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Using the metaphor of orchestration to make sense of facilitating teacher educator professional development

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ABSTRACT

The purpose of this research was to examine the ways that a metaphor could help describe and make sense of the facilitation practices of a teacher educator who collaborated in a self-study of teacher education practice project with colleagues in Norway, and an international critical friend. Our research question was: 'How does the metaphor of orchestration offer an understanding and elaboration of the complex and dynamic processes of facilitating teacher educator professional development through self-study of teacher education practices?' Data generation involved three layers composed of reflective diaries written throughout and at the end of the data generation, and audio records of pair and group meetings. The metaphor of orchestration provided insight into the ways the facilitator initiated and tried to steer dynamic and uncontrollable teaching and research practices while providing some concrete examples of how metaphors might be manifested in the practices of facilitators of professional development.

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Introduction

Across national borders teacher educators grapple with a tension between institutional expectations to engage in both high quality teaching and research (Czerniawski, Guberman, and MacPhail 2017). Many teacher educators transfer into teacher education directly from school teaching without purposeful preparation to teach about teaching or to conduct research (Murray and Male 2005). As a result, many teacher educators who once held the status of an expert teacher now feel doubt, uncertainty, and frustration in being unable to cope with the expectations of both teaching and researching teacher education (MacPhail et al. 2019). This leads some to feel that they must focus on either teaching or research, with one being sacrificed to concentrate on the other. As a way to avoid this dichotomy, Smith and Flores (2019) describe a *researching teacher educator*, where teaching and research are intertwined. For this to happen, Smith and Flores (2019) encouraged teacher educators who had backgrounds, expertise, and identities as strong teachers or researchers respectively to start working together on institutional, national,

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and international levels. Vanassche and Kelchtermans (2016) offered one example of this type of collaboration where experienced researching teacher educators aimed to facilitate the professional development of novice teaching teacher educators. While Vanassche and Kelchtermans (2016) demonstrated benefits for all participants, they also highlighted the non-linear, relational, and dynamic work of facilitation, raising many questions about the pedagogies of such facilitation. With both the potential and complexity of facilitating professional development collaborations amongst teacher educators in mind, the purpose of this research is to examine the ways a metaphor could help describe and make sense of the facilitation practices of a researching teacher educator who collaborated in a self-study of teacher education practice project with three teaching teacher educators in Norway, and an international critical friend.

Professional development of teacher educators

Teacher educators often have a strong desire for professional development programmes (Czerniawski, Guberman, and MacPhail 2017) and there are positive results from several national and international initiatives, such as the development of the pan-European group InFo-TED (Kelchtermans, Smith, and Vanderlinde 2018) and Active Collaboration Education in Israel (Barak, Gidron, and Turniansky 2010). Despite this backdrop, there is an overwhelming absence of educational opportunities that specifically help teacher educators develop professionally (Goodwin et al. 2014). Teacher educators are therefore forced to seek professional learning opportunities alone (e.g. Berry 2007; Ritter 2011), collectively (e.g. Gregory et al 2017; Luguetti et al. 2019; Tannehill et al. 2015) or in collaboration with guiding facilitators (Vanassche and Kelchtermans 2016).

In Norway, many teacher educators have not traditionally had research expectations as a significant part of their roles, and lack the time, experience, and knowledge to conduct research, even when that research would directly benefit their practice and ongoing professional development (Ulvik and Smith 2019). It may be said then that much Norwegian teacher education consists mostly of *teaching teacher educators* with fewer *researching teacher educators*. In other European contexts where there is a similar makeup of the teacher education workforce, such as the Netherlands and Belgium, there is evidence of several initiatives where teacher educators with little research experience have collaborated with one experienced researcher by engaging in self-study of teacher education practice (S-STEP) (Lunenberg, Korthagen, and Zwart 2010; Lunenberg and Samaras 2011; Vanassche and Kelchtermans 2016).

S-STEP offers a collaborative format for both research and professional development where there is a focus on participants developing an understanding of teacher education practice and articulating personal pedagogies of teacher education (Vanassche and Kelchtermans 2015). From using S-STEP as both methodology and pedagogy, teacher educators report that multiple elements and conditions influence their practice (Hordvik, MacPhail, and Ronglan 2020). The interplay between these elements and conditions often creates experiences of ambiguity (Ritter 2011) and tensions (Berry 2007) in teacher educators' personal efforts to develop an effective pedagogy of teacher education; however, such experiences also lead many to claim deeper and richer understandings of individual and collective teacher education practices as a result. This approach offers multiple benefits for teacher educators, including deeper understanding and knowledge

of teaching and teaching teachers, and the potential for research outcomes and outputs that contribute to the knowledge base of teacher education (Loughran 2014). While there is evidence of several benefits arising from facilitating teacher educator professional development, the challenges faced by the facilitators of the projects have also been highlighted.

