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Theory and practice in PETE practicum

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Theory and practice in the context of practicum: The perspectives of Norwegian physical education student teachers

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Abstract

Previous studies have found that student teachers value the practicum over other parts of physical education teacher education (PETE) and that they experience a gap between theory and practice in their education. The purpose of this study was to provide more knowledge about the theory – practice relations in the context of the practicum aspect of PETE. Data were generated through focus group interviews with PETE students (n=37) from three different university colleges in Norway. The analysis and discussion of the data material were framed with the concept of practical synthesis (Grimen, 2008). The findings indicated that students experience theory and practice as fragmented, but that they have a differentiated understanding of what theory is. The analysis also suggests that for the students, university tutors occupy a rather distant role in the practicum, and that it is mostly left to the students to make connections between theory and practice.

Keywords: physical education, teacher education, practicum, theory and practice

*Theory and practice in the context of practicum. The perspectives of Norwegian
physical education student teachers*

The relationship between theory and practice has been referred to for more than two millennia (Aristotle, 1998; Dunne, 1993). Described as a challenge for teacher education over a century ago (Dewey, 1933), it continues to be an issue in the education of prospective teachers:

At the turn of the 21st century, this tension [i.e. the proper relationship between theory and practice] endures. ... On the one hand, to what extent does teaching and learning to teach depend on the development of theoretical knowledge and knowledge of subject matter? On the other hand, to what extent does it rely on the development of pedagogical method? ((Ball, 2000, p. 241)

The divide between subject matter and pedagogy is one of the ways in which various forms of teacher education are considered as fragmented. In addition, they are fragmented because they usually draw on knowledge from different theoretical disciplines (Grimen, 2008). In the education of prospective physical education (PE) teachers, the students are supposed to learn about highly varied subject matters such as physiology, pedagogy and gender theory. Given their different ontological, epistemological and methodological adherences, knowledge from these fields of study are difficult to fit into one coherent framework. Thus, professions like PE teachers draw on a heterogeneous knowledge base (Grimen, 2008).

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It is commonly reported that students' value the practicum¹ aspect of their education over the theoretical subjects taught in university colleges, and that they have difficulty seeing the relationship between these two contexts (Larsson, 2009; Mordal Moen, 2011; Smeby, 2010; Velija, Capel, Katene & Hayes, 2008). Spendlove, Howes and Wake (2010) suggest that the different roles of school and university 'represent a division of labour, which can be characterised as theory on the one hand, and practice on the other' (p. 66). More precisely, they describe theory and practice as belonging to separate worlds. In the context of physical education teacher education (PETE), Larsson (2009) found that both university tutors and student teachers took theory and practice to be two distinct areas of the education. This distinction corresponded to theory being viewed as reading books while practice was related to doing physical activities. Velija, Capel, Katene and Hayes (2008) also observed that PE student teachers in England experienced a separation between practicum and the university elements of the teacher education programme. Furthermore, the study found that student teachers have to link the practicum and theory parts together themselves, and 'when this fails, they tend to accept the ideologies of those whose knowledge they value and which will help them get by: school-based mentors' (pp. 403-404).

Realizing the theory–practice gap in PETE, some studies have investigated the effect of implementing for example peer coaching and peer-reflection in practicum context

¹ By practicum we mean the time that student teachers spend in schools doing teaching or observing the teaching of others. In this paper we do not work with a given definition of the concepts theory and practice, because we wanted to investigate how these concepts are understood by the student teachers. However, our understanding of the concepts are informed by Pierre Bourdieu (1990), who held that the essential distinction between theory and practice is that the theoretical point of view is characterized by a withdrawal from the urgencies and necessities of practical life.

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(Jenkins, Garn & Jenkins, 2005; Lamb, Lane & Aldous, 2012; Ovens, 2004). In general, these studies show positive results in increasing the students' level of theorizing and in terms of improving the students' levels of reflexivity (i.e. their ability to think critically about their actions and the consequences of these actions) (Lamb, et al., 2012). Others have evaluated the impact of a specially designed programme for cooperating teachers in practicum on student teachers' practice experiences and found that the student teachers experienced practicum as a learning site for the future rather than just solving day-to-day problems in the present (Dunning, Meegan, Woods & Belton, 2011).

