Professional Collaboration in Teacher Support Teams

— A study of teacher and nurse educators' creative problem-solving in a shared space for professional development

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Abstract

This paper reports on a study of Teacher Support Teams (TSTs) established to generate peer support and collaboration among teacher and nurse educators at a Norwegian university. In TST groups, educators share experiences from their own teaching practices and support one another in solving work-related problems. By the use of interaction analysis, three types of support were identified: (1) sharing solutions to teaching-related problems, (2) providing personal and emotional support and (3) creative problem-solving. The findings show that the participants' dissimilar professional backgrounds and their positioning as 'peers' rather than 'experts' functioned as important drivers for creative problem-solving processes.

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1   Introduction

This paper reports on a study of teacher support teams (TSTs) created to generate peer support among teacher and nurse educators at a Norwegian university. A TST is an organised system of peer collaboration comprising small groups of university teachers who discuss educational dilemmas and cases from their own teaching practice and give advice to other teachers. Previous studies have researched and implemented TSTs with promising results (e.g. Daniels, Creese, & Norwich, 2000; Castro-Félix & Daniels, 2018). At the university where the study took place, cross-disciplinary TSTs were implemented to meet the challenges and needs thematised in conversations and workshops with teachers and leaders. The first problem that came up was that many teachers many teachers experienced professional isolation, something that was closely linked to the lack of opportunities to discuss everyday challenges in teaching, supervision and assessment matters with colleagues. The second problem they expressed was the wish to be part of a supportive team that discussed professional opportunities and challenges on a regular basis over time.

Prior research suggests that collaborative reflection on one's own and others' practice is imperative for changing and improving professional conduct (Bransford, Brown, & Cocking, 2000). In research on professional expertise, we see increased focus on the professional development at the collective level. For example, Edwards (2010) emphasises a "relational turn" in research on professional expertise, indicated by an increased focus on the value of rich collaborations rather than individual skills and knowledge. Furthermore, she argues that professional conduct should not be considered as an individual trait alone because being an expert practitioner involves participation in social practices. In the present study, TSTs were created to support university teachers by creating learning environments that provided them with dialogic spaces to share teaching strategies and receive support in their everyday teaching practice.

The TSTs were developed as groups of peers, not experts, meant to share experiences and solve challenges and dilemmas. Using this organised model of peer support, the project intended to establish teams in which teachers in higher education could meet, share problems, exchange ideas on teaching and support one another in different ways on a regular basis. On a broader level, the project was initiated to make the organisational culture of the university more open and collaborative. The deans at the involved faculties were involved in the planning of the project, and they also allocated funding to get the project started, including resources for seminars and administration, as well as dedicating approximately 40 hours on their workplan per semester for the participants. However, even though the project was supported and partly initiated from "above," the TSTs that only consisted of teachers were free to use the team meetings in ways that they felt most useful and relevant. It needs to be noted that the TST project intended to improve the overall climate for collaboration and support but did not define specific outcome measures.

The overall aim of this article is two-fold. First, we aim to generate a deeper understanding of the social practices of collaboration and creative problem solving among professionals teaching at the university level. To this end, we examine how the practices of supportive and problem-solving teams unfold in situ and how creativity is developed and performed as part of that particular collaboration. We draw particularly on the concept of *creativity* in our theoretical approach, defining it as a social process that involves tools, artefacts and contexts that support its enactment (Daniels, 2008; Vygotsky, 2004). Leaning on Vygotsky (2004), we see creativity as the process of linking previous experiences to generate new strategies for action. Second, we aim to discuss the potential of tools like the TST for encouraging more collaborative culture of teaching in the higher education sector. In the analytical work, we apply the term *learning trajectories* (Dreier 1999, 2008) to highlight professional development at a personal level based on participation in and comparison of social experiences. We also try to identify the tools that appear to be significant in the creative collaborative processes within the TSTs.

The study is guided by the following research questions:

- *What characterises the interactions within support teams, and what types of problem solving and peer support can be identified?*

- *How do TSTs support professional development in the workplace, and how can TSTs contribute to collective creativity among teachers in higher education?*

In the rest of our paper, we review the field of university teacher collaboration before explicating our theoretical position in relation to collaboration, learning and creativity. After explaining the research design and methodical concerns, we move on to an analysis of vignettes from TST group discussions. Using interaction analysis (Jordan & Henderson, 1995), we identify three types of support: (1) sharing solutions to teaching-related problems, (2) providing personal and emotional support and (3) engaging in creative problem solving .

2   University Teacher Collaboration

Over the last few decades, educational research has stressed the importance of creating working environments that foster collaboration among educators in higher education (Hargreaves, 1994; Gast, Schildkamp, & Van der Veen, 2017). In higher education facilities, peer collaboration lays the foundation for professional development among staff and, consequently, for research-based schooling for students. Teacher collaboration has been addressed as an institutional concern, and teacher collaboration programs have functioned as a means for creating change and developing and enhancing collective creativity (Lavié, 2006; Winn & Blanton, 2005). Previous research also shows that cross-disciplinary arrangements for peer feedback regarding teaching and supervision allow participants to address problems in their local working environment anonymously, without the fear of exposing colleagues or leaders (Hammersly-Fletcher & Orsmond, 2005; Thomas, Chie, Abraham, Raj, & Beh, 2014). De Lange & Wittek (2018) has shown that deeply relational processes emerged in TSTs not in spite of but due to the participants´ diverse disciplinary perspectives: "The crossing of disciplinary boundaries created opportunities for sharing and gaining new insights about teaching practices that resembles previous findings on peer-based feedback practices on teaching" (p. 24). However, a limiting aspect in this respect is that prior TST discussions tend to be overly friendly and do not sufficiently challenge the participants to reflect critically on their one teaching practices (Costa & Kallic, 1993; Ferrado, 2000; Kohut, Burnap, & Yon, 2007).