Facilitating professional development using S-STEP

Vanassche and Kelchtermans (2016) demonstrated the complexity of designing and supporting processes of facilitating professional development using S-STEP, exemplifying the non-linear and dynamic nature of teaching and learning in professional development settings. Lunenberg, Korthagen, and Zwart (2010) also explained the important but often difficult process of establishing a sense of community amongst members of the group, which requires balancing the interests and demands (such as time) of members particularly in relation to research and teaching. From these examples concerning facilitators' practice, issues are presented around the conditions and pedagogies of facilitation necessary to make these collaborations work, however, it is our position that the literature base is still small and examination of facilitators' pedagogies and practices remains in need.

The present research contributes to the chain of evidence concerning how teacher educators' professional development can be meaningfully facilitated in a collaborative S-STEP (Zeichner 2007). While previous studies involved facilitators who were positioned as external supports to a group of teaching teacher educators (Lunenberg, Korthagen, and Zwart 2010; Vanassche and Kelchtermans 2016), in our research Mats, a researching teacher educator that previously had engaged in S-STEP research (Hordvik, MacPhail, and Ronglan 2017, 2020), worked alongside his departmental colleagues as a participatory facilitator. As such, our inquiry is based on the needs and concerns of the practitioners rather than those that may be imposed from external sources. Furthermore, our stance reflects an understanding that both Mats' practice as facilitator and the group members' teacher education practices represent a series of relational, dynamic, multiple, and inherently ambiguous processes (Hordvik, MacPhail, and Ronglan 2020). Consequently, we seek to deliberately examine the complexities of facilitating teacher educator professional development and illustrate its dynamic and rather uncontrollable nature.

Conceptual framework

Lakoff and Johnson (1980) claim that much of our experience is a matter of metaphor. They explain that while many people view metaphors as a tool of language, metaphor is 'pervasive in everyday life, not just in language but in thought and action' (p. 3). According to Lakoff and Johnson (1980), metaphors have an experiential basis and can be used to identify relationships between experiences, their description, as well as past, present, and future actions. Metaphors also reflect cultural values in that the terms or concepts used in a metaphor will reflect important cultural understandings that are widely understood and (mostly) agreed upon, forming a coherent system (Berendt 2008). When there is incoherence between the metaphor and cultural values, changes to the metaphor may be negotiated and an interrogation of cultural values might ensue

based on dialogue. Thus, for teachers and teacher educators, metaphors can be used to describe and create coherence between one's thoughts and decisions and their enactment in practice (Hordvik, MacPhail, and Ronglan 2020; Perry and Cooper 2001; Tannehill and MacPhail 2014). As several teacher educators have shown, however, naming, articulating, and creating coherence between one's beliefs, thoughts, and actions is a challenging task, often because much of teachers' and teacher educators' knowledge is tacit rather than explicit (Berry 2007; Bullock 2009). Metaphors may then serve as a helpful device in making sense of the complexities of facilitating teacher educator professional development, and articulating coherent personal pedagogies of facilitation that are grounded in experience.

We use the metaphor of orchestration to investigate the way Mats facilitated his own and the group's professional development as teacher educators. In ontological terms, Lakoff and Johnson (1980) would describe orchestration as an entity metaphor that provides a basis for understanding, elaborating on, and making sense of experiences through concepts such as referring, comparing, locating, expressing, and visualising. The metaphor of orchestration originally derived from research on complex educational change (Wallace 2003) and implies guiding or steering, as opposed to controlling and smoothly directing; it is therefore a relational and interactive process (Jones and Wallace 2006).

The metaphor does not, therefore, represent the relatively controlling actions of a conductor who is in charge of a symphony orchestra but rather the processes involved from composing or orchestrating music and to the musicians performance in front of a audience. This implies that the orchestrator aims to produce a desired music composition by considering the nature of the different parts (e.g. melody, bassline, chords) of the musical work, as well as the relationships and connections between them. The orchestrator has a clear aim for their practice, however, the interplay between musical parts and players does not allow the orchestrator to fully control the outcome. Hence, they constantly need to analyse the relationships in trying to steer the interplay in a preferred direction. Finally, the composition comes alive through the interplay between individual musicians who play together in, for example, a jazz band, quartet, choir, or orchestra. This requires considerable collaborative and reflexive practice that involves consideration of relationships by constantly observing, evaluating, and refining the musical composition. Importantly, the orchestrator has limited control over the final musical performance and the way the audience perceives the music.