However, even though the practicum aspect of PETE has been an object of investigation over several decades (Belton, Woods, Dunning & Meegan, 2010; Chambers & Armour, 2012; Hyes-Dusel, 1999; Jenkins, Garn & Jenkins, 2005; Kahan, Sinclair, Saucier & Caiozzi, 2003; McNeill, Fry, Wright, Tan, Tan & Schempp, 2004; Sirna, Tinning & Rossi, 2008; Tjeerdsma, 1998), few studies have undertaken in-depth research on how student teachers experience the theory–practice relationship in the context of practicum in PETE. Thus, the purpose of the present study was to provide more knowledge about the theory–practice relations in the context of the practicum part of PETE. The specific research question was “how do future PE teachers perceive the relation between theory and practice in the context of practicum?”

Context: PETE in Norway

In the academic year 2011/2012, when this study was undertaken, there were three different educational routes to become a PE teacher in Norway. One was to take 30 or

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60 credits PE as a part of General teacher education (GTE). Another route was to take a Bachelor in PE and Sports (BAPE), a three-year course studying PE full-time. The third route to graduate as a PE teacher in Norway, was to take a Bachelor degree in sport sciences, for example, sports, friluftsliv (outdoor education) or physical activity and health, and then complete a one-year (60 credits) programme in Pedagogical-didactical education (PDE) qualification on top. All three routes into PE teaching were grounded on national curricula (Utdannings- og forskningsdepartementet [henceforth: UFD], 2003a, b; 2010).

The national curricula state that the plan for practicum must formalize the respective responsibilities of teacher educators, student teachers and practicum schools in terms of planning, implementing and discussing experiences from practicum. The practicum period makes up approximately 10% of the BAPE programme, 13% of the GTE programme, and 33 % of PDE. The rather large difference in percentage between PDE and the other two programmes is explained by the fact that whereas in BAPE and GTE, practicum is spread over several years, all practicum takes place within the course of one year in the PDE. The national curricula (UFD, 2003a, b; 2010) state that during practicum student teachers' are supposed to meet the claims and challenges that one expects a teacher to experience in everyday life.

Practical synthesis

As indicated above, teacher education is often experienced by students as fragmented in the sense that the context of practicum and the context of university colleges are seen

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as separate worlds (e.g. Larsson, 2009). Grimen's concept of 'practical synthesis' provides a lens through which we can make sense of the students' experiences and statements about the relation between theory and practice and the (lack or degree of) integration of these two parts of their PETE programme. According to Grimen, the knowledge base of a profession can be analysed along three dimensions: the degree of heterogeneity, the degree to which it has the character of integration or fragmentation, and the kind of synthesis required for professionals to make sense of their knowledge base.

In the first dimension, a knowledge base is characterized by homogeneity if the elements that make up the knowledge base are from the same scientific discipline. It would be fair to argue that the knowledge base of the PE profession is heterogeneous, since PETE draws on knowledge from fields of study as different as physiology, sociology, and pedagogy in a way that is radically different compared to for instance physics. In addition, Grimen (2008) points out that the knowledge base of professions that deal with clients (like pupils) will be heterogeneous, because it must take into account the various disciplines that deal with understanding or explaining human behaviour. In teacher education this is manifested through the distinction between subject matter knowledge and pedagogical knowledge (Ball, 2000).

Furthermore, Grimen argues that a profession's knowledge base is fragmented when it is made up of units that do not belong to a coherent and logical system. To take an example: when students in PETE learn about gender as a biological category in physiology and as a socially constructed category in pedagogy, they may experience

fragmentation, because the logical underpinning of these two perspectives is not necessarily consistent. Indeed, one might even argue that the two perspectives are in contention.

Finally, Grimen claims that in order to make meaning out of the bits and pieces of their knowledge base, practitioners must synthesise the various elements. In a practical synthesis ‘different pieces of knowledge are linked together in certain ways because they make up meaningful elements of a professional practice’ (p. 74. Our translation). That is, syntheses of both theoretical and practical kinds answer to the question about what create unity or sense of coherence in a profession. In sum, the three characteristics of professional knowledge bases correspond to three questions: ‘Where do the elements of the knowledge bases come from ?... How strongly are the constituent elements of the various knowledge bases connected? ... What creates unity in the knowledge base of a profession?’ (Grimen, 2008, p. 72. Our translation).

