participants see the use of knowledge and skills acquired in their practice, the results indicate that having time to reflect and use knowledge in practice results in not only theoretical knowledge but knowledge and skills that are used in practice. Teachers' professional learning is described as meaning making based on one's own need to know something (Timperley, 2011). This study found that as mentor education not only influenced participants' mentoring and role as mentors but was also beneficial for them as teachers and their teaching practices, the content and focus of mentor education must be considered significant in schools. Accordingly, mentor education for teachers should be a priority for all those involved in teacher education, and the benefits of mentors' competence in schools should be further emphasised in a broader context (Bjerkholt, 2017).

Finally, the results show that participants experienced collective, school-based mentor education as more practice-oriented as they were able to connect the content to their realities at the schools. In addition, the results indicate that even two years after completing mentor education, the participants experienced that mentor education resulted in more collective mentoring practices at the schools. This is a strong argument for the benefits of long-term, research-based mentor education, in line with previous studies (Aspfors & Fransson, 2015; Fredriksen & Halse, 2022), but *also* collective mentor education. Participants reported mentor education over time as beneficial and claimed positive experiences in practice, confirming Desimone's (2009) importance of active learning as a core feature of professional development. The results also show that through collaboration, participants experienced benefits in completing the programme, as well as in working together and integrating knowledge into their school traditions. This unifying aspect remained even two years after completing the programme. Previous descriptions of a shift from individual to professional learning on site and collective initiatives (Edwards-Groves & Rönnerman, 2013; Olin, Francisco, Salo, Pörn,

& Karlberg-Granlund, 2020) were expanded on through this study's context of collective, school-based mentor education.

This study provides unique and valuable insight into the professional learning of mentors and mentor education and the possibilities in collective and practice-oriented learning opportunities. Kennedy (2005) argued that when the CPD model is more transformative, the capacity for professional autonomy increases. Considering the results in this study in relation to the CPD models (Kennedy, 2005, p. 248), the mentor education programme could be seen as a combination of several models (e.g. the coaching/mentoring model or the community of practice model) because of its characteristics. However, the transformative model involves the combination of processes and conditions through "partnerships between teachers, academics and other organisations, and which can involve both the context, and the knowledge required for real and sustainable educational change" (Kennedy, 2005, p. 246). The results show that collective learning in mentor education is beneficial for individual teachers and collective schools when it is experienced as coherent with and integrated into the educational context, resulting in sustainable educational change.

Further studies are needed to continue to explore the preparation of mentors and their professional knowledge. Understanding the intersections between competence in mentoring and teaching and how mentoring can be valuable for teachers in all parts of their teaching profession should be a priority in the future. Research on the transferability of competence in mentoring and the benefits of mentor education beyond mentoring should be welcomed. Additionally, investigating the importance of professional learning communities of mentors should be in focus because of the benefits found in collective approaches to mentoring and teachers' professional learning.

Disclosure statement

Notes on contributors

Elise Sivertsen Arnsby is a PhD candidate at Nord University in Norway. Her research interest focuses on mentor education, mentoring, teachers' professional learning and school development.

Jessica Aspfors is working as a professor at Nord university in Norway and associate professor (docent) at Åbo Akademi university in Finland. Her research interest focuses on teacher education, mentoring, and teachers' professional development.

Katharina Jacobsson is working as an associate professor at Nord University. Her research interests focus on professional development, school improvement, and children with special needs.

ORCID

Elise Sivertsen Arnsby 🔟 http://orcid.org/0000-0003-1356-9071

Jessica Aspfors 🔵 http://orcid.org/0000-0002-1865-6302
Katharina Jacobsson 🔵 http://orcid.org/0000-0001-5148-6088

References

Aharonian, N. (2021). Making it count: Teacher learning in liminal spaces. *Professional Development in Education*, 47(5), 763–779. doi:10.1080/19415257.2019.1667413

Aspfors, J., & Fransson, G. (2015). Research on mentor education for mentors of newly qualified teachers: A qualitative meta-synthesis. *Teaching and Teacher Education*, 48, 75–86. doi:10.1016/j.tate.2015.02.004

Bjerkholt, E. (2017). Profesjonsveiledning. Fra praktisk virksomhet til teoretisk felt [*professional mentoring. From practical business to the theoretical field*]. Oslo: Gyldendal Akademisk.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. doi:10.1191/1478088706qp063oa