The metaphor of orchestration has been used elsewhere as a way to represent sports coaching leadership (Jones and Wallace 2006) and more recently to conceptualise teacher educator practice (Hordvik, MacPhail, and Ronglan 2020). We argue that orchestration can be adapted to assist in understanding all kinds of professional practice, including the complex processes of facilitating teacher educator professional development through collaborative S-STEP.

Facilitators operate in contexts where other actors and elements may hold different beliefs or pursue a more diverse range of objectives (Hordvik, MacPhail, and Ronglan 2020; Jones and Wallace 2006). Together, the interactions between facilitators, teacher educators and other actors and elements co-produce a practice where facilitators constantly are confronted by dilemmas, tensions, and paradoxes in their individual and collective practice. Grounding their facilitation of teacher educators' professional

development in four pedagogical principles from the research literature, Vanassche and Kelchtermans (2016) identified four dilemmas and tensions facilitators should take into account: (i) The agenda of reflective practice and scholarship; (ii) The tensions between individual teacher educators' personal aspirations, goals, and beliefs, and the traditions and beliefs of the group or their teacher education institution; (iii) Building trust and going beyond your comfort zone; and (iv) Different sets of expertise of teacher educators (i.e. teaching practice) and academic researchers/facilitators (i.e. research practice). Being realistic about the non-linear, relational, and dynamic nature of teacher educator professional development implies accepting that it is beyond the agency of facilitators to eliminate these challenges from their practice, and they must instead be engaged with and balanced as part of a continuous process (Jones and Ronglan 2018). Thus, facilitators need to focus on how they can manage, and not eliminate, the dilemmas, tensions, and paradoxes that are inherent in their practice.

The metaphor of orchestration, together with our stance (i.e. professional practice represents non-linear, relational, and multiple processes), encourages us to focus on the dynamic and complex nature of facilitators' practices while exploring the ways Mats personally balanced and managed the interplay between himself, his departmental colleagues, and the other actors and elements influencing teaching and research practice – that is, how the metaphor of orchestration can be used to facilitate the group's professional development. Therefore, we ask: How does the metaphor of orchestration offer an understanding and elaboration of the complex and dynamic processes of facilitating teacher educator professional development through self-study of teacher education practices?

Methods

Our inquiry is grounded in collaborative self-study of teacher education practices (S-STEP) methodology (LaBoskey 2004), which involves: (i) self-initiation, (ii) a focus on our individual and collaborative teaching and research practices, (iii) interactivity in purpose of methodology and pedagogy, (iv) drawing from multiple qualitative data sources, and (v) richly descriptive examples to describe the key themes, ideas, and transformable moments.

Context

This study involved four physical education (PE) teacher educators based in a PE teacher education department in Norway (Mats, Berit, Anders, and Lasse) and one PE teacher educator in Canada (Tim). As in other countries (Murray 2016), there is no codified knowledge base for beginning teacher educators in Norway and no set curricula for their induction (Smith 2011); the same may be said for teacher educators in Canada (Kosnik et al. 2015). Subsequently, while sharing an interest in exploring our individual and collective processes of developing as teacher educators, we are a diverse group in terms of nationality and career stage, and also teaching and research experience (see Table 1). We undertook a collaborative S-STEP in one course to support our teaching and research expectations, while also supporting our ongoing professional development as teacher educators (Hordvik, Haugen, Engebretsen, Møller and Fletcher, 2020 and Hordvik

Table 1. Professional characteristics of teacher educators.

Name	Position	Teaching- research requirements	Teaching experience	S-STEP experience
Mats (project organiser)	Associate	65% teaching professor	35% research	Two years as secondary school physical education teacher and 11 years' as junior team handball coach. Four years as teacher educator (25% during PhD).
Mats defended his PhD three months prior to this study, where he used S-STEP as methodology-pedagogy, focusing on his teaching and pre-service teachers' learning about teaching physical education (Hordvik, MacPhail, and Rongjan 2017; Hordvik, MacPhail, and Rongjan 2020).				
Lasse (course leader)	Assistant	professor	80% teaching 20% research	18 years as primary and secondary school physical education teacher and 14 years as senior and junior soccer coach. Seven years as teacher educator.
New to S-STEP at the time the inquiry began.	Assistant	professor	80% teaching 20% research	17 years as an adult education teacher 22 years as teacher educator.
Berit	Assistant	professor	80% teaching 20% research	Three years as primary school physical education teacher. Five years as teacher educator.
New to S-STEP at the time the inquiry began.	Assistant	professor	80% teaching 20% research	Five years as secondary school physical education teacher. Nine years as teacher educator.
Anders	Associate	professor	50% teaching 50% research	
New to S-STEP at the time the inquiry began.				
Tim (meta-level critical friend)				
Tim has been involved in many collaborative S-STEPs (e.g. Fletcher and Casey 2014; Fletcher, Ní Chroíinín, and O'Sullivan 2019).				