Research has shown that well-developed professional educator learning communities positively influence the development of instructional practices and support student

achievement (Darling-Hammond & Richardson, 2009; Vescio, Ross, & Adams, 2008). Studies have also shown that teacher collaboration programmes provide teachers with professional environments in which they can reflect on practice, construct conceptual knowledge about teaching and make important instructional shifts (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004; Thomas et al., 2014). Thus, collaboration might support teachers in reflecting on and improving their own instructional practices and changing their understanding of what it means to teach.

The research discussed above shows that although teachers may hesitate to implement new ideas when operating on their own, they may be more willing to further develop their own teaching practices when given the opportunity to test out ideas in a supportive environment. Different experiences are brought to the table, discussed, elaborated upon and tried out. Thus, working in teams can enable teachers to develop good teaching practices that support students' well-being and academic achievement (Levine & Marcus, 2007). However, research also points out that not all teachers profit from the same collaborative designs, and that successful implementations of teacher collaboration requires sensitivity to the 'micropolitics' at the workplace (Johnson, 2003). Castro-Félix and Daniels (2018) show how TSTs provide opportunities for peers to collaborate on day-to-day activities in an educational space without a defined hierarchical structure. The university lecturers that participated in Castro-Felix and Daniels's study used TSTs as a way of collectively transforming their usual teaching methods to create more innovative practices and impact on their students' performance.

A substantial body of research has documented the need for teacher collaboration when developing rich teaching practices that could support students' learning trajectories in different instructional domains, as well as the need to design different ways to help teachers develop such collaborative practices. We must also determine "how to structure teacher groups to maximize teacher learning" (Hindin, Morocco, Mott, & Aguilar, 2007, p. 349). More specifically, there is a need to "help teachers become aware of conversational dynamics that lead to or subvert effective collaboration" (Scribner, Sawyer, Watson, & Myers, 2007, p. 67). TSTs were implemented exactly for the purpose of establishing supportive conversational dynamics that would enable teachers to discuss and solve actual challenges and dilemmas in their own teaching practices.

Teacher and nurse education, the foci of attention in the following analysis, are professional domains that require highly specialised competence in a range of areas and creativity in problem solving. When looking at prior research on professional development in teaching in higher education, we find that there is a lack of knowledge on how educators across higher education disciplines collaborate and develop professional learning communities through creative processes.

3   Theoretical Framework

In this study we investigate participants' supportive and problem-solving processes and how creativity is developed and performed during collaboration among peers. In this regard, we analyse creativity as a collective phenomenon that benefits from appropriate conceptual and material tools. We thereby relate this study to prior studies of creativity as a sociocultural and dialogical phenomenon (Daniels, 2008; Moran & John-Steiner, 2003; Vygotsky, 2004). From a sociocultural perspective creativity is seen as an everyday phenomenon that is more likely to happen during collaborations among people. Consequently, the sociocultural stance represents a different focus of attention than than an individual-based interpretation of creativity. Emphasising collaboration and joint meaning making as key to creativity may contradict the everyday conception of creativity as a personality trait and a product of "eureka-moments" on the part of lone geniuses (Sawyer, 2011). The sociocultural conception of creativity tends to focus on longitudinal processes which allows monitoring creative "events" over long periods of time (Moran & John-Steiner, 2003). Currently, there is an increasing number of empirical studies that consistently maintain that creativity is situated, distributed and socially embedded (Sawyer, 2014).

Prior research has defined creativity in different ways according to outcome. Kaufman & Beghetto (2009) differ between notions of creativity that request the outcome of a creative process to be a discovery or a product that is new to the world, and conceptualisations that hold creativity to describe discoveries or ideas that are novel to this specific person or group. These two conceptions of creativity have also been categorised differently, such as Creativity and creativity, whereby the capital C marks a discovery for the world and the lowercase c marks a step forward for this specific person or community (Kaufman & Beghetto, 2009). According to such a conception, the empirical findings we

report in this paper would be filed under the lowercase c. However, we will argue that both dimensions of creativity are relevant and that there are reasons not to differentiate between them in this context.

When building our theoretical framework, we draw on Vygotsky's seminal work (2004). He quotes an analogy by an unnamed Russian scholar:

> just as electricity is equally present in a storm with deafening thunder and blinding lightning and in the operation of a pocket flashlight, in the same way, creativity is present, in actuality, not only when great historical works are born but also whenever a person imagines, combines, alters, and creates something new, no matter how small a drop in the bucket this new thing appears compared to the works of geniuses. (2004, p. 10–11)

Vygotsky described creativity as crucial for human development. Just as he saw the ability to reproduce successful actions and strategies as a crucial aspect of human performance, Vygotsky saw creativity as a dynamic part of the human orientation to new challenges. He differentiated between creativity and "reproductive acts," which he conceived as being closely related to memory and the ability to reproduce successful past strategies. Accordingly, he defined creativity as "any act that gives rise to something new" (Vygotsky, 2004, p. 1.). Furthermore, Vygotsky used the term *collective creativity* to conceptualise how humanity was built from "drops of individual creativity" (p. 11). In this regard, we take particular interest in how the participants from different professional domains and teaching practices challenge one another and explore different possible solutions to challenges based on their various experiences.

Even if he does not explicate the potential of intertwining people's past experiences in creative processes on a situated level, Vygotsky (2004) is clear on how human development is rooted in the ability to extend one's own experience based on that of others: an ability that enables persons to "imagine what he has not seen, can conceptualize something from another person's narration and description of what he himself has never directly experienced." (p. 17). From this notion concerning the relation between individual and social experiences, we can make several assertions concerning how creativity is constructed through interactions among groups of individuals with indefinite sets of potentially useful prior experiences derived from different practices and with socio-historically developed resources based on these practices.

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This understanding of creativity has shaped our unit of analysis as we apply this approach to investigate how professionals within TSTs participate creatively. We focus on how the participants use socio-material artefacts, such as scientific concepts, narratives or sketching tools, that allow the teams to imagine and construct solutions to new and unfamiliar problems. This involves reworking past experiences and using them to generate new strategies for action.