Bullough, R. V., Jr. (2005). Being and becoming a mentor: School-based teacher educators and teacher educator identity. *Teaching and Teacher Education*, 21(2), 143–155. doi:10.1016/j.tate.2004.12.002

Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), 124–130. doi:10.1207/s15430421tip3903_2

Desimone, L. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181–199. doi:10.3102/0013189X08331140

Edwards-Groves, C., & Rönnerman, K. (2013). Generating leading practices through professional learning. *Professional Development in Education*, 39(1), 122–140. doi:10.1080/19415257.2012.724439

Evertson, C. M., & Smithey, M. W. (2000). Mentoring effects on protégés' classroom practice: An experimental field study. *Journal of Educational Research*, 93(5), 294–304. doi:10.1080/00220670009598721

Fredriksen, L. L., & Halse, E. (2022). Uddannelse til kompetente mentorer for nyuddannede lærere [Education for competent mentors for newly qualified teachers]. *Studier i læreruddannelse og -profession*, 7(2), 53–76. doi:10.7146/lup.v7i2.132894

Giebelhaus, C. R., & Bowman, C. L. (2002). Teaching mentors: Is it worth the effort? *Journal of Educational Research*, 95(4), 246–254. doi:10.1080/00220670209596597

Hauge, K., & Wan, P. (2019). Teachers' collective professional development in school: A review study. *Cogent Education*, 6(1), 1–20. doi:10.1080/2331186X.2019.1619223

Hobson, A. J., Ashby, P., Malderez, A., & Tomlinson, P. D. (2009). Mentoring beginning teachers: What we know and what we don't. *Teaching and Teacher Education*, 25(1), 207–216. doi:10.1016/j.tate.2008.09.001

Hudson, P. (2013). Mentoring as professional development: 'growth for both' mentor and mentee. *Professional Development in Education*, 39(5), 771–783. doi:10.1080/19415257.2012.749415

Jones, M. (2009). Supporting the supporters of novice teachers: An analysis of mentors' needs from twelve European countries presented from an English perspective. *Research in Comparative & International Education*, 4(1), 4–21. doi:10.2304/rcie.2009.4.1.4

Kennedy, A. (2005). Models of continuing professional development: A framework for analysis. *Journal of In-Service Education*, 31(2), 235–250. doi:10.1080/13674580500200277

Lejonberg, E., Elstad, E., & Christophersen, K.-A. (2015). Mentor education: Challenging mentors' beliefs about mentoring. *International Journal of Mentoring & Coaching in Education*, 4(2), 142–158. doi:10.1108/IJMCE-10-2014-0034

Little, J. W. (2012). Professional community and professional development in the learning-centered school. In M. Kooy & K. van Veen (Eds.), *Teaching learning that matters: International perspectives* (pp. 22–46). New York: Routledge.

Ministry of Education and Research. (2009). *Læreren: Rollen og utdanningen* [the teacher: The role and education]. [White paper]. https://www.regjeringen.no/no/dokumenter/stmeld-nr-11-2008-2009-/id544920

Ministry of Education and Research. (2015). Kompetanse for kvalitet. Strategi for videreutdanning for lærere og skoleledere frem mot 2025. [Competence for Quality. Strategy for Further Education for Teachers and School Leaders Until 2025]. https://www.regjeringen.no/contentassets/731323c71aa34a51a6febdeb8d41f2e0/kd_kompetanse-for-kvalitet_web.pdf

Ministry of Education and Research. (2017a) *Lærelyst – tidlig innsats og kvalitet i skolen* [Desire to learn - early effort and quality in school]. [White paper]. https://www.regjeringen.no/no/dokumenter/meld.-st.-21-20162017/id2544344

Ministry of Education and Research. (2017b). *Nasjonale Strategi for Kvalitet Og Samarbeid I Lærerutdanningene* [National Strategy for Quality and Cooperation in Teacher Education]. https://www.regjeringen.no/no/dokumenter/nasjonal-strategi-for-larerutdanningene/id2555622

Morgan, D. L. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research*, 8(3), 362–376. doi:10.1177/104973239800800307