et al. 2021 for details about the teaching-research-development process). The four of us in Norway (working at Oslo Metropolitan University) invited Tim (working at Brock University) to become involved as a critical friend, which involved him interacting with the group and, at times, the individuals within the group (O'Dwyer, Bowles, and Ní Chróinín 2019). Tim took the role as a critical friend on a 'meta-level' (Fletcher, Ní Chróinín, and O'Sullivan 2016, 306), positioning himself as a collaborator interested in learning about the Norwegian teacher education context and about the group learning process. Due to his location in Canada, meetings with Tim were conducted using Skype.

Setting

The specific setting was a physical education course that was taught by Mats, Lasse, Berit, and Anders. In our first course meeting, Mats, who may be identified as a researching teacher educator, introduced S-STEP to Berit, Lasse, and Anders, who might be identified as teaching teacher educators, and explained the main features and structure of S-STEP when considered as both methodology and pedagogy. We decided it was natural that Mats would take the main responsibility for organising the research project (e.g. applying for ethics, coordinating data generation, analysing data) while Lasse, as module leader, would take the main responsibility for coordinating our teaching. In addition to teaching the classes together, we decided that the four of us were to act as critical friends to one another. At the same time, Tim took on the role as critical friend to the group and to the individuals. The group at Oslo Metropolitan University collaboratively developed a research focus and corresponding research questions. In general terms, our S-STEP research focused on our teaching of pre-service teachers. In more specific terms, we were focused on our learning and enactment of models-based practice, which is a pedagogical innovation in physical education teacher education (Casey 2014). For the purposes of this paper we do not address the teaching of models-based practice (Hordvik, Haugen, Engebretsen, Møller and Fletcher, 2020). We agreed in our initial meeting that individual participants were free to generate additional data for their own research purposes. This opportunity allowed Mats to extend the way he engaged with Tim, where he could use insights gained from his PhD research (see Table 1) to investigate the facilitation of professional development through S-STEP. Subsequently, as a way of not disturbing the relationships with Berit, Anders, and Lasse, Mats decided not to tell the three of them about this part of the project before we were approaching the end of our collaborative S-STEP data generation. This setting had implications for data generation in this paper, which is explained in the next section.

Data generation

Data generation involved three layers. The first was composed of Mats' reflective diary written throughout the study (consisting of 4 entries), audio recordings of Mats' individual meetings with Tim (3 meetings and approximately 3 hours audio), and audio recordings of group meetings conducted throughout the study (12 meetings and approximately 27 hours audio). Mats wrote in his reflective diary throughout the research, capturing his lived experience of teaching and of initiating, observing, analysing, and taking actions for the benefits of the group's professional development trough

S-STEP. In his critical friend meetings with Tim, Mats discussed alternative perspectives on his teaching and facilitator experiences. The group meetings captured how Mats initiated and organised the S-STEP project, and the way he provided support and constructive critique for Lasse, Berit, and Andres in their engagement with S-STEP as methodology and pedagogy. Eight meetings were carried out by those of us located in Norway, while four whole group meetings were conducted with Tim. The second layer of data involved reflective diaries written by Lasse, Berit, and Anders (consisting of 6 entries) focusing on their lived experience of teaching, and audio records of teaching-research meetings between pairs of the five of us in different configurations (6 meetings and approximately 5 hours audio). The third layer involved retrospective and summative reflective diaries that Lasse, Berit, and Anders wrote about their experiences of Mats' role and practice as a facilitator.

Analysis

With an aim to produce understandings of the processes of orchestrating professional development, our interactive analytic process involved *thinking with* (Jackson and Mazzei 2012) the metaphor of orchestration and our research question. Specifically, Mats engaged in a process of reading all of the reflective diaries, and listening to and reading transcripts from our meetings while thinking with the metaphor of orchestration and the connected research question. In this process, Mats noticed how particular situations provoked him to reorganise, adapt, and enhance his systems of thinking related to the ways he was facilitating or orchestrating the group's professional development through S-STEP (Ovens, Garbett, and Hutchinson 2016). In this process, the following ideas were developed: resistance in initiating S-STEP practice; taking control while providing autonomy; encouragement versus pushing; and uncertainty about the degree of engagement in research practice.