To grasp the relation between the individual and the collective in collaborative and creative processes, we borrow the concept of *learning trajectories* from the Danish scholar Ole Dreier (1999, 2008). This concept refers to the processes through which persons make meaning and position themselves based on participation in and comparison of different social experiences and possible interpretations of concepts and other tools. Thus, we wish to explore how individual trajectories can be used as resources for collaboration and creativity.

In the sociocultural tradition, meaning and knowledge are not readymade and predefined entities; rather, they are constructed in situ by interlocutors around a topic that creates shared attention (Linell, 2009). Interlocutors are attuned to one another's contributions to topical conversations, and meaning and knowledge are co-constructed moment by moment (Thompson & Wittek, 2016). Knowledge is socially produced, and different individuals contribute different perspectives and interests, which might lead to the establishment of new contexts for interaction and new cultural resources that can be used to make meaning of the topic under consideration (Linell & Thunquist, 2003). Thus, when analysing meaning making in the TSTs, we do not solely focus on whether communication is more or less successful but are also interested whether participants contribute to the realisation of a dialogical space that fills more than the participants' existing individual knowledge and allows for generation of new ideas and creative problem solving.

4   Research Design

In 2015, TSTs were introduced as a way for teacher and nurse educators at a Norwegian university to share experiences and solve problems related to their teaching practice. The issues identified as a starting point for the project were 1) the experience of professional isolation, 2) the need to discuss challenges with colleagues and 3) the need to have a supportive team on a regular basis. A basic assumption was that open-ended dialogue

among peers would form a productive starting point for collaboration and peer support and would enhance creative problem solving as a collective endeavour (Daniels, 2001; Daniels, Creese, & Norwich, 2000). From a TST perspective professional development is not disconnected from the situated practices of the workplace; rather, it is a way of developing structures that allow teachers to receive input that is directly meaningful to their teaching practice and to systematically reflect on ways to improve this practice (Bedward & Daniels, 2005). In the current project, TSTs were introduced as a loose structure for support and joint problem solving connected to the participants' teaching practices.

The project started with all faculty being invited to participate in a workshop on how TSTs could be organised at the university. Two influential scholars were invited to provide inspiration and facilitate the workshop. In this way, the participants also co-designed the project. During the workshop, the participants planned the TSTs as a way to reduce 'professional isolation' and bring professionals in teacher education and nurse education closer together, both within and across the two educational domains.

It was collectively decided that the TST groups would handle educational dilemmas and cases from the participants' own teaching practice. In addition, other teachers at the same institutions could consult the TSTs and present problems/cases related to their own practice for discussion and advice. To organise the TST meetings, the group developed a table to help structure conversations. This tool is displayed in Table 1.

A. Case description (Sensitivity)	C. Analysis
B. Identifying the problem (joint understanding)	D. Action advised (advice and suggestions)

Table 1. The tool for organising conversations

During each session, the team picked a secretary/leader to manage the time schedule and make sure that the groups moved through themes from A to D (i.e. to ensure they did not move straight to square D before properly identifying and analysing the case at hand). The secretary/leader used the table to make notes on each point, such that the table became a log of all phases of the meeting. These notes were archived by the project leader to be available to the researchers and document the collective work being done on the institutional level.

4.1. Participants

A total of 19 teacher and nurse educators were enrolled in the project over the academic year in which we collected video data. The participants volunteered to be part of the project. While most were experienced university teachers, three of the participants had worked for only for a year or two. There were four participants from nurse education, and the rest of the participants came from different departments at teacher education, such as Department of Mathematics and Science Education, Educational Science and the Department for Visual and Performing Arts Education. The participants formed groups of four to five that met for approximately one hour every month to share experiences and dilemmas from their own teaching practices.

4.2. Data

The authors initiated and participated in the planning and design of the project but did not participate in the meetings. We facilitated the organising of meetings and the video equipment for filming these meetings. Usually, we met the groups at the start of their meetings and left the room after turning on the video camera. Sometimes, the groups did the video recordings themselves. In addition to video observations, we collected participants' logs from each meeting and conducted interviews ascertain whether participation in TST meetings led to perceptions of improved educational practice.

The results are based on data extracted from the total corpus of data. Since the current paper focuses on how problem solving and support were handled during the group

interactions and in what ways creativity could be identified in the interaction, the primary data subjected to detailed analysis are video observations.

4.3. Data analysis

Before focusing on particular sessions, we mapped the videos thematically and analysed the groups' creative meaning-making practices in depth. The participants' responses in the workshops, interviews and meeting logs helped identify several "hot spots" (Jordan & Henderson, 1995, p. 43) that created a backdrop for the interaction analysis and the selection of extracts that were subjected to detailed analysis.

Interaction analysis is an empirical and video-based method used to study social interaction as it evolves through talk, non-verbal interactions and the use of artefacts and technologies among members of a community of practice (Derry et al., 2010; Jordan & Henderson, 1995). This analytical framework is well suited for analysing in detail how the participants collaboratively co-produced knowledge and developed and performed creativity as a practice during TST meetings. Based on the analytical framework introduced in section 3, we particularly looked into what types of professional support were established and how practitioners built upon one another's ideas and perspectives and produced ideas for solving different problems and dilemmas under consideration.

4.4. Limitations

Due to the design of this study, it's potential to predict the outcomes of future TST projects should be considered with caution. The current study provides a qualitative analysis of the social construction of teacher collaboration. Therefore, its "take-home lesson" is not that there exist some generic types of teacher support in TSTs; rather, the findings show insights into how TSTs can offer social, conceptual and material tools for creating dialogic spaces. The findings highlight some activities and situations that did occur within the analysed TST groups, as well as some key artefacts and contextual dynamics that proved significant in the enactment of this collaborative work. We believe that future studies of TSTs would profit from pursuing the analytical points generated in this paper by triangulating the data that allows combining detailed analysis of interaction with the mapping of regularities of

collaborative phenomena in larger data sets. In spite of these limitations, our study details the situated practices of TSTs in higher education and we consider the current findings to provide new insights into the dynamics of peer collaboration and how these dynamics were supported within the socio-material context of the TSTs.