Grimen takes care to point out that the relations between theory and practice are multifaceted and complex. He does not subscribe to a concept of the theory – practice relation where theory is supposed to guide practice (e.g. as found in evidence-based practice). Neither does he believe that theoretical knowledge is subsumed by practical knowledge, because this makes practice immune to critique from theoretical perspectives. In relation to the present study, a main point is that the knowledge base of a profession such as being a PE teacher is an amalgam of theoretical insights from different fields, coupled with practical skills and context sensitive understanding. For the present purpose, Grimen’s notion of practical syntheses is relevant because it can

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shed light on the learning process of student teachers in practicum. More specifically, it allows us to analyse and discuss the students' viewpoints on how the relationship between theory and practice is experienced in the context of practicum.

Method

To investigate the research question outlined above, this study employed focus group research (Malterud, 2012). This methodological approach was chosen because we wanted to explore the participants' perceptions and viewpoints concerning the practicum in PETE. As compared to individual interviews, focus groups allow for a moderated interaction between research participants and thus enable a variety of viewpoints on the discussion topics to emerge (Kvale & Brinkman, 2009).

The data on which this article is based is drawn from a larger study, which investigates the practicum part of PETE at three institutions in Norway. More specifically, the overall study has investigated the perceptions, experiences and viewpoints that the teacher educators, mentor teachers and student teachers held on the practicum part of PETE. By way of first analysing the three groups as independent cases and then later perform a cross-case analysis of all groups, our overall aim is to explore and understand the nature and purpose of the practicum, and to explicate the convergent and divergent perceptions of the three key players in PETE. In this article, it is the data from interviews with the students that are analyzed.

Participants and interview procedure

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Three different university colleges (UC) (called UC 1, 2 and 3 for anonymity) were enrolled in the study. They were selected because they all provided two out of three different routes to become a PE teacher in Norway in the academic year of 2011-2012. 6 focus groups, 2 at each institution, were conducted and a total of 37 students participated. Table 1 outlines the distribution of students between the different UCs and the study program they followed.

- INSERT TABLE 1 -

Each of the UCs provided us with a list of students. We followed criterion sampling (Patton, 2002) in the sense that all students in the respective programmes were invited to participate in the study. Among those who agreed to take part, a random selection of 8 participants was asked to attend the group interview. The number of students who eventually took part in the focus group varied from 8 to 4 with an average of 6 participants. This is in line with what Malterud (2012) suggests as an appropriate focus group size. The majority of male participants in the study was not intended, but it is a reflection of the gender balance in PETE in general.

The focus group interviews were semi-structured and revolved around an interview guide with two key themes; namely (i) the student teachers' ideas and ways of viewing PE and PETE in general and (ii) their viewpoints and experiences regarding practicum in PETE. These themes were supported with sub-questions, such as:

- What do you see as important parts of your future role as a PE teacher?
- What do you see as the most important aims and purposes of PETE?

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- What do you see as the most important aims and purposes of the practicum in PETE?

One researcher in the group conducted five of the six interviews, while one interview was conducted by another member of the group. The interviews took place in a quiet classroom or meeting room, and were audio taped with the student teachers' oral consent. The interviews lasted between 1 hour and 1 hour and 20 minutes, and began with the interviewer giving a brief, standardized explanation of the nature of the research. In line with the requirements of Norwegian Social Science Data Services (NSD), all participants signed a consent form where they agreed to participate in the study given that the information given from them could be used in publications by the research group if anonymized.

Analysis and trustworthiness

The interviews were transcribed verbatim and subjected to an explorative thematic analysis (Kvale & Brinkman, 2009). The analysis was performed jointly by the three researchers in the group. In line with what MacQueen, McLellan, Kay and Milstein (1998) suggest as appropriate when researchers do team-based qualitative research, the research group independently read the transcripts and met on several occasions to discuss emergent themes in the interviews in order to decide on a tentative categorization for the main analysis.

