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Informal learning contexts in the construction of physical education student teachers' professional identity

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Abstract

This study aimed to investigate the significance of informal learning contexts in physical education (PE) student teachers' professional identity construction. It addressed two research questions: How do informal learning contexts contribute to the construction of PE student teachers' professional identity? What forms of relationships can be identified between the informal and formal contexts of learning in PE student teachers' professional identity construction? The data consisted of 20 semi-structured interviews with PE student teachers during the final teaching practice period. The data were analysed using structural and pattern coding methods. The analysis revealed that informal learning contexts contributed to three elements of professional identity construction: professional ambitions, professional values and principles, and professional knowledge and competencies. Three distinct forms of relationships between informal and formal learning contexts in the construction of professional identity were also discovered: complementary, reconstructive and disconnected. Informal learning contexts appear highly influential in the construction of professional identity. The results also point towards a holistic notion of professional identity, where professional and personal aspects of identity merge and overlap in the construction of professional identity.

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Professional identity, physical education teacher education, student teachers, physical education teachers, informal learning contexts

Introduction

Professional identity is a useful and popular concept in research on teachers' sense of their work and of themselves as teachers (Beauchamp and Thomas, 2009; Beijaard and Meijer, 2017; Beijaard et al., 2004; Day, 2018). It is also relevant because teachers' identities reflect on their work, for example, in their choice of pedagogies and content (Fernández-Balboa, 2001; Wrench and Garrett, 2012). The applicability of physical education (PE) teachers' professional identities to the contemporary school context has been questioned for being too traditional, embracing competition, and requiring a fit body and sport-oriented pedagogical views (e.g. Dowling, 2011). By contrast, today's school and PE contexts call for inclusion and acceptance of all kinds of students, regardless of their skills, learning ability, and motivation, and emphasise enjoyment, joy, and positive attitudes towards the body while also encouraging integration and cooperation among various school subjects (Finnish National Agency for Education, 2014).

A teacher's professional identity is a combination of personal, professional, individual, and social elements (e.g. Beauchamp and Thomas, 2009; Beijaard and Meijer, 2017; Beijaard et al., 2004; Day, 2018). Being a teacher is a holistic affair, where the presence of the personal in the professional is highlighted, and the personal and the professional are intertwined in the professional identity (Beijaard and Meijer, 2017). In a similar spirit, professional identity construction is not restricted to the formal contexts of teacher education but expands to all contexts that are meaningful in the lives of PE student teachers (Wrench, 2017). Such informal learning contexts include experiences that occur during teacher training but in contexts beyond the formal learning context of PE teacher education (PETE), such as work, student politics, travel, other studies, and coaching.

Scholars have recognised the significance of previous life experiences (informal learning contexts) and teacher education (formal learning contexts) in the construction of professional identities (Keating et al., 2017). However, the influence and significance of informal learning contexts on professional identity construction during teacher education are relatively unknown, and there is only limited research on this aspect of PE student teachers' professional identity. Thus, this study aimed to understand the significance and meaning of informal learning contexts in PE student teachers' professional identity construction during PETE. The purpose of this study was to explore PE student teachers' perceptions of how informal learning contexts contribute to the construction of PE student teachers' professional identity. We also attempted to reveal the forms of relationships between the informal and formal contexts of learning in PE student teachers' professional identity construction.

Teachers' professional identity construction

We refer to the process of becoming a teacher as constructing a professional identity (Eteläpelto et al., 2014). According to the current understanding, the nature of professional identity is simultaneously continuous and coherent, changing and dynamic, and individual yet social (Akkerman and Meijer, 2011; Beauchamp and Thomas, 2009; Beijaard and Meijer, 2017; Beijaard et al., 2004; Canrinus et al., 2011; Day, 2018; Eteläpelto et al., 2014). It incorporates, for example, the

individual's pedagogical values, beliefs, goals, and professional competencies and commitments (Beauchamp and Thomas, 2009; Beijaard and Meijer, 2017; Beijaard et al., 2004; Day, 2018; Eteläpelto et al., 2014).

Professional identity has been studied extensively. For example, researchers have recently examined professional identity among primary school teachers (Blackmore et al., 2018), subject teachers (Safari, 2018), and in early education (Trodd and Dickerson, 2019). The professional identity of PE teachers and student teachers has also been widely studied. During the past few years, studies have been conducted, for example, from the perspective of Occupational Socialisation Theory (see Richards and Templin, 2019) on curriculum design (Prior and Curtner-Smith, 2020a, 2020b) and socialisation into the occupation of PE teachers (Merrem and Curtner-Smith, 2019). From a Bourdieusian perspective, researchers have investigated PE teachers' positioning in staffroom politics (Christensen et al., 2018) and the effects of a critical pedagogy PETE programme (Philpot et al., 2021). There have also been efforts to develop a measuring instrument to enable quantitative studies on teacher identity (Liu and Keating, 2022).