4.5 Ethics

In this study we have followed the Norwegian Research Council's ethical code. All teacher and nursing educators have been provided detailed information about the TST project and the research that has been conducted as part of this project. In addition, many of the teachers were part of the developing the TSTs and had agency over the activities that have been followed. Participation was fully voluntary, and the participants could withdraw from the project at any time without explaining the reasons for doing so. Regarding data collection, some of the participants might have been sensitive to the video camera in the initial phase of the project. Prior studies relying on video data have described that people habituate to the camera over time, especially when the camera is mounted on a tripod (Jordan and Henderson, 1995). Our experience was that the participants appreciated the opportunity to discuss these matters and that the data collection did not significantly affect the team discussions. Finally, all participants are anonymised in the presentation of data.

5   Results

The findings show that the TST group discussions were oriented largely toward the participants' everyday professional practice, the tools applied and collaborative interpretations of the experiences and challenges at stake.

During the TST meetings, a range of topics were raised. Specific areas of discussion included: 'Challenges when guiding practitioners in schools and kindergartens: What to do when external collaborators don't want counselling'; 'How should we meet students that go into "defence mode" in counselling situations?'; and 'What affects student grades, and are grades set too high in oral exams?' Sometimes, the meetings ended with concrete advice for tackling the problem at hand, while at others, the participants acknowledged the topics of

discussion as more generic issues that needed to be addressed reflectively in their everyday professional lives.

As described above, parts of the data materials used for this study were drawn from participant reports. The evaluation of the meeting logs, workshop discussions and interviews revealed several overall impressions:

- Participants reported that the TSTs provided opportunities to meet and discuss issues that they seldom found time for in their everyday practice. They also emphasised that they enjoyed the 'luxury' of people devoting time to *their* problems, but also the sense of support they got from finding out that many of their problems were familiar to other practitioners.

- The participants valued being groups of 'peers', rather than 'experts', and noted that the TST project's strong focus on symmetrical relationships among participants was constructive for their discussions.

- The participants reported difficulties finding time for meetings and reflected that the meetings came 'on top' of everything else. They were also disappointed that only a few 'outside colleagues' used the opportunity to seek advice in groups, as this was an intended feature of the TSTs.

- All participants were highly trained professionals from nursing and teacher education. Two of the five groups comprised members from different domains, and although most groups reported positive experiences, these cross-disciplinary groups reported having more positive experiences of TST participation. Within these cross-disciplinary groups, participants conceived new ideas to benefit from the collaboration among professionals from different domains with different perspectives. Thus, several participants wanted to re-organise after the first academic year so that they could also experience cross-disciplinary groups.

These participant reports formed a backdrop to our review and analysis of the corpus of video data. In our video analysis, we focused on the characteristics of interactions within the TSTs and the types of problem solving and peer support that became visible. A particularly interesting finding was how the TSTs were constructed as dialogical spaces for educators from different professional domains. Within these dialogical spaces, we saw how prior

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experiences were elevated to collective creative resources. We also observed how the participants oriented towards the model to maintain their focus, structure their input and progress through the discussions.

Ultimately, the video analysis revealed several types of peer support, which we will discuss in detail in the following. We will also present three extracts from TST meetings. These extracts were chosen because they demonstrate stable meeting functions that stood out during the video analysis: (5.1) *sharing solutions to teaching-related problems*, (5.2) *providing personal and emotional support* and (5.3) *creative problem-solving.* By analysing the extracts in detail, we will explicate three interactional episodes that demonstrate these types of peer support and display how they are interactionally produced.

5.1 *Sharing solutions to teaching-related problems*

When examining the patterns of collaboration in the TST groups, we found several examples of colleagues sharing solutions to teaching-related problems. Typically, participants gave concrete advice about how the case presenter (CP) could solve his or her problem, often based on their own experiences. The following episode shows an instance in which a member of the group presents a case and one of the colleagues provides a concrete suggestion for tackling the problem.

The case: It is a busy time in the semester, and the CP is currently organising oral exams. He believes that the exam format he uses causes problems for some of his students, who become so stressed and nervous that they have trouble displaying the insights, knowledge and skills they have aquired during the semester. The CP raises this issue to the group prompting a discussion of how to prepare the students to participate in scholarly debate and find ways for them to handle oral exams.

The episode displayed in Figure 1 starts after the CP speaks in a quite detailed manner about subject-specific issues he often raises in the oral examinations. One of his colleagues (C1) introduces a solution to the CP's problem. The CP is a teacher educator, and the C1 is a nurse educator. In the transcripts, we use the code CP to indicate the teacher presenting a case to be discussed by the TST and the terms C1, C2 and C3 (colleagues 1–3) to indicate the other teachers in the group. Since the extracts were collected from different groups, the person represented as 'CP' changes between extracts. The extracts have been

transcribed verbatim using symbols proposed by Jefferson (2004). See Appendix 1 for descriptions of the transcript symbols.

```
 1   C1:   e::h I'm thinking(.) in relation to what you are saying
 2         that the students become so terribly nervous they are put
 3         off and some are nervous from the start (.) is there
 4         something to be done. I'm thinking that when we have (.)
 5         >our students are just as nervous as [yours] right
 6   CP:                                        [m:m]
 7   C1:   students are students< (.) e:m what ours do in relation
 8         to the oral part which now is like a practical test.
 9         in advance (.) we've uploaded lots of different possible
10         cases with assignments and what they should do and
11         descriptions of situati[ons]
12   CP:                          [mm]
13   C1:   on the LMS¹. and said the:se, you can watch and with
14         the:se you can practice
15   CP:   m:m
16   C1:   parts of this is what you´ll actually be doing
17   CP:   m:m
18         Four of theese things you will be doing when you come to
19   C1:   the [oral] part
20             [m:m] ((Nodding))
```