In the first step of the analysis the researchers independently performed a meaning condensation (Kvale & Brinkman, 2009) of two randomly selected interviews before we

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met to agree upon a set of initial categories. The next step was to read and analyse all six interviews utilizing the agreed categories from the initial analyses. In this process, we discussed and compared our individual analyses, which lead to a refined set of categories, corresponding to the headings in the next section (i.e. *A very practical theory* and *The use of practicum experiences*). Thus, these headings were generated abductively (Fangen, 2009), i.e. a process where a joint discussion of theory and empirical material guided us towards the realization of these categories. In the final part of the analysing process we discussed what quotations could best guide the story revealed from the analyses. The findings presented in the next section correspond to what Fangen (2009) calls an interpretation of the first degree, where we have tried to render the students' expressions in their own words, but adding our analytical categories. In the ensuing discussion, we aim to perform an interpretation of the second degree (ibid.), where we discuss the meanings and implications of the findings in light of previous research and the theoretical framework.

In terms of securing the trustworthiness of the study, our use of investigator triangulation (Brantlinger, 2005) strengthens the credibility of the study. Also, in all stages of the analysis process, we looked for disconfirming evidence (ibid.), where we tried to find statements that contradicted or nuanced the categories we worked with. On the other hand, triangulation of methods would have improved the results we present here. For instance, we believe that future research should also use some form of participant observation to make further sense of students' perception of the practicum.

Findings

In the following section we will present the student teachers' perceptions of the relation between theory and practice in the context of practicum. One clear finding from this project was that the way practicum was organized, varied greatly both within and between the three UCs. For example, both the requirements put on the students, as well as the opportunities for learning (e.g. having responsibility for teaching) seemed to be left more or less to chance. Thus, it made little sense to make comparison between the three different programmes or between the three UCs. Instead, we present and discuss our findings broadly, as pertaining to PETE more generally.

A very practical theory

One of the purposes of the interviews was to find out how the student teachers understood the relation between the educational programme provided on campus and the practicum parts of their PETE. However, instead of merely setting theory and practice against each other, as separate worlds, our analysis suggested that the student teachers had a faceted understanding of what theory was, and that their experience was that they could not have managed the practicum without the theoretical preparations they made at the UC.

Discussing the nature and purpose of theory in PETE elicited a variety of responses. For one thing, theory was thought of as those issues that must be explained to pupils before an activity can be initiated: 'If you teach volleyball, for example, you have to explain how the game is played. That can be theoretical, if you begin the lesson with

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talking about how you [perform the different techniques]' (GTE-UC1). Using a similar example another student said that '...so this is a very practical theory' (GTE-UC3).

A second form of theory that came up in the interviews was pedagogy. For some of the students, pedagogy was considered *philosophical* in the sense that it was experienced as abstract and removed from the realities of practice. Talking about pedagogy, one of the students referred to it as 'what I call philosophical theories of learning' (PDE-UC1). Others referred to this as 'very old theories... that we learn about just because they were there once upon a time' (PDE-UC2).

Finally, the student teachers mentioned didactics as a third kind of theory: 'the sports are activity subjects where we learn how to perform [the skills], then we get pedagogy to learn how to plan a lesson, and then we have didactics, which is a good mix' (BAPE-UC2). As this student alludes to, didactics involved a blend of the *how to* of sport and activity skills and pedagogical theories of teaching. Indeed, it was a clear finding in this study that the theory that the students valued the most was didactics. Those pedagogical theories that were not considered didactical were generally thought of as rather remote from the practice of teaching PE:

When I plan a PE lesson, I rarely think that 'now I am going to use a socio-cultural perspective on learning'. The pedagogical theories are left home at the desk. The theories [we] use are the didactical ones: how to plan and deliver [lessons] (PDE-UC1).

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In the discussion that followed this statement one of the other students objected that ‘you use the theories without thinking that you use them’. It was also heard in other interviews that the student teachers thought that theories were used, but not explicitly:

I believe we bring with us a lot of what we have learned in the theoretical subjects, but unconsciously... Because I can't say concretely what it is I do in practicum that I take from a theory I have learned about, but I feel that I have grown as a teacher. I think that is because I have a much broader theoretical background (BAPE-UC2).

Very rarely did the students mention other forms of theories than pedagogy, like for instance theories from the exercise sciences. Some of the students mentioned that their general impression was that they had to learn a lot of useless things in theory, like expressed by this student:

Some of what we learn in many of the subjects – there is no point for us to know, because we are not going to use it in school... An example is when we're learning about cells [in biology] and have to know the name of the different components of the cell. For my part, this is something I am never going to use in secondary school, because you don't teach any theoretical PE lessons there (GTE-UC3).