Keating et al. (2017) reported only 14 empirical studies found on PE teachers' professional identity during the period 1990–2014. The number of studies on PETE and PE teachers' identity using the concept of professional identity applied in this study has steadily grown in recent years but is still sparse, especially in the Finnish PETE context.

Experiences prior to teacher education

In PE student teachers' professional identity construction, the impact of earlier experiences is crucial (Keating et al., 2017). Families and their values, participation in competitive sport, experiences of PE, PE teachers, and coaches in school are all influential in forming the beliefs and values of PE student teachers (Fletcher, 2012; Fletcher et al., 2013; González-Calvo et al., 2021; Wrench, 2017; Wrench and Garrett, 2015).

However, new PETE recruits entering teacher education with these already formed beliefs are not without their problems. Prior experiences have been reported to lead to narrow understandings of the nature of PE and PE teachers. These notions include the idea of an 'appropriate' PE teacher's body as slim, athletic, and skilled (Fletcher, 2012; Wrench and Garrett, 2015). They also include pedagogical views that favour sport, competition, and the acquisition of various motor skills (Fletcher et al., 2013; Wrench and Garrett, 2015).

These views can have an impact on PE student teachers' developing PE teacher identity, for example, regarding whether they see themselves as unfit (Fletcher, 2012) or fit for PETE and for teaching PE (Wrench and Garrett, 2015). Prior experiences have been reported to lead to polarised or negative self-images regarding PE and sport – that is, feelings of competence or non-competence (Fletcher, 2012; Fletcher et al., 2013; Garrett and Wrench, 2007). Strongly held religious (e.g. Christian) views can also conflict with PETE values during teacher education concerning, for example, sex education (Macdonald and Kirk, 1999). The question for PETE is whether it is capable of challenging the strong impact of biography and changing PETE recruits' already-established beliefs and notions of PE and themselves.

Teacher education

One goal of PETE is to help student teachers develop an initial idea of themselves as PE teachers – that is, a professional identity – upon completing PETE. Although the importance of teacher

education is widely acknowledged, studies have indicated conflicting findings regarding the role of PETE in PE teacher identity construction during the programme (Keating et al., 2017). Some studies have found that PETE can challenge and, to a degree, change PE student teachers' prior beliefs (i.e. affect their professional identity development) during teacher training (Fletcher, 2012; Fletcher et al., 2013; Melnychuk, 2001; Wrench and Garrett, 2012). Alternatively, researchers have noted that very little has changed regarding PE teacher identity and PETE in 30 or so years and that the role of PETE has been rather reproductive in nature (Dowling, 2011; Sirna et al., 2010).

Dowling (2011), for example, found PE student teachers' professional identity to be very traditional, embracing ideas of sport and performance instead of critical thinking, a larger educational agenda, and pedagogies that include all kinds of students regardless of their skills and motivation in PE. PE student teachers' professional identity seemed to be a continuum of earlier school experiences as competent PE students. Sirna et al. (2010) noticed that PE student teachers adopted the ideas, views, and norms (appropriate appearance of the PE teacher as slim and athletic, discourses that offend women) of the PETE community, for example, to gain acceptance of the campus PE group and be seen as 'real' PE teachers.

By contrast, Wrench and Garrett (2012) reported that PE student teachers in a sport- and performance-oriented PETE environment were able to construct identities embracing the need to include and connect – seeing themselves as 'different' and as a new breed of teachers engaging altered subjectivities and pedagogies while simultaneously being appropriately youthful and practical. PETE was also successful in challenging PE student teachers' negative beliefs and views of themselves as PE teachers and of the subject of PE and taking PE teacher identity in a positive direction: student PE teachers felt capable of teaching PE and saw no need to be athletic or to teach PE in the way that they were taught (Fletcher, 2012; Fletcher et al., 2013). Similar findings were also reported by Philpot et al. (2021). Melnychuk (2001) found that confronting the early experiences and professional beliefs of PETE made PE student teachers reflect on what kind of PE teachers they wanted to be. Confronting students' beliefs is seen as central to promoting professional identity change (Fletcher et al., 2013), but challenging PETE students' beliefs can result in personal and professional crises, possibly leading to resistance instead of a change in professional identity (Devís-Devís and Sparkes, 1999). Some scholars, however, regard crises as prerequisites for identity change (Meijer, 2011).