Figure 1. Sharing solutions to teaching-related problems

In the opening move, C1 begins to formulate advice in response the problem that the CP has presented: How should nervous students be supported and handled? In line 4, she poses a rhetorical question: Is there something to be done? Without pausing, she quickly suggests that the CP's problem in teacher education is related to issues in her own nursing education, an action of networking experiences, and an initiative to generate new strategies of action. The CP acknowledges this suggestion by uttering a consenting 'm:m' in line 6, before C1 states, 'students are students', thereby emphasising the similarities between nursing and teacher students and, consequently, the commonality of the problems faced by the TST group. C1 moves on to explain the concrete strategies she uses to prepare her students for oral exams, explaining how she gives her students case examples, descriptions of situations and assignments to work on that correspond with the topics to be discussed during the final exam. Throughout C1's explanation, the CP confirms the relevance of the advice by saying 'm:m' and nodding. C1 claims that her strategy makes students feel more at ease. However, the CP does not actively engage with this strategy or elaborate on how this advice could be

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[1] LMS is an abbreviation for Learning Management System, which is an online system for sharing course materials, tracking student assignments, managing assessments and, as in this case, sharing resources for exam preparation.

useful in his own practice. However, the extract also illustrates how professionals with significant knowledge and experience regarding teaching, benefit from appropriate socio-material tools like the concepts of cases and assessment (line 10), and concrete strategies (line 9-19). The participants can imagine and co-construct solutions to the problem at stake (how to handle nervous students). Even though the current context is unfamiliar to C1, she has similar experiences. She engages in an adaption to challenges that are new to her in one sense, but familiar in another. Thus, the excerpt can be sees as a starting point of a conversation that may start a creative process with potentiality to give raise to a novel or even original practice.

This interactional episode is an example of a type of peer support that occurred frequently in our data: giving advice by sharing examples from one's own practice. Sometimes, the participants gave advice based on prior research or policy guidelines, but they typically gave advice based on their own experience and similar examples. Advice served as a form of support in the TST groups, and its relevance was often validated through nods and other acknowledgements. However, as illustrated in this example, the CPs did not always deeply engage in the activity or explore how the provided examples could be used as resources in their teaching practice.

5.2   Providing personal and emotional support to colleagues

When reviewing the data, we found frequent examples of colleagues giving one another personal support by expressing understanding and sharing similar examples from their own experience. Often, such support was given without recommendations or advice and served more as recognition of their colleagues' problems. The following extract demonstrates this type of peer support, which is oriented less toward solutions or concrete actions and more toward support for and recognition of colleagues' conceptions of problems or dilemmas.

The case: The CP has explained a problem she is having concerning a student who does not read or work independently. The CP is unsure of whether to be understanding and make adjustments for this student or to be strict and 'by the book'. The group discusses university teachers' role in supporting, motivating and helping students, while simultaneously setting boundaries and demands. They suggest that it is important to be 'clear' or easy-to-read, explicit and capable of setting certain ground rules. In the extract, we see the CP's reflection on the teaching role she has endorsed and her colleagues' responses to this endorsement.