Indeed, it seemed that for the students, the usefulness of any theory presented in PETE was depending on whether it was experienced as relevant for the practicalities of teaching.

To some extent, the students' perception of the usefulness of a theory was based on a preconceived understanding of what a theory like pedagogy was all about. For instance,

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it appeared in several of the interviews that there were student teachers who believed that pedagogy had no relevance to the profession of teaching even if they admitted to have had missed out on most of the classes and read none of the syllabus in the subject.

The use of practicum experiences

The student teachers in our material clearly expressed a lack of integration between what went on in practicum and at the UC. To a large extent these were two separate worlds and it was for the most part left to the students to make sense of those connections that might exist between them.

In the student teachers' experiences, the mentor teachers' supervision was centred on the practicalities of teaching: 'Most commonly we focus on, and reflect upon the choice we have made in the lesson plan, and also the possible consequences this might have socially, for instance how we divide into groups' (GTE-UC1). The lesson plan was the central object for supervision, and the students expressed that they were rarely challenged on theoretical issues by the mentor teachers:

I don't feel that we have talked about [theory] at all... I don't know if the mentor teacher had thought about that at all. She might have had many theories at the back of her mind, but she never talked about it (PDE-UC2).

In fact, some students expressed that they wanted to get more challenges from the mentor teachers during the supervision. Thus, it appeared from our analysis that the mentor teachers did little to challenge the students' reflections beyond the immediate practicalities of the lessons they had planned. There are some exceptions where students were invited into a professional development group where the teachers at that school

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read and discussed literature like text book about teaching. However, for the most part it appeared that the students remained unchallenged about theoretical perspectives on their practicum experiences.

Similarly, students did not seem to be influenced by the university tutors who visited the practicum site. The purpose of these visits was not clear to students, and for the most part, the students did not seem to experience that the university tutors had any clear intentions with their visit in the direction of enhancing the student teachers' practicum learning. Indeed, many of the student teachers questioned the worth of the university tutors visits; 'I feel they visit only because they have to' (BAPE-UC 2). All-in-all, it seemed like many of the student teachers experienced the intentions of the visits of the university tutors were more about observing and controlling the practicum school, rather than assisting the student teachers in their learning processes.

The student teachers also reported that they were obliged to do some form of work tasks after practicum, such as writing reflective journals or taking part in group discussions. The way this was organized seemed to vary greatly between the UCs. Also, the degree to which the university tutors were committed to this work varied. Some students report that the tutors gave them reflection tasks to be discussed in groups of students.

We had one lesson after practicum where we talked about it, didn't we?

[confirmation from the others]. Then we talked about experiences from practicum.

Everyone raised the questions we had, but it was mostly individual situations that

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came up, where there is no text book answer. But at least it was open for questions (GTE-UC3).

The students also reported that they submitted log books and reflective journals after the practicum, but the degree to which this was experienced as an important and valuable process was questioned. Some mention that ‘the reflective journals force us to reflect a little beyond the particular situation we write about’ (PDE-UC1, whereas others reported that ‘we didn’t receive any feedback [on the reflective journal]’ (PDE-UC1)

When asked about what they thought would be the ideal way to work with the practicum experiences, several of the student teachers wanted their university tutors to know more about their experiences: ‘that the tutor knows about the most important things and the difficulties we have experienced, so they know what happened in practicum’ (PDE-UC2). The student teachers expressed that the university tutors seldom asked for and utilized the students’ practicum experiences in the teaching that took place at the UCs. If these experiences were asked for, this appeared to be unsystematic and something that was not truly an integral part of the tutors’ teaching strategy:

We have summed up practicum experiences, but it is more like the students sitting and summing up. The teacher is not always present... they organize it, but if they bring with them our experiences into their teaching – I don’t know much about whether that happens (PDE-UC2).

Another aspect of the students’ understanding of the relation between theory and practice came up when they were asked about what helped them in their reflections on their role as teachers, one group of students said that they used:

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Experiences, experiences from practicum. It is not that we have been sitting and reading in a book or been to lectures... It begins with the practical experience and then perhaps you are able to – ‘aha we learned about this theory in a lecture (BAPE-UC3).