Crucial elements in supporting and changing professional identity in PETE seem to be PETE coursework, and particularly its diversity, inclusiveness, safe environment (Fletcher, 2012), reflection (Fletcher et al., 2013; González-Calvo and Fernández-Balboa, 2018; Melnychuk, 2001), and student agency (Wrench and Garrett, 2012). Keating et al. (2017) pointed out that PETE is unlikely to change PE teacher identity unless specific identity-related interventions are embedded in the programme. Previous studies have reported that central supportive elements of PETE in professional identity formation in general include practicum (Alves et al., 2012; Da Cunha et al., 2014) and social recognition from colleagues, instructors (Alves et al., 2012; Da Cunha et al., 2014; Sirna et al., 2010) and parents (González-Calvo and Fernández-Balboa, 2018). Furthermore, students' emotions reportedly play an important role in supporting and guiding the professional identity construction process (Alves et al., 2018).

The research on PE student teachers' professional identity suggests that this identity is dynamic and coherent, as well as continuous and changing (Melnychuk, 2001; Wrench, 2017; Wrench and Garrett, 2012), and that PETE students play an active role in its construction by exercising agency (Solmon et al., 1990; Wrench and Garrett, 2012). Wrench (2017) also noted that becoming a PE teacher is not a separate phase of life that occurs in a PETE vacuum, but that professional identity

is socially constructed and open to change and influence. These findings are all in line with observations made in general education (e.g. Akkerman and Meijer, 2011; Beijaard et al., 2004; Beauchamp and Thomas, 2009) regarding the nature of professional identity.

Studies on PE student teachers' professional identity suggest that while PETE has the potential to challenge and, to a degree, change PE student teachers' professional identity development, it is largely reproductive in nature. Yet, there is potential for change: professional identities are socially constructed in particular contexts, and those contexts, such as the quality and content of PETE and surrounding discourses, seem significant.

The overall picture and number of studies on PE student teachers' professional identity compared to other school subjects are limited and insufficient to fully understand the phenomenon of professional identity construction in PETE. The impact of experiences prior to and during PETE has been acknowledged; however, in line with the holistic notions of professional identity and teachers' work, the significance and meaning of experiences outside of PETE in professional identity construction during PETE are relatively unknown.

Aim

Professional identity has been studied widely in both general education and PETE. Research on the significance of informal contexts in the construction of PE student teachers' professional identity, especially the relationship between informal and formal contexts of learning, is still limited. This study aimed to investigate the significance and meaning of informal learning contexts in PE student teachers' professional identity construction during PETE. Accordingly, it addressed the following two research questions:

1. How do informal learning contexts contribute to the construction of PE student teachers' professional identity?
2. What forms of relationships can be identified between the informal and formal contexts of learning in PE student teachers' professional identity construction?

Methods

Research context

Education system in Finland. The Finnish education system has been highly successful and appreciated, both nationally and internationally (Kosunen et al., 2020; Simola et al., 2017). Its central features have been the teachers' high level of education (mandatory graduate programme) and the basic idea that all teaching should be based on research. The training of both school teachers and subject teachers was transferred to universities from local seminars in the 1960s to 1970s. Since 1979, a master's degree has been mandatory for all Finnish teachers (Simola et al., 2015).

The school system was heavily modified in the 1990s and the inspection system (e.g. detailed national curricula, school inspection, officially approved teaching materials) was put to an end. A great degree of autonomy was allowed both to the municipalities who organised the teaching and to individual teachers, thus creating a so-called culture of trust. Only one standardised test remained at the end of upper-secondary school, namely the matriculation examination (Simola et al., 2015).

The Finnish school system is funded by the government, and there are very few private schools. There has been little competition between schools, with school rankings not widely implemented.

Children attend their 'local school', and learning outcomes have been very similar throughout the nation (Kosunen et al., 2020).

PETE. The general appreciation of the teaching profession has been reflected in PETE entrance examinations, which require a high standard; thus, in recent years, approximately 3%–8% of applicants have been accepted annually (Kalaja, 2012). The entrance examination includes a written test that measures academic skills, tests of motor abilities, and a micro-teaching situation. The current legislation does not enforce gendered teaching groups, but there are annual quotas for female and male students.

For several years, it has been a national policy in Finland to enable people with various degrees to apply for university-level studies (no dead-end study paths). The regular path to becoming a qualified PE teacher in Finland is to apply for a 5-year degree, which is divided into undergraduate (years 1–3) and graduate programmes (years 4–5). The degree qualifies candidates to teach PE in elementary and secondary schools. There are also certain lower-level degrees in sport that enable a straight application to the graduate programme. Further, students in any university graduate programme that qualify for teaching, and post-graduates from such programmes can apply for minor studies in sport pedagogy, which then qualifies them to also teach PE.