The next process involved interacting with the others of our group, a process that involved agreement and disagreement, mediation and expansion, commonality and difference (Pinnegar and Hamilton 2009). Mats first discussed the main ideas developed from this process with Tim; these discussions supported the development of a clearer articulation of the thoughts and actions underpinning Mats' facilitation and the ways he was balancing and managing the inherent complexity of facilitation. In this process, we developed a understanding of the way Mats initiated and steered the group's practice and how such practice was dynamic in nature. Lastly, the main ideas were further discussed and refined through two meetings with Berit, Anders, and Lasse as they interacted with their past and present experiences and projections for their future practice as researching teacher educators (Pinnegar and Hamilton 2009).

Finally, Mats further developed the central ideas as he engaged in a process similar to memo writing (Charmaz 2006). The memos that were produced in this process were discussed and further developed in collaboration with Tim, which supported the main themes and richly descriptive examples in the results section (LaBoskey 2004).

Concerning the writing style and use of voice, in the tradition of much other S-STEP research we use a combination of first person plural (i.e. we/our) when referring to our group and third person singular (i.e. Mats, Berit, Lasse, Anders, Tim) when using the voices of or referring to individual participants in the research.

Results

On the whole, the S-STEP process and its outcomes were very positive for our individual and collective professional development, leading to what we felt were improved practices, and individual and collective identities as innovative teacher educators (Hordvik et al. 2020; Hordvik et al. 2021). This resulted in enhanced relationships amongst the group at personal and professional levels, as well as in relationships between our practices. Furthermore, Mats' orchestration – that is, many of the initiatives, observations, refinements, and actions that he planned and carried out – facilitated our professional development leading to such positive outcomes. However, acknowledging the relational and dynamic nature of practice, we do not claim that the way Mats worked as a facilitator to orchestrate professional development is *the* answer. Rather, we claim that the results of this research provide insights into the complexity of facilitating professional development and exemplify the importance of facilitators altering their practice based on their perception of the contextual occurrences in the setting (Jones and Wallace 2006). The metaphor of orchestration supported these alterations in practice.

Initiating and steering teacher educator professional development

Based on Mats' previous experiences of engaging in S-STEP as methodology-pedagogy and embodying a desire to continue to develop as a researching teacher educator, he saw the collaborative nature of the course as an opportunity to initiate and engage the group in a collaborative S-STEP. In a way, Mats had a clear aim for his practice and viewed the group members as different parts of a music composition, with each member playing important, active roles that both required different skills to be called on at different times and also meaningful relationships. Lasse offered his experience of Mats' facilitation:

Mats had early on a plan for the project and what we were to investigate. At the same time, he was good at involving the rest of us. I experienced myself as participating (i.e., co-researching teacher educator) and truly involved in the project, where my experiences as a teacher educator were listened to and taken into account.

While an orchestra is highly collaborative, it ultimately requires leadership in order for the orchestra to develop rhythm, timing, and a shared understanding of tasks and roles in order to carry out the musical composition. To this end, Mats took on some forms of leadership. For example, in the first group meeting, Mats argued for the benefits of models-based practice for both pre-service teachers and school students' learning, and for S-STEP as methodology-pedagogy. He aimed to position himself not as a top-down orchestrator (like a conductor) but as one who was part of the orchestra, who could help bring different aspects of the musical composition together to develop coherence. In describing his experience of Mats' facilitation, Anders wrote the following final reflection:

Mats had early in the process a clear idea of what we were to do, [and this made] it seem feasible for the rest of us. Also, I felt that it was important that we had a structure to follow, with regular meetings, observations, and discussions. Mats constantly reminded us about carry out these things, and that was necessary in the busy everyday life.

In considering both Lasse's and Anders's comments, while Mats took on a leadership role in the group in terms of the project, his approach was quite democratic in that the others

were encouraged to be involved and take on their own leadership roles (e.g. generating data) at various times.

Another example of how Mats facilitated authentic engagement in the process came in response to his initial argument for the value of models-based practice. In one of our first group meetings Lasse, Berit, and Anders were sceptical but eventually came around to the idea. This was short-lived, however, because after Mats left the meeting, they decided to reject the approach due mainly to the tension in their total teaching load and time for research. They believed undertaking the proposal would require extra time for research outside of their workload and expectations at personal, departmental, and university levels. This decision took Mats by surprise; however, rather than letting the idea go, he continued to try convincing the others to pursue models-based practice and S-STEP. Not only did this require him to put forth further arguments for the value of the approach for the group and pre-service teachers (and, eventually, their students), it meant he had to actively listen to their concerns, while being sensitive and understanding of his colleagues' personalities, their expertise and experience/s as teacher educators, their workload requirements, their personal and professional lives, and so on. Recognising the tension facilitators face in managing practice and scholarship (Vanassche and Kelchtermans 2016), Mats argued for the value of the approach from a teaching perspective; one that he understood his colleagues took seriously and valued highly: specifically, the reflective, collaborative, interactive, and improvement-oriented focus offered by S-STEP. While some may have become frustrated and disheartened by this, in a Skype call with Tim, Mats was relatively unfazed, stating simply: 'I needed to challenge them again, but they are ... I think it's fun to work with people that are positive to changes and to challenge themselves'. In her final reflection, Berit explained how this process of negotiation was important for her ongoing participation:

The fact that he [Mats] did not give in after the rejection from the three of us, but continued to work on convincing us of the value of the project, was crucial for my participation. Through the 'convincing process' it also became clearer what the project was about, and that it would not necessarily be more intensive than 'regular teaching'. I was very motivated by the idea of working in a team towards a common goal.

Mats had little or no control over how his thoughts and actions were going to be received by the group. While the three others appreciated the way Mats continued to argue for his desired approach, he needed to approach this carefully because it could have led to confrontation and negatively influenced his relationship with Lasse, Berit, and Anders, all of whom had worked together for several years. Importantly, Berit's reflection carries the suggestion that the potential for the models-based approach to bring the group to work more closely together was, for her, the primary motivating factor for participation. Thinking with the metaphor of orchestration can help illustrate how Berit's view of taking on a new approach was similar to an orchestra undertaking a new piece of music, perhaps one that they were unfamiliar with or that provided distinct challenges for the players. It would involve more rehearsing, practicing, negotiating, all of which take time and concerted effort and engagement. It also requires the orchestrator to be willing to employ different approaches in order to produce an orchestrated performance.

The dynamic nature of facilitators' practice

Data convey the specific ways Mats was orchestrating our S-STEP project, using different strategies to engage Anders, Berit, and Lasse in a deliberate form of professional development. For example, much like an orchestrator may collaborate with players to develop notation systems or scores, to make it easier to engage in deliberate reflective practice, Mats took charge in developing templates for individual reflections and peer observations while encouraging his colleagues to suggest and incorporate changes and refinements. In this way, he aimed to model ways of being a researching teacher educator:

In addition to encouraging the three others all the time, I have tried to lead by example and tried to model the nature of being an S-STEP researcher [i.e., researching teacher educator]. I have tried to show how I have worked systematically by, for example, letting them take part in the continuous research planning (writing project plan, planning time for observations and making an interview guide) and sharing my reflections (with feedback from Tim) with them.

In addition, Mats asked Lasse, Berit, and Anders to present the project for the rest of the physical education teacher education department because he felt this would facilitate their learning about conducting S-STEP research. This process was akin to fine tuning the different musical parts, allowing group members to develop their musical skills and receive feedback and interest from others. Furthermore, Mats was always trying to follow up and facilitate data generation responsibilities for individuals and the group. For example, he shared his reflective diary and responses from Tim with the others, while continuously encouraging them to write individual reflections, carry out peer observations, and arrange individual Skype meetings with Tim. This was something that caused various levels of discomfort for Berit, Lasse, and Anders due to communicating in English and uncertainty about what to discuss (having not been involved in critical friendship before). While the encouragement Mats provided sometimes led to engagement with the processes, it was not always the case, often due to the teaching load and uncertainty related to the nature of our data generation.

The following extract exemplifies the dynamic and responsive nature of Mats' facilitation, providing insights into the way he aimed to engage the others in a deliberate form of professional development. The setting for our dialogue was the preparation for submitting conference abstracts:

Berit: I've had a yellow patch lying on my desk all fall, saying, 'Ask Mats about what I haven't done.' And I'm pretty sure I haven't done anything or I've done something [laughter] but I haven't delivered it to you. I have been writing a lot in a reflection book after my teaching ...

Mats: But if you've written along the way, you can type it into a Word document. Do you have the dates [of your entries]?

Berit: Yes ... [Anders], we haven't talked after your last class and it may be too long ago becoming a bit meaningless. In addition, [Lasse] we have not discussed after your observation of me, because we were too busy.

Anders: We didn't record it, but we exchanged a few words. It wasn't a lot, but we talked for a minute or two.

Mats: But if you have the opportunity to go through the lesson. If you have done some writing, you may have some points to discuss that can help you remember some examples from the lesson.