As stated above, the students referred to some of the parts of pedagogy as abstract. In light of this, it seemed that students found it easier to understand pedagogical theories when they were aided by their own experiences. As another student commented: ‘I don’t think about the theory when I make the lesson plan, but the lesson [is understood] in light of the theory when I read theory’ (GTE-UC3). That is, the students seemed to find it easier to understand theory by utilizing experiences from practicum than using theory to understand practicum experiences.

Discussion

The research presented in this article has investigated student teachers’ understanding of theory and practice in the context of the practicum part of PETE. We have tried to show what the students’ perceptions of theory were, how they experienced the application of theories to the practicum, and how experiences from the practicum are worked with in cooperation with mentor teachers and university tutors respectively.

Contrary to previous research that paints a rather black and white picture claiming that practicum is about practice and teaching at the UCs about theory (Larsson, 2009; Smeby, 2010; Velija et al., 2008), this study shows that student teachers in PETE indeed do experience that theories learned at the UCs are useful and applicable in practicum.

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More specifically, we have identified a differentiated understanding of what theory is among the students. Students talk about theories in the sense of explanations of how to do the various skills they teach during practicum (e.g. volleyball techniques), didactical theories giving guidelines for how to plan and deliver the subject matter, pedagogical theories about learning, as well as other theories from for instance exercise sciences.

However, it is clear that there are certain forms of theories that are valued more than others. Didactical knowledge, which the students describe as the link between the ability to perform the skills they are teaching, and pedagogical principles for planning and delivering lessons, is clearly the most valued form of theory. This preference for didactics is a good example of what Grimen (2008) calls a practical synthesis, namely the process of making sense of the different elements of knowledge of a profession. The synthesis is driven by what the future practitioners understand as the requirements of the profession. Forming practical synthesis can be understood as a process that necessarily takes place when students in teacher education make sense of their future work tasks: ‘What is this occupation about?’

In the material we have analysed, it appears as the litmus test of any theory is whether the students see it as relevant for making practical syntheses, or in other words: whether a theory is experienced as helpful in relation to the demands posed by the practicum context. What the students in our material experience as the most pressing issue is to be able to handle the practical necessities of teaching, and for that purpose, didactics is helpful to make sense of the practicum situation.

Thus, an implication of our analysis is that the students see the PE teacher profession as primarily about delivering activity-based lessons. This is also well known from previous research (see, for example, Dowling, 2006; Larsson, 2009; Mordal Moen, 2011) that have identified PE students as active sports persons with strong sporting habituses. This attachment to sports, it is claimed, makes them develop a typical (and conservative) orientation towards PE as the teaching of “sport-techniques” (Kirk, 2010, p.41).

Previous research has suggested that student teachers in PETE are “resistant” to theory (Mordal Moen, 2012). Based on the findings in our study, this claim must be moderated. There are some students who outright reject the idea that theory can have practical relevance, not only for their future work as PE teachers, but also for their performance as student teachers in practicum. However, as mentioned there are some forms of theory the students appreciate and see as vital for their teaching performance in practicum, namely didactics. In addition, there are some students who also claim that what they see as more abstract forms of pedagogical theories (what they refer to as philosophical) have changed their approach to teaching. They are, however, not very specific about the nature of this influence and they seem to hold that these theories are only used in an implicit way. That is, these theories are – as the students say – present at the back of their minds, but not activated in the same way that didactical theories are.

Findings from our study, which echo earlier Norwegian studies on GTE (Terum & Heggen, 2010; Smeby, 2010) and PETE (Mordal Moen, 2011), as well as studies in other European countries (Chambers & Armour, 2012; Velija et al., 2008), show that

student teachers describe what happens in practicum and at campus as being part of two separate worlds. That is, the student teachers in our material perceive a fragmentation in the sense that the experiences they make and questions they are left with after the practicum are not to any sufficient degree thematized by the university tutors after the practicum. Also, they feel that they could be more challenged by their mentor teachers on theoretical aspects of the practicum. In light of the theoretical framework guiding this study, this implies that it is more or less left to the students themselves to make practical synthesis that integrate practical experiences with theoretical knowledge.