The PE course includes pedagogical studies, language, and communication studies, health education or another minor subject, skills in different sports, teaching practice, and a master's thesis. Teaching practice is part of the Finnish PETE coursework throughout the programme. During the undergraduate programme (years 1–3), students take courses that familiarise them with PE teachers' work and teaching in school contexts via a combination of written assignments, observations, and practice teaching in small groups. In total, teaching practice constitutes 10 to 20 hours, and it varies annually depending on groups and schools. The master's programme (years 4–5) encompasses a range of courses in sport, including individual practice teaching lessons. It also includes more extensive teaching practice (15 European Credit Transfer and Accumulation System (ECTS) credits, approximately 35–45 hours of individual teaching) that is divided into three periods, which take place in different school contexts and at different levels (e.g. lower, upper-secondary, vocational, and high schools).

Data collection and interviewees

The research participants were 20 PE student teachers (12 women, 8 men) conducting their final teaching practice within a master's degree programme in PE at a university in Finland. During the selection process, 50 PE student teachers attending their final teaching practice were introduced to the research agenda at the opening event of the spring semester. The first author explained the aim, purpose, and ethical principles of the study and asked for volunteers. The interviewees were informed that participation in this study was voluntary and that they could cancel their participation at any time. The data were not to be used outside the research group, and the research participants would remain anonymous throughout the research process. Pseudonyms were used in reporting the data. 20 of the 50 student teachers volunteered to participate in the study. The first author later contacted these students by email to arrange semi-structured interviews (see e.g. Brinkmann and Kvale, 2015), which are a widely used method of enquiry in studying professional identity.

The individual interviews lasted between approximately 40 minutes and 2 hours, for a total of 21 hours. The interview questions were based on the concept of professional identity and varied

from open-ended to more focused. The questions covered various themes, such as personal and professional history, the aims and basic principles of teaching (e.g. values and goals), gender and the body in teaching PE, influential experiences during teacher training, and future career aspirations. These themes were intended to be exploratory in nature; thus, it was anticipated that either they would be modified or that new themes would emerge during the course of the interviews and analysis (see the 'Data analysis' section). The first author, an experienced PE teacher but not part of the PETE staff, conducted the interviews. The interviewer's and interviewees' similar backgrounds provided a good basis for casual interaction and made it easy for the researcher to relate to and understand the views of the students. The interviews were conducted in neutral locations, such as student study rooms in the university library, and the interview situation was informal and conversation-like. Notably, despite the pre-planned themes, the agenda was to pursue any matters of interest that emerged during the interview. This study adhered to the national ethical guidelines of the Finnish National Board on Research Integrity (2009).

Data analysis

The data consisted of interviews transcribed verbatim by the first author (360 pages; Times New Roman 12-pt font, 1.5 spacing). The data analysis methods were first- and second-cycle coding methods outlined by Saldaña (2016), specifically structural coding and pattern coding.

During the structural coding phase (first cycle), the data were coded according to the overall research question: the meaning of experiences outside of PETE in the construction of PE student teachers' professional identity. The data extracts dealing with identity construction and experiences in informal contexts during PETE were separated, and their content and meaning were condensed at the sentence level (e.g. '"easy" job experience leads one to realise the need for more responsibility').

During the pattern coding phase (second cycle), the coded extracts were divided into sets and prospective themes, such as 'finding educational goals and values'. The content of each theme was then further elaborated on and cross-checked for internal coherence. In this stage, the content of the prospective themes was found at two levels: some dealt with the 'content' of professional identity (e.g. professional knowledge or pedagogical values), whereas others dealt with the relationship between experiences outside of PETE/informal learning contexts and formal learning contexts/within PETE in professional identity construction. The significance and content of each theme were then further refined, and the research questions were re-formulated accordingly. Although the first author identified the content of the prospective themes, the research team applied researcher triangulation (Cohen et al., 2007). The interpretations of the data were discussed in the research group during the analysis process and possible ambiguities were resolved.

Findings

When asked about significant experiences in constructing professional identity, the PE student teachers often referred to experiences outside of the formal learning contexts of PETE – that is, informal learning contexts. The analysis revealed that informal learning contexts contributed to three different elements of professional identity construction (RQ1). We also identified three distinct forms of relationships between informal and formal contexts of learning in PE student teachers' professional identity construction (RQ2).

Contribution of informal learning contexts to professional identity construction (RQ1)

Professional ambitions. Experiences outside of teacher training provided the student teachers with insights into their professional ambitions, abilities, and competencies, which were then reflected against the experiences in PETE and possible future PE teachers' work.