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 1  CP:      yes I agree that one have to be clear and (.) I may have
 2           been that and experienced that the students (.) >that you
 3           didn't get that good relation that you also are
 4           depend[ent on]< if you wish them to come to
 5  Group:         [hmm yes]
 6  CP:      you and have [a co]nversation where you actually talk and
 7  Group:               [yes   hm:m]
 8  CP:      not only speak about somethin[g ]
 9  Group                                 [hm:m]
10  CP       yes I think it´s something about that >because I believe
11           that I have actually been very explicit and cle[ar]<
12  Group:                                                   [yes]
13  CP:      you know because it´s something about(.)that professional
14           focus that they need to adopt but also [to]
15  Group:                                          [yes]
16  CP:      yes (.) because it also has to do with me having a
17           profession to represent [too] S:o (.) yes (0.2)
18  Group:                            [m:m]
19  CP:      e:m but then I have experienced (eh) students don´t come to
20           me very often (.)right (.) Even if I say pop by the office
21           and things like that,
22  C1       m:m
23  CP       there is a difference I notice that. with those students—
24           those who do not have a problem with deadlines or anything
25           or academic reading and so on (.) But a lot of the others
26           (.) they don´t come to me
27  Group:   m:m
28  CP:      and [that´s] perhaps that bit about feeling popular or no[t]
29  C1:         [the slackers]                                        [m:m]
30  CP:      Right? Because there I feel that it's more of a distance
31           ((gesticulates))
32  C1:      But do you think they come to anyone? The slackers?
33           (0.5)
34  CP:      Yes if we are two teachers together. Like I had a colleague
35           before (.) right >and that was really funny one student who
36           was finished< with their final exam said like yeah we got to
37           know you or got used to you or something? >and a lot of
38           people like you< but we love Mary heh he And that was my
39           colleague, right hi(h) he
40  C3:      [heh so nice ]
41  Group:    [heh he hah]
42  CP:      very nice and it was great for her right because
43  CP:      she knows so much about students, about their lives and bla
44           bla (.) but I know that I don´t want to be there
45  Group:   No (.). no.
46  C3:      exactly
```

Figure 2. Providing personal and emotional support to colleagues

The extract begins with the CP explaining the dilemma of being 'clear' on the one hand and

establishing a 'good relation' on the other. In lines 1 to 8, she states that she feels that being

clear sometimes creates a distance that gets in the way of future dialogue. Part of this

dilemma has to do with helping and giving the students room to adopt a professional focus,

while simultaneously keeping her professional obligation (lines 16–17): ensuring that the teacher students are ready for their future jobs.

Throughout the extract, the group members utter supporting sounds, such as 'm:m', to signal that they sympathise with or understand the CP′s concerns. These actions indicate affiliative listening among the group members. We also see affiliative listening in the pauses (marked by the sign (.) in lines 1, 17 and 25). Though these represent opportunities for other speakers to jump in, the group chooses to give the CP time to elaborate. However, the entire group contribute in ways that encourage CP to continue her line of reflection and to take a stance and position herself.

In lines 19 to 26, the CP describes how she reaches out to students and supports them, but that those who have trouble keeping up with reading and deadlines do not come to her. The group affiliates by uttering 'm:m', and in line 29, C1 suggests the term 'slackers' to describe the students who do not come to her. The CP does not pick up on this term. By introducing the term 'slackers', C1 may be considered to offer the CP a supportive explanation: that the situation she has described is caused by a lack of interest among certain students and has nothing to do with her competence as a teacher. Interestingly, the CP does not pick up on C1's reasoning, but instead continues to elaborate on the distance she feels with some of the students. Nonetheless, in line 32, C1 explicitly asks whether the CP thinks these students (i.e. the 'slackers') would come to anyone. This can be interpreted as a supportive comment offering the CP an 'honourable' way out of her rather self-critical reflections.

However, CP does not accept this proffered explanation. Instead, she answers by describing an incident in which she talked to a student who had just finished his/her teacher education and who expressed that the class had a much closer relationship with her fellow teacher. The subsequent turn is particularly interesting, since, in line 40 , when the group smiles and C3 says 'so nice' in a sarcastic tone—signalling support for the CP in the form of an acknowledgement that this was an insensitive comment on the part of the student—the CP continues without picking up on the sarcasm, emphasising instead that this was, in fact, 'nice' for her colleague (line 42). She acknowledges her colleague's great relationship with the students and then takes a new turn in line 44, where she states that she does not want things to be this way. This new take on the situation is immediately acknowledged and

supported by the group. It is interesting to note how the interpretation of the situation is developed and performed by CP through the excerpt as part of collaboration.

This extract demonstrates what we have called 'providing personal and emotional support to colleagues'. The support is particularly evident in how the group members act as affiliative listeners and offer several supportive interpretations of the CP's situation, such as C1's comments concerning 'slackers' (29 and 32) and C2's sarcastic comment regarding the student's preference for the CP's colleague (40). These comments can be seen as offered opportunities in the dialogue. Ultimately, the CP does not take any of these opportunities, but, rather, introduces her stance that 'I know I don´t want to be there' (line 44), which is immediately acknowledged by the group.

Thus, this situation represents a second type of peer support. Whereas the first extract displayed group members' efforts to offer specific advice about how to deal with challenges and problems, this extract shows another important aspect of the group discussions: personal support and acknowledgment.

5.3   Extract 3: Creative problem-solving

When examining how the participants collaborated in the TST groups, we found several discussions that differed from advice-giving (Extract 1) and personal support (Extract 2). In these situations, participants moved beyond sharing solutions or providing support to the construction of novel ideas and perspectives related to their own practice based on their colleagues' questions and suggestions. They engaged in dialogues in which they built upon one another's contributions and, through this, generated ideas for new practices. We call this practice *creative problem solving*. The following extract demonstrates this type of peer support.

The case: The CP shares a concern regarding his role visiting students during their practice teaching periods. Teacher students must engage in a total of 100 days of supervised teaching in classrooms during their undergraduate studies. The supervision is mainly carried out by so-called practice teachers (teachers at the school with a special obligation to guide the students during practice). During the practice period, the student teachers visit students and give them different types of supportive advice. However, the CP worries that his students do

not appreciate his comments and feedback during these visits. He feels that they view the feedback negatively and is concerned that his comments sometimes divert their attention away from their tasks, foster self-criticism or create resistance to him as the teacher.

The term *creative problem-solving* is developed here as an empirical category that describes the activity of creating new perspectives and ideas about something that the CP finds troublesome regarding his or her role as an educator. This does not imply that the CP's problem is solved, but that the activity helps the participants jointly find novel perspectives, strategies and solutions. Prior to this extract, C1 shared an example from her nursing experience, telling a story about how she also has to deal with students who see her as an assessor rather than a neutral observer during practice visits.