Norwegian Directorate for Education and Training. (2019). *Rammer for Veiledning I Barnehage Og skoler*[Framework for Mentoring in Kindergartens and Schools]. https://www.udir.no/kvalitet-og-kompetanse/veiledning-av-nyutdannede/rammer-for-veiledning-i-barnehage-og-skoler/

O'Brien, J., & Jones, K. (2014). Professional learning or professional development? Or continuing professional learning and development? Changing terminology, policy and practice. *Professional Development in Education*, 40(5), 683–687. doi:10.1080/19415257.2014.960688

Olin, A., Francisco, S., Salo, P., Pörn, M., & Karlberg-Granlund, G. (2020). Collaborative professional learning for changing educational practices. In K. Mahon, C. Edwards-Groves, S. Fransisco, M. Kaukko, S. Kemmis, & K. Petrie (Eds.), *Pedagogy, education, and praxis in critical times* (pp. 141–162). Singapore: Springer.

Pedagogstudentene. (2021). *Praksis I lærerutdanningene: - Hva Kjennetegner Vellykket Og Mislykket Praksis?* [Practice in Teacher Education: - What Characterizes Successful and Unsuccessful Practice?]. https://www.pedagogstudentene.no/globalassets/_pedagogstudentene/dokumenter/undersokelser/praksis-i-larerutdanningene_2021.pdf

Reynolds, P. J., Cross, J. P. K., Millard, B., & Pattengale, J. (2010). Using longitudinal mixed-methods research to look at undeclared students. *New Directions for Institutional Research*, S2(S2), 53–66. doi:10.1002/ir.372

Sandvik, L. V., Solhaug, T., Lejonberg, E., Elstad, E., & Christophersen, K.-A. (2020). School mentors' perceived integration into teacher education programmes. *Professional Development in Education*, 46(3), 424–439. doi:10.1080/19415257.2019.1623286

Schumacher, K. L., Plano Clarke, V. L., Eilers, J., Kigondu, N., Geary, C. ... Ly, Q. (2021). Methodological considerations for the design and implementation of a fully longitudinal mixed methods study. *Research in Nursing and Health*, 44(3), 571–580. doi:10.1002/nur.22133

Snoek, M., Dengering, J., & de Wit, B. (2019). Reframing the teacher profession as a dynamic multifaceted profession: A wider perspective on teacher quality and teacher competence frameworks. *European Journal of Education*, 54(3), 413–425. doi:10.1111/ejed.12350

Stake, R. E., & Trumbull, D. (1982). Naturalistic generalizations. *Review Journal of Philosophy and Social Science*, 7(1), 1–12.

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2009). Group depth interviews – focus group research. In L. Bickman & D. J. Rog (Eds.), *The SAGE handbook of applied social research methods* (pp. 589–616). Thousand Oaks: SAGE Publications.

Szymańska-Tworek, A. (2022). Mentoring as professional development for mentors. *Theory and Practice of Second Language Acquisition*, 8(2), 1–22. doi:10.31261/TAPSLA.11716

Tang, S. Y. F., & Choi, P. L. (2005). Connecting theory and practice in mentor preparation: Mentoring for the improvement of teaching and learning. *Mentoring & Tutoring*, 13(3), 383–401. doi:10.1080/13611260500206002

Taylor, P. (2020). The complexity of teacher professional growth – unravelling threads of purpose, opportunity and response. *Professional Development in Education*, *49*(1), 16–29. doi:10.1080/19415257.2020.1747106

Thornton, K. (2014). Mentors as educational leaders and change agents. *International Journal of Mentoring & Coaching in Education*, *3*(1), 18–31. doi:10.1108/IJMCE-07-2013-0038

Timans, R., Wouters, P., & Heilbron, J. (2019). Mixed methods research: What it is and what it could be. *Theory and Society*, *48*(2), 193–216. doi:10.1007/s11186-019-09345-5

Timperley, H. (2011). *Realizing the power of professional learning.* Maidenhead: Open University Press.

Ulvik, M., & Sunde, E. (2013). The impact of mentor education: Does mentor education matter? *Professional Development in Education*, *39*(5), 754–770. doi:10.1080/19415257.2012.754783

Walters, W., Robinson, D. B., & Walters, J. (2020). Mentoring as meaningful professional development: The influence of mentoring on in-service teachers' identity and practice. *International Journal of Mentoring & Coaching in Education*, *9*(1), 21–36. doi:10.1108/IJMCE-01-2019-0005