On the surface this extract may come across as a simple conversation between a research or teaching team, however, if we look beyond the actual content of this extract while using the metaphor of orchestration, the extract exemplifies the complexity of Mats' practice as a facilitator, and highlights the dynamic nature of facilitating S-STEP as methodology-pedagogy. In the interaction with Berit, he was, in a way, trying to control how and when she reflected. Prior to this conversation, Mats doubted that she was engaging with the methodology and pedagogy of S-STEP because he had not seen the reflections on the shared computer folder. His concerns were similar to an orchestrator who may not believe the players had been practicing enough. However, Berit was indeed engaging vigorously with the approach by writing in her own diary, something Mats was unaware of and, to some extent, could not control. On the other hand, there was a need for him to encourage the three others to carry out post-lesson observation discussions. Using the metaphor of orchestration, the extract shows how he observed and responded to the situation prior to and in the moment (asking himself: What are their concerns? Why are they not conducting post observation discussions?) and acted by alluding to small things they had done that could help them engage in systematic research practice.

It is important to note that Lasse, Berit, and Anders were constantly wrestling with tensions in being both teaching and researching teacher educators. The dilemmas they faced in carrying out the research requirements and the time required to do so interacted with those Mats experienced facilitating the professional development through S-STEP. For instance, the others often positioned Mats as the expert on the process – the 'controlling conductor' – even though he had far less experience than any of them as a teacher or teacher educator. The interactions between our identities as teaching teacher educators or researching teacher educators created a paradox in Mats' practice as facilitator and resulted in him constantly questioning how he was doing things for the group. This may be similar to an orchestrator who still wants to be perceived as one of the musicians while simultaneously realising the importance of their role facilitating the orchestra. For example, Mats was often unsure of how much should he push the others to generate data and struggled to reconcile controlling the data generation or trusting that his colleagues would do what we had agreed on. He reflected on the balance between trust and encouragement in his role(s):

Although I at times have been a bit frustrated over the fact that they have not been as systematic (as I expect), for example in writing reflections or arranging meetings with Tim, I have continued to encourage them. Although I don't like that this has resulted in them having bad conscience (Berit has at least expressed this), my continuing encouragement has perhaps contributed to them writing reflections and conducting observations and discussions.

The extracts above provide insight into the way Mats attempted to balance different circumstances and situations. In addition, acknowledging the strength of involving the others for the purpose of increasing our understanding and the quality of the research, data convey that Mats aimed to provide choice and support autonomy by, for example, asking if others were interested in analysing the data collaboratively. However, Mats also

needed to take control over the situation at times to enhance the effectiveness of the process. For example, explaining the nature of S-STEP and encouraging them to take part in experiencing S-STEP as methodology-pedagogy (e.g. reflect upon their teaching while generating data).

Discussion and implications

The purpose of this research was to examine the ways that the metaphor of orchestration could help describe and make sense of the facilitation practices of Mats who collaborated in a S-STEP project with Lasse, Berit, and Anders, and Tim as an international critical friend. This study highlights how a researching teacher educator (Smith and Flores 2019) can initiate, collaborate, facilitate, and support teaching teacher educators in a collective effort to develop as researching teacher educators. The collective teaching-researching practices and diverse identities, however, produced dilemmas and tensions in the teaching and research practices of individuals in the group. As such, we add to previous studies that demonstrate the complexity of facilitating teacher educator professional development through S-STEP (Vanassche and Kelchtermans 2016). Results highlight how Mats had to negotiate his position as part of the collective (e.g. Gregory et al. 2017; Liguetti et al. 2019) and as guiding facilitator (e.g. Lunenberg, Korthagen, and Zwart 2010; Lunenberg and Samaras 2011) or orchestrator; this negotiation ultimately allowed him access to the individual and collective experiences of the group which further helped him in his effort to balance and manage the challenges inherent in facilitators' practice (Vanassche and Kelchtermans 2016).

The metaphor of orchestration allowed us to understand and elaborate on the ways Mats engaged in or enacted a pedagogy of facilitation. Importantly, the metaphor of orchestration helped us make sense of the ways that the complexities of facilitation cannot be solved once for all and must instead be continuously balanced and managed (Jones and Ronglan 2018). Through modelling the practice of a researching teacher educator while supporting and encouraging the others to engage with S-STEP as methodology and pedagogy, he was aiming to steer or orchestrate the process in what he perceived as the desired direction for both the individuals and the collective. Importantly, he did this without having full control of the direction or outcomes of his actions. His shared involvement with the others in the S-STEP process allowed him to better understand and subsequently balance and manage the tensions, dilemmas, and paradoxes in his practice, and that of the others. However, the metaphor of orchestration acknowledges the dynamic and responsive nature of facilitators' practice (Hordvik, MacPhail, and Ronglan 2020; Jones and Wallace 2006). This research highlights the difficulty facilitators face in trying to control a group's professional development practice, to the extent that we suggest that gaining control should not be a goal of facilitators.