```
1    CP:    I recognize this it is sort of the same (.) I look forward to
2           going out and think it's great to see them in practice and I
3           believe that's my job as a teacher to present theory (.) such
4           that they are able to convert it to practice out there (.) then
5           there's an obstacle that they don't always facilitate that in
6           practice. but still (.) I believe that we (1.0) I feel that
7           it's very exciting and very much f[un]
8    C1:                                        [m:m yes]
9    CP:    m:m. but I do think that you are right that they don't always
10          quite believe in me (.) e::e yes (.) and it might be that I
11          prove that through the things that I do that there's no reason
12          to tr(h)ust me either >I don't [know<   HA HAH HE]
13   ALL:                                  [HEH HEH HAHAH] HAH [HEH]
14   C1:                                                      [O:FF ELLEN]
15   CP:    IT'S RATHER >[BUT THAT'S WHat< I'm [wondering if I]
16   C1:                [YES YEs yes yes that's what you're asking(h)]yes=
17   CP:    =I sometimes think that I maybe, even if I'm very cautious in
18          saying that I'm not (.) It's not me who's doing assessment
19          that's the practice teacher's doing but (.) then it might be
20          that I ask the questions in such a way that they (.) that they:
21          ((C2 raises her hand to speak))
22   CP:    they feel they definitly feel assesse[d] I believe s[o]
23   C1:                                          [yes]  M:m [m]
24   CP:    when they come
25   C2:    I'm thinking that maybe it could be (.) I guess that in that
26          setting it's you that is speaking or asking the questions or
27          somehow is bringing this
28   CP:    m:m
29   C2:    and I'm thinking that when they are four students, maybe one to
30          two who are teaching and that the one who has done a lot of
31          teaching feels very alone with two to three fellow students
32          >that sort of keep their eyes on him< and then there's the
33          teacher that has been sitting there and >even if you'd like to
34          or not< creating sort of an image of that student
35   CP:    m:m
36   C2:    and that's kind of an assessment
37   CP:    m:m
38   C2:    e::h and when one is coming asking questions that one feels
39          that the setting makes one become defensive
40   CP:    mm
41   C2:    could that be it? That it's not neccessarily that you are
42          asking or what you are asking
43   CP:    but it's the whole situation m:m=
44   C2:    =the whole situation makes, it's so many being there watching
45          that you
46   CP:    m:m
47   C2:    feel that you (.) well (.) go into defense mode rather than
48          engaging in dialogue and developing what you have done what you
49          thought and that it's you that gets that in return because it's
50          you that's the teacher and sort of leads this thing ((C3 raises
51          his hand to speak))
52   CP:    yes I think that could be:: the case absolutely. a:nd that e::m
53          it was something I was thinking about (.) I was sitting here
54          thinking that it might be necessary to do something about that
55          e::h ((C3 takes his hand down))how we are organising that talk
56          >I believe in it< I believe it is very important (1.0) but
57          maybe it could be done by letting the students choose something
58          from the theories we have been working on for the discussion
59          Eh::: that would have BEEN (h) EXCITING [TO TRY] HEH
60   C1:                                            [THA:T(h) WOULD] BE NICE(h)
61          ((CP smiles and takes notes))
```

Figure 3: Creative problem-solving

In the opening lines, the CP picks up on C1's experience with visiting nursing students during their practice period, but emphasises that he looks forward to visiting his students and observing their teaching practice. As he expresses in lines 3-4, he feels that it is his job to teach the students theories in a way that enables them to use the theories as tools in their teaching practice. However, he worries that the practice teachers who supervise the students insufficiently support them in making connections between their learning and reading at the university and the every-day challenges of school teachers, possibly due to a lack of formal meeting places for practice teachers and university teachers. He notes that when he tries to illustrate such connections, students often view his efforts as criticisms.

In lines 10 through 12, the CP jokes that he might not have done enough to make the students trust his open attitude, which is met with laughter by the group. However, in lines 15 through 21, he restates his concern regarding how students view his questions and comments as types of assessment, rather than as helpful advice. This touches upon the key issue in this extract: that the CP wants to help the students see the potential use of theory for reflecting on practice situations without creating resistance or the fear of being evaluated.

C2 raises her hand, and in line 25, she presents a potential explanation—or, perhaps, a student perspective on the situation—by noting that students in practice teaching are often very exposed to fellow students, practice teachers and their university teachers. C2 argues that, regardless of the CP's intentions in such situations, he will, in fact, develop an image of each student's level of proficiency—and, thus, engage in a type of assessment. As we can see in lines 36 and 38, the CP acknowledges C2's interpretation of the problem. In lines 39 through 40, C2 ascribes the students' resistance to the <u>setting</u> rather than to individuals' actions.

The notion of 'the setting' serves as an explanation of the CP's problem that shifts the focus away from how the CP formulates his input towards an analysis of the situation as a whole, including the fellow students watching and the student's own teaching responsibility. In this regard, attributing the problem to the setting represents a novel

perspective. Throughout the following lines (53-54), the CP signals that he agrees with C2's interpretation of the situation.

Throughout the extract, the dialogue exhibits affiliative listening (as in extract 1). It is interesting that, at this stage, the participants give the CP time to reflect on the new way of seeing the problem. Among other examples, C3, who had raised his hand in line 51, takes his hand down at this point, presumably to give the CP time to think and elaborate.

In line 57, the CP begins to build on the idea of the setting and begins a new line of reasoning. He states that he believes these meetings and conversations with students during school practice are very important, but that these types of encounters could perhaps be organised differently. In lines 53 and 54, the CP speaks slowly, and none of his colleagues interrupt, even if he pauses. In lines 58 through 59, the CP introduces a new idea: to let students lead discussions and, perhaps, let them choose some theoretical topics for guiding the discussions. As displayed in line 61, this idea is received enthusiastically by C1, whose reaction causes the CP to laugh and confirm the new approach as an interesting one. The CP smiles at the group and takes notes in his book.

In this extract, we see several instances that can be described as creative problem-solving, in the sense of finding a new perspective and a possible solution to the problem. We can also see how these creative moves are interactionally produced. For example, in lines 24 through 51, C2 introduces a new way for the CP to view his problem, and in lines 53 through 60, a new strategy to address the issue is introduced. We have conceptualised this type of peer support as creative problem-solving because the participants build upon one another's ideas and perspectives and generate new ways of viewing practice or new strategies for tackling problems. In such situations, the participants are co-creating a dialogic space in which they extend their understanding of difficult dilemmas by using prior experiences to think new about the identified problem. The group as a whole is enabled to imagine what they have not experienced themselves, but as the context of teaching is familiar to them they do have the experiences and knowledge needed to contribute. This illuminates collective processes of creativity, constructed from individuals with indefinite sets of experiences and socio-historically developed resources from different contexts of internship and relevant discourses regarding the relationship between theory and practice.

6   Discussion

Prior research has shown that we need more knowledge about how teacher groups can be organised to support teachers in their professional learning trajectories, to challenge established ways of thinking and acting and to foster continuous motion and actions of exploring, comparing and contrasting different experiences in relation to one another (Dreier, 2000; Hindin et al., 2007). We also need more detailed knowledge about which types of collaboration can support teachers when they collaborate in groups and how productive learning trajectories are developed (Scribner et al., 2007).