Kelly had consciously sought 'less challenging' work during her studies, but soon found it unsatisfactory; she needed her future work to be more challenging:

> For the first time in my life, I had a boring job. I had always been involved with young people—coaching, instructing, and having a lot of responsibility—and I felt it was getting heavy. And I remember thinking, if only I had a job like selling something in a store or something. And it was cool that I got to experience that, but after a month, I was already thinking that, actually, it is the responsibility that I really enjoy. (Kelly)

Nelly stated that she always wanted to become a PE teacher. However, participating in international student politics had made her reconsider her lifelong desire to be a PE teacher: she felt that the work of a PE teacher no longer provided enough of a challenge or allowed her to use all of her skills and abilities. Nevertheless, she was able to reconstruct her professional identity on the basis of PETE studies, relying on aspects of her developing PE teacher identity that were applicable in the new work environment: 'I've always wanted to be a PE teacher, but it has changed. It just doesn't feel like it's enough anymore. I can do a whole lot of other things as well' (Nelly).

Another aspect describing the significance of experiences outside of PETE in the construction of professional identity was that pursuing personal interests outside of PETE could also strengthen PE teachers' identity and commitment to PE teachers' work. In the very early stages of PETE, Mia disagreed with the content and ideas of PETE to the extent that she felt she no longer wanted to be a PE teacher. She felt that PETE could not answer her questions or satisfy her interests relating to movement and body concepts; thus, she spent several years pursuing these questions. After studying and learning what she considered important, she was able to resume PETE and consider the possibility of working as a PE teacher and doing the work required in the PE curricula: 'I found it helpful to have an experience of something that resonated with me, and also of something that didn't, and when you have these two different perspectives, it is easier to teach that hockey, if needed' (Mia).

Professional values and principles. The second contribution of experiences outside of PETE to professional identity construction concerned pedagogical values, principles, and goals. Experiences outside of PETE helped in clarifying and 'finding' professional values and goals that were in line with the student teachers' personal values and principles.

Dan repeatedly referred to a one-year-long outdoor course that he felt had a significant impact on his developing professional identity. He felt that his professional identity had significantly changed during PETE studies: the focus had changed from himself, performance, and learning skills to the students and their well-being, growth, and learning:

> So they've become clearer, my goals as a PE teacher, what is important, and what I want to pass along. Sporting skills are important and great things, but if I don't have educational goals, it kind of feels empty. If my only goal is that everyone learns a somersault, then I can do a lot of damage, you know. But if you realise that their growth and development as human beings is my responsibility, that I'm kind of like their servant, then it makes more sense. (Dan)

He mentioned the following event as an example of this change: during a several-day excursion, Dan's instructor-initiated goals and ideas about the trip conflicted with what the young participants regarded as important and led to a re-consideration and discovery of 'new', more student-centred pedagogical principles and goals:

> During this course, I gained many new insights into teaching. One time, we were in the woods with a youth group, and I was full of great ideas, since I'd done a lot of that and knew all the tricks. But once we got there, we just did basic stuff: chopped wood, made fire, boiled water… nothing fancy by my standards. But the kids thought it was great and loved it. (Dan)

Mia's experiences outside of teacher education offered new insights into her perception of leadership: 'Well, to me, the most important things have happened outside the university, like when I took this training where they had really interesting ideas about leadership' (Mia).

Professional knowledge and competencies. Experiences outside of PETE were also relevant in acquiring professional competency and appropriate knowledge for a PE teacher's professional identity. In these environments, they were introduced to new ways of moving and thinking about movement and pedagogy. They reported learning skills and techniques that were not available in PETE:

> Well, I started thinking about what is relevant in movement and in being in my own body, and I felt that teacher education couldn't answer these questions. That's why I left [teacher education] and took this training, and there I felt I was able to explore movement and understand what's going on in my body when I move. (Christina)

The student teachers also felt that through outside experiences, they were introduced to new kinds of pedagogical and didactic approaches and solutions that broadened their thinking and encouraged experimenting with different pedagogical solutions. Cindy described understanding the value of failure in learning movement skills, particularly getting over failures and potential subsequent shame:

> For some time now, I've had this 'philosophy of making mistakes' that, when you make a mistake, the first reaction is to be embarrassed, but when you get over it and it becomes a routine, then you kind of figure something new out of it and it becomes an innovation. (Cindy)

Furthermore, the experiences outside PETE added to their professional understanding by helping them realise the position of PE as a subject in the Finnish education system and school micropolitics. Luke discussed his involvement with the student union and subject association and explained how working with student teachers of other school subjects had made him realise the relatively marginal position of PE in the Finnish education system compared to other subjects:

> It's easy to lose perspective here, you know, because I was in a sports high school, and after that in the 'athlete troops' during military service, and now here in PE teacher education. So participating in student politics has really opened my eyes, because PE, after all, is a bit marginal if you look at the big picture in school. So, I've learned a lot about being a PE teacher there. (Luke)

Experiences outside PETE also helped PE student teachers become aware of the socially constructed and cultural nature of the subject of PE and its content. Steven shared his experience of

an exchange programme abroad and was somewhat frustrated because what he had learned, such as teaching practice abroad, was not acknowledged as part of PE studies in Finland (e.g. credits in teaching practice). He would also have liked to have been able to share his ideas and learn from other cultures through PE exchange students in Finland, but this was not possible due to the course structure, which does not integrate foreign exchange students into the national coursework of PETE.

He described the situation as living in a small, sporty bubble consisting of friends, hobbies, and a study environment. Studying abroad had 'burst the bubble' and enabled him to see PE teachers' work and school from a broader perspective:

> We have these exchange students in our programme, but we don't have any contact with them. We're kind of kept in a small bubble, but to me, it would be really interesting to be able to talk to these students and learn how they do things in their home countries, and they could also learn from us. (Steven)

Forms of relationships between informal and formal learning contexts in professional identity construction (RQ2)

Complementary: teacher education and experiences outside of teacher education are an interactive part of professional identity construction. The first form of the relationship between experiences outside PETE in the data was positive. Comparing experiences outside of PETE with those within PETE and vice versa enabled a positive cycle that contributed to the construction of professional identity:

> One of the biggest influences must have been the year taken off from PE teacher studies. It really kind of woke me up [doing substitute teacher work] and made me realise what's important in teaching. After this experience, I had a totally new perspective on studying, and I knew what I was good at and what needed to be learned. (Peter)

This positive relationship between PETE and experiences outside of PETE in professional identity construction was further demonstrated by the overlapping and merging of PE students' personal and professional identities. General life experiences, such as experiences of independence and being away from home and family in a foreign environment, were seen as important to the construction of their (personal) identity. The strengthening of their personal identity was also seen as important in the construction of their professional identity:

> There have been quite a lot of different experiences that I feel have had an effect on me as a person and on my values, such as being abroad and becoming more independent, and being kind of forced to take more responsibility for my life. So that's how you learn about yourself and have new perspectives. (Michael)

In this form of relationship, the process of constructing professional identity was open to influence and learning, and both formal and informal learning contexts were regarded as valuable to the construction of professional identity.

Reconstructive: informal learning contexts challenge persistent beliefs about teaching. There were instances when PE student teachers' ideas about being a PE teacher – in other words, their professional identity – remained fairly steadfast and resistant to change. Furthermore, PETE did

not seem to play a major role in their professional identity construction. However, experiences outside of PETE (informal learning contexts) demonstrated the possibility of challenging already formed beliefs and ideas and integrating PETE into their professional identity construction. This was evident in Laura's description of her professional identity construction process. She had entered PETE with a strong background in coaching and sport and a family of many teachers. To her, the ideas and beliefs about teaching PE seemed firmly established, and the contribution of PETE to the construction of her professional identity remained shallow (e.g. learning techniques in different sports):

> I didn't find teaching very challenging, and I used to think my way of working was the best. Other methods might work for others, but they were not for me. Beginner's overconfidence, in retrospect. (Laura)

Laura thought the work of a PE teacher was easy, and as she received good marks (PETE) and feedback (substitute teaching) despite her minimal preparation, she felt no need to change anything:

> To be honest, when I was working there [as a substitute PE teacher], I really didn't have to plan anything ahead except for the health education lessons. Despite that, everybody liked my lessons, and I received good feedback from the principal and the pupils. (Laura)

Then, a crisis that she experienced in her coaching work made her realise the need for improvement and learning as a PE teacher, as well as learning from PETE. This experience outside of PETE enabled her to integrate PETE into her professional identity construction, allowing it to contribute to the further development of her professional identity during PETE:

> I feel the coaching work [during PE teacher studies] taught me so much, but it also exhausted me—all the responsibilities that I had—and I think it was then that I realised I'm not capable of doing everything. And now I can admit that I don't have all the answers, but that you can always learn more. (Laura)

Hence, during the final teaching practice stage, she felt that she was also able to learn from the theoretical content of PETE:

> I've been able to enjoy even the lectures, which I would have never believed. Especially those classes on teacher–student interaction, I feel I've learned so much more than before. (Laura)

Disconnected: informal learning contexts create a stagnant professional identity. The strong influence of experiences outside of PETE could also result in a firmly established professional identity and the exclusion of PETE from the process of constructing this identity. We can see this in the following description of professional identity construction.