For example, results convey how Berit was engaging vigorously with S-STEP as methodology-pedagogy by writing post-lesson reflections in her own diary, something Mats was unaware of and, to some extent, could not control. On the other hand, Berit could, for example, have neglected writing a reflective diary or not made the time to engage in deep reflection with a colleague. Such practice would have required Mats to notice such limited engagement with S-STEP as methodology and take alternative actions that would allow Berit to engage with the research requirements of becoming a researching teacher

educator or abandon this aim entirely. This demonstrates how a facilitator's practice can be seen as similar to orchestrating events, involving continuous decision-making related to iterative planning, observation, evaluation, and reactions to contextual occurrences in the setting (Jones and Wallace 2006). This also explains why the pedagogical notion of *noticing* has been identified as a precursor of orchestration (Jones, Bailey, and Thompson 2013); facilitators need to notice the details of the interactions between themselves and the teacher educators as well as those within the group itself.

Working on the premise that teacher education practice is a non-linear, relational, and dynamic process co-produced by the interplay between elements, we argue that this research has explicated the complex nature of facilitators' practice. Hence, while longitudinal data from several researching teacher educators working to facilitate their shared professional development with teaching teacher educators could allowed deeper understanding of facilitators practice, we suggest that our research carries implication for the development of orchestration as a metaphor for conceptualising (facilitators') professional practice and the development of researching teacher educators (Smith and Flores 2019). While we acknowledge that the term *facilitator* entails that of someone who is supporting actions and processes, the metaphor of orchestration encourages facilitators to: (i) take an active role in the teaching and researching process, its actors and context, (ii) deliberately observe and analyse the tensions and dilemmas that are inherent in the individual and collective practices, and between the facilitator and teacher educators, and (iii) make informed actions and refinements of the process based on such observation and analysis.

We argue that by taking active roles in both the teaching and research process that is the focus of professional development, facilitators can generate deeper insights into and be enabled to better notice individual and collective practices. This further allows facilitators to make decisions, take actions and make refinements that are based on their experiences as contributing members of the orchestra, rather than as stakeholders external to the orchestra. Therefore, we advocate for facilitators taking part in the research-teaching process, taking the role as co-researcher-teacher (and not an external, 'expert' teacher education researcher). As orchestrators then, such facilitators do not position themselves as figureheads, standout leaders, or conductors, but rather as a member of the orchestra who brings their own set of skills, much like the players. Such engagement in the research process can work productively for negotiating the tensions between facilitators and the others in the group. Furthermore, such embedded teaching and research practice may produce increased ambiguity in facilitators' practice; the orchestration metaphor can help facilitators cope with the ambiguity in their practice (Jones and Ronglan 2018). That is, using the metaphor to guide and manage their practice, facilitators learn to appreciate and live with/in the complex and dynamic nature of facilitating teacher educator professional development. Lastly, close and deep engagement in the research-teaching process allows researching teacher educators to work together with teaching teacher educators (Smith and Flores 2019) which might work productively for the development of a researching teacher educator community.

Conclusion

This study shows one facilitator's attempts to balance the complex and dynamic processes of group professional development, highlighting that facilitators' practice is similar to orchestrating events, involving continuous decision-making and actions related to iterative planning, observation, evaluation, and reactions to contextual occurrences in the setting (Jones and Wallace 2006). The study provides a valuable empirical contribution to the further development of the ontological entity metaphor of orchestration as a way to make sense of facilitating teacher educator professional development (Lakoff and Johnson 1980). Furthermore, we have exemplified how the metaphor of orchestration can be used to understand, elaborate on, and generate insights into the complexity of facilitators' practice (Lakoff and Johnson 1980), involving ongoing tensions that exist in a constant state of flux in the individual and collective practice, and in the relationship between teacher educators and between facilitators and teacher educators.

This study also highlights the importance of researching teacher educators taking on participatory leadership roles in order to facilitate collaborative, practice-based research in teacher education departments; research that simultaneously functions as a form of teacher educator professional development. Researching teacher educators are therefore encouraged to initiate research studies within modules, programmes, institutions, and/or at the national and/or international level in order to support the continuous professional development of teacher educators (Smith and Flores 2019). We further encourage researching teacher educators to conceptualise their facilitation practice through metaphors, of which orchestration may be one. This metaphor can both support them in articulating and enacting their practice as facilitators with some coherence (Lakoff and Johnson 1980) but also allow them to produce further understanding of how researching teacher educators can work to facilitate professional development initiatives for both themselves and for their collaborative teaching teacher educators, and to cope with the ambiguous nature of engaging in attached teaching and research practices with others.

Disclosure statement

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