This TST project aimed to generate a deeper understanding of the social practices of collaboration among highly skilled professionals who teach at the university level. We would like to highlight four empirical findings that have several implications for both research and practice.

First, the analysis indicates that the positioning of participants as "peers" rather than "experts" is an important driver for creative problem solving. Similar to Castro-Félix and Daniels (2018), this analysis demonstrates the manner in which groups can engage in co-creative knowledge production, prompted by the use of cases from one another's teaching practice. Extracts 1 and 3 illustrate how solutions to problems can be shared and how participants' cross-disciplinary backgrounds can be used in these processes.

Second, TST groups create spaces for support and for managing difficult situations related to teaching practice. Our analysis shows that the participants made meaning and positioned themselves in ways that were sensitive to their peers' views and professional decisions. For example, in Extract 1 the group discussed a case in which students were so stressed before an oral examination that their results were heavily affected. Collegue1 (C1) gave the Case Presenter (CP) advice based on her own experience about how to help students learn to reduce their anxiety. Furthermore, Extract 2 shows how the group listened to and offered constructive and supportive interpretations of the CP's dilemma. Such situations, in which colleagues discuss and collaborate on situated teaching situations, are rare in higher education, and TSTs are one strategy for enabling such interactions.

Third, the analysis shows how creative problem solving can be interactionally produced based on participants' prior experience and knowledge. The type of collaboration

observed in Extract 4 resonates with Vygotsky's (2004) conception of "collective creativity" in that, although the discussions centred around the sharing of largely individual challenges and dilemmas, the potential for transforming these individual experiences into collective ones was evident in how the individual trajectories sometimes became resources for joint problem solving. Participants' experiences can be creatively interpreted and transformed into psychological tools within certain timelines, and trajectories of learning develop continuously as participants engage in social practices according to the corresponding timescales (Wittek, Askeland & Aamotsbakken, 2015). Focusing on trajectories rather than developmental processes illustrates the diversity and multidimensionality of learning, as well as the embeddedness of trajectories in systems that vary along temporal and spatial dimensions. For example, in Extract 3 we see how the CP re-interpreted his prior experiences with the help of his colleagues and created a new interpretation that allowed his to come up with a new idea to tackle the problem. Applying this concept of trajectories allows us to explore the relations among different experiences and the links between individual and collective experience (Dreier, 1999, 2008). In Extract 3 it is not possible to identify who exactly developed the new idea; rather, it is interactionally produced. That CP not only absorbs but actively builds upon and transforms the other participants´ input shows that creativity is an emerging phenomenon that is more than the sum of individual contributions (Sawyer, 1999).

Consequently, learning trajectories imply continuous motion, and the actions of exploring, comparing and contrasting different experiences in terms of their relations to one another—as people must do when participating in a TST group—are important for enhancing this motion. Along such trajectories it is not necessarily possible to identify cause and effect. For example, in the analysis of Extract 3 the solution can be considered new and important for the participant but hardly original to the world. However, it could also provide a small contribution to the creative constitution of the TST as a research-based and original format for peer collaboration. By following this line of thought, we do not mean to overstate the significance of this short extract (3) but to point this out as an illustration of Vygotsky's argument that human culture is built through tiny drops of creative contributions and that predicting what will evolve into more significant creative contributions might not be a fruitful avenue to pursue

Fourth, the findings differentiate between *sharing experiences*, *providing personal and emotional support* and *creative problem solving*. We do not suggest that these are exhaustive categories or that one is superior to the others; rather, we suggest that these types of interaction are fruitful to conceptualise because they may require different group dynamics, structures, tools or organisational backgrounds. For example, the tool for organising the meetings (Figure 1) was often referenced in the conversations either to slow the discussion down and make time to listen to and comprehensively conceive of the problem before moving on or to advance the discussion towards the stage of giving feedback and advice before the session was over. Furthermore, the overall results of the project show that TSTs foster different types of support and that different group constellations can instigate different types of support. For example, when giving advice (Extract 1), shared backgrounds or common practice may be significant. If individuals have very similar professional backgrounds, they are likely to have a common vocabulary and similar experiences on which to reflect—all factors that are known to enable joint professional action. When providing personal and emotional support (Extract 2), by contrast, matching personalities may be important. To increase feelings of safety and emotional support, it is important to establish a trusted community in which individuals can share difficulties at work. Finally, when engaging in creative problem solving (Extract 3), cross-disciplinary groups can use their dissimilar backgrounds as a resource for devising advice and novel ideas.

With regard to the future design of TSTs, the intertwining of the participants' professional learning trajectories are a promising way of transforming individual experience into collective experience and establishing individual case presentations as shared resources for co-creativity. In this sense, TSTs have proven to be an interesting take on creative collaboration and the stimulation of progress in university teachers´ trajectories of learning.

7   Concluding Remarks

A lack of organised collaboration among teachers is a challenge in higher education (Gast, Schildkamp & Van der Veen, 2017). The current project researched professional development as a collaborative and situated occurrence by mapping the co-construction of meaning and problem-solving within TST groups. In particular, we focused on instances in

which participants shared solutions to teaching-related problems, provided support and interacted creatively.

With regard to the organisation of future peer collaboration among university teachers, the findings suggest that symmetrical organisation and cross-disciplinary groups can lead to productive discussions. Peer support was shown to include different types of dialogue: *sharing solutions to teaching-related problems*, *providing personal and emotional support* and *creative problem solving.* Though these are not exclusive categories of peer support, these conceptualisations may increase sensitivity to the situated construction of teacher collaboration.

In future development and research, this study may enable an increased focus on how a broad knowledge base is distributed among participants in teacher collaboration, as well as on how group constellations affect creative problem-solving. We hope this will trigger reflection among university teachers on what characterises groups that interact creatively and the grounds on which innovations are developed. It may also explicate the resources they use to structure their discussions and indicate whether new tools for professional collaboration can be developed.

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9. Appendix

Transcript symbols:

(.)	brief interval of silence between or within utterances
(0.2)	Numbers in parentheses indicate elapsed time by tenths of seconds
[ ]	Overlapping talk
[ ]	
(h) he he	Indicate laughter
wo:rd	Colons indicate prolongation of the prior sound. The longer the colon row, the longer the prolongation
word,	Underscoring indicates stress via pitch and/or amplitude

WORD	Upper case indicats especially loud sounds relative to the surrounding talk
>word<	Left/right carats bracketing an utterance indicates that the bracketed
<word>	material is either speeded up or slowed down compared to the surrounding talk
=	Equal signs indicate no break or gap
((sniff))	Doubled parentheses contain transcriber's descriptions