Extensive experience as a substitute PE teacher gained during years taken off from PETE studies enabled Philip to establish an idea of what being a PE teacher was about. The practical work of teaching PE was the learning context in the professional identity construction process, offering the necessary ingredients for his professional identity. When re-entering PETE, teacher training seemed to offer few new insights into PE teachers' work:

> I don't think I learned that much here [in teacher education] until I had this work period. And after coming back to the studies, I have to say, I haven't learned a great deal more. It was pretty much the two years I spent as a substitute teacher that made me think. (Philip)

When the interviewer remarked on this, Philip demonstrated an awareness of the situation and explained having tried his best to learn new things in this situation with few results. He performed the necessary tasks but remained unchallenged and unchanged. He did not exactly disagree with PETE but did not feel as if he was learning anything:

> I've been feeling a bit detached during the final practice. All the written assignments and everything, they kind of challenge you, but in the end, I have to say, I pretty much have a clear picture already, and there hasn't really been anything new. (Philip)

Thus, PETE was unable to challenge Philip's existing ideas about teaching PE. Despite his efforts, the PE student teacher felt unable to learn anything new.

Discussion

In this paper, we have investigated the significance of informal learning contexts in the construction of PE student teachers' professional identity. The analysis revealed that informal learning contexts contributed to three different elements of professional identity construction (RQ1). It also revealed three distinct forms of relationships between informal and formal learning contexts in PE student teachers' professional identity construction (RQ2).

Regarding RQ1, the three elements of professional identity were professional ambitions, professional values and principles, and professional knowledge and competencies. Informal learning contexts seemed to promote self-knowledge by helping student teachers identify their strengths, weaknesses, and occupational ambitions and desires, thereby affecting their willingness to pursue a career in teaching PE. According to Hong et al. (2017), various I-positions (sub-identities) within professional identity are in constant movement, and over time, some can assume a more central position in professional identity than others.

We consider this clarification of professional interests and ambitions to be a positive matter, regardless of the student teachers' commitment to teaching PE. From the PETE point of view, it is regrettable if many prospective PE teachers choose not to pursue this profession. From the individual student teacher's perspective, however, the most important issue would probably be finding a meaningful professional direction. Nevertheless, the main purpose of teacher education is to train teachers; thus, the recruitment process for PETE is central to avoiding spending resources on student teachers who do not wish to become PE teachers (see Murray et al., 2019).

The manner of 'finding' education values through experiences outside of PETE described in the Findings section is quite similar to what Meijer et al. (2011) outlined. In their study, the learning or development of professional identity was not seen as gradual and steady but as a trajectory with 'ups and downs', defining moments and 'key experiences', which had long-term effects on students' lives. However, we do not believe that these defining moments or 'key experiences' come out of nowhere. Rather, they are part of a gradual and slow process that becomes visible through these experiences.

Informal learning contexts were also reported to be relevant in terms of learning new skills and ways of thinking about teaching PE. Learning naturally occurs in all areas of life, and PE teachers'

profession, in particular, is an occupation where their general life and sport-related experiences, skills, and knowledge prior to starting teacher education are valuable. PETE naturally cannot provide answers to all of the PE students' questions, but it would seem logical to assume that the more diverse the PETE programme, the less there is a need to seek answers outside of PETE.

Regarding the understanding of the status and nature of PE in the education system, PE marginality (e.g. PE teachers feeling isolated and underappreciated, having no resources) is well acknowledged (Richards et al., 2014). In Finland, however, this might occur to a lesser degree due to the general appreciation for the teaching profession and the professional standards requiring a master's degree for PE teachers (see Simola et al., 2017). Nevertheless, becoming aware of such matters early on during PETE would possibly ease the induction phase to school and relieve reality shock, potentially resulting in decreased attrition (cf. Richards and Templin, 2019).

Concerning RQ2, the analysis yielded three distinct forms of relationships (complementary, reconstructive, and disconnected) between the informal and formal contexts of learning in the construction of professional identity.

The *complementary* relationship between informal and formal contexts of learning in the process of constructing professional identity was positive. Informal learning contexts appeared to complement formal learning contexts in the construction of PE student teachers' professional identity. Reflecting on the experiences outside of PETE against those within PETE, and vice versa, enabled a positive cycle that contributed to the construction of professional identity. Indeed, the process of becoming a PE teacher – that is, the construction of PE teacher professional identity – is not limited to PETE but is a lifelong process encompassing all facets of life, including the life prior to entering PETE (Wrench, 2017). This interaction between general life experiences and PETE was also visible in a study by Wrench and Garrett (2012), in which PE student teachers drew from wider contexts than just PETE in constructing their PE teacher identity. The *complementary* relationship between informal and formal learning contexts can be seen as ideal from the PETE perspective (for a discussion on teacher education policy, see Murray et al., 2019). PETE remained central to professional identity construction but was supported by experiences in informal learning contexts. What PETE should do here is ensure that these experiences in informal contexts are recognised and integrated into PETE by providing arenas for discussion.