Implications for PETE: Practical synthesis

Our analysis suggests that when it is left to the students to make practical synthesis, these are driven by the immediate demands they experience in practice. Based on our research, we suggest that the students receive little help and support from university tutors and mentor teachers to create more elaborate and sophisticated syntheses. This is not to degrade what the students are able to do in order to make sense of the practice-theory gap that they face, but it is to suggest that there is a potential to activate theory in a higher degree than what seem to be the case in our material. For instance, recall the student who talked about the need to have knowledge about biology and cell-structure. The student said that his knowledge only needed to be one step ahead of what his pupils should know. This indicates that the meaning or usefulness of theory is to know just what is needed to teach pupils in the lessons, i.e. that theory is something learned in order to pass it on to the pupils. However, in the case of this particular example, theory from physiology could also be used by the students' to analyse and regulate the

intensity of the lesson. More generally, the point is that if students could be helped to understand that theoretical knowledge also can be activated to make sense of and analyse what takes place in their lessons when they teach, they would get a more sophisticated understanding of the place of theory in the practice of teaching (for experiments in this regard, see for example Lamb et al., 2012; Ovens, 2004).

The concept of practical synthesis can be a helpful tool to think with, both for students and university tutors, as well as for mentor teachers. The reason for this is that it helps in understanding that there is a certain relationship between theory and practice, i.e. that these are not issues of two separate worlds. Describing and analysing what the proper relationship between theory and practice is, is certainly beyond the scope of this paper. However, it is worth mentioning that when the metaphor for this relationship is 'gap', the obvious metaphorical solution to fix the problematic relationship would be to 'bridge' it (Kvernbekk, 2012). A central element of practical synthesis, however, is that it is not a concept that seeks to dissolve the problematic relationship between theory and practice (Grimen, 2008). Indeed, it is not something that is supposed to relieve a tension between theory and practice. Rather, it is precisely such experiences of a tension or difficulty in relation to a practical problem that forces students to make practical synthesis.

Thus, when we say that the students in our material receive little help in making practical synthesis, this is a call to university tutors and mentor teachers to consider how they, in their respective capacities can assist the students in the process of making practical synthesis. One issue raised in the findings is that the students would like to be

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challenged by their mentor teachers on theoretical issues of their practicum performance. This means creating practical synthesis by means of putting theory into practice. However, the students spend relatively little time in practicum. One of the main points we want to make here is that rather than seeing practicum as the only site where theory and practice can be synthesized, university tutors should consider how they can also put practice into theory. That is, how can students' concrete experiences from practicum be activated in the context of the UCs? This means that practical syntheses are not only created when applying theory to practice, but also when practicum experiences are used in the theoretical courses.

Concluding remarks

A limitation with the present study is that it relies only on students' reports from their practicum experiences. Though our impression is that students were both willing to share their experiences and credible, triangulation of more data sources would have been beneficial. Thus, we would recommend observational studies to complement interview data. Also, our study provides a snap-shot from the students' educational process. A longitudinal perspective on students' development throughout the education would be helpful to supplement the findings presented here.

In the context of PETE, theory and practice are sometimes regarded as belonging to the different spheres of university courses and practicum respectively. Our research has taken a more nuanced perspective on this dichotomy. By drawing on Grimen's (2008) notion of practical synthesis we have shown that it is more a matter of difference in

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degree than in kind. This article has also revealed that the students experience the university tutors as rather distant in the practicum. In the students' views, the university tutors do not engage themselves in the students' practicum experience, neither while the students are in practicum, nor afterwards. As we see it, there is a large potential for increasing the students' learning outcome if university tutors take more responsibility for bringing practicum experiences into their university courses. Thus, future studies of the relation between theory and practice in PETE should consider more action- or intervention-based research that aims to develop the relationship between the stakeholders in the practicum, i.e. creating relations between student teachers, mentor teachers and university tutors, relations that are more conducive to the activation of theory in the context of practicum, as well as the activation of practicum experiences in university courses.

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Table 1: Information about participants in the focus groups

Study programme	Institution	Female students	Male students	Progression in programme at the time of interview
GTE	UC 1	4	4	Finished half of the practica
GTE	UC 2	3	3	Finished $\frac{3}{4}$ of the practica
BAPE	UC 3	1	4	Finished all practica
BAPE	UC 2	2	4	Finished all practica
PDE	UC 1	2	6	Finished all practica
PDE	UC 3	0	4	Finished all practica
Total amount of students		12	25	