However, the role of informal learning contexts in the construction of professional identity was two-sided, simultaneously offering possibilities to integrate PETE into, and threatening to exclude PETE from, the construction of professional identity. This became evident in the last two forms of relationships, where the idea about being a PE teacher was fairly steadfast and resistant to change.

The *Reconstructive* relationship revealed the importance and potential of informal learning contexts in professional identity construction. Experiences outside of PETE were able to challenge persistent ideas and beliefs about teaching and integrate student teachers' professional identity construction into PETE, while PETE was unable to accomplish this task. This was demonstrated through the case of a PE student teacher (Laura) who had experienced a crisis in her life. This episode opened up the process of professional identity construction, enabling outside influence. According to Meijer (2011), a crisis is indeed a prerequisite for identity change in teacher education. This, we feel, is an extreme view, but it nevertheless calls for responsibility on behalf of teacher education. It is important that teacher education challenges the student teachers' identity, but it must also support and provide arenas for discussion if/when crises occur.

The *disconnected* relationship, informal learning contexts could become more important in professional identity construction than the formal learning contexts of PETE. The strong influence of experiences outside of teacher training resulted in persistent ideas about teaching and the exclusion

of PETE from professional identity construction. The PE student teacher in question (Philip) described his substituting experiences in school as quite rough and difficult, and he stated that he found his way there through trial and error. Thus, it is likely that he experienced the 'ups and downs' and 'crisis' (see Meijer, 2011) of PE teacher professional identity construction in the actual teaching work, leading to the development of a particular professional identity.

When the interviewer asked Philip about the matter, he showed awareness of the situation and explained that he had tried his best to learn new things in this situation, but with few results. The fact that he saw the whole PETE programme as useless points to his lack of desire to reconstruct his professional identity. Alternatively, the fact that he felt he had made an effort and suggested alternative assignments and approaches that would have been more relevant to his development as a PE teacher, considering his extensive experience in doing PE teachers' work, points to limitations in PETE. This poses a serious challenge for PETE in terms of influencing students' formation of beliefs about teaching and themselves as teachers (i.e. professional identity). Offering individualised courses, content, and assignments that take into consideration students' varying phases of professional identity construction could make a difference.

Overall, this study contributes to the research on professional identity construction by suggesting that informal learning contexts – that is, experiences outside of PETE – appear to be influential in constructing professional identity. On a conceptual level, the results point to a holistic notion of professional identity, in which personal and professional aspects are merged and constantly overlap in PE student teachers' professional identity. The results, thus, challenge the 'false distinction' between the personal and the professional, as do for example the studies of Hong et al. (2017) and Wrench (2017). Furthermore, the process of constructing professional identity is not limited to the confines of PETE or formal teacher education but extends to all kinds of meaningful contexts in the lives of PE student teachers (cf. Day, 2012; Hong et al., 2017; Wrench, 2017). This is further demonstrated through the tensions (Pillen et al., 2013), crises (Meijer, 2011), and dilemmas experienced (Hong et al., 2017) between the personal and professional aspects of their professional identity.

The PE student teachers in this study demonstrated a great degree of autonomy and agency in constructing their professional identity and bringing elements of the 'informal' to their developing professional identity. This may be an expected outcome of the Finnish education system (cf. Simola et al., 2017). What is contradictory, however, is that while these features are highlighted as integral parts of the Finnish education system, PETE sometimes failed to recognise and appreciate these qualities in PE students (e.g. failure to integrate students into PETE in various phases of their professional identity construction).

There are at least two possible explanations for this perspective. First, perhaps the historical strengths of the Finnish teacher education and educational system, namely the strong tradition of research-based teacher training, caused PETE to overlook the significance of the 'informal' in PETE studies and in becoming a teacher and constructing a professional identity. Second, the 'handbook' of Finnish PETE (Jaakkola et al., 2017) introduces numerous concepts relevant to becoming a PE teacher and teaching PE, such as planning and organising PE lessons, teaching, and learning various motor skills, teaching styles and social and emotional skills. However, there are no overarching concepts that would organise or make sense of the whole process of becoming a PE teacher (cf. Beijaard and Meijer, 2017). Our interpretation is that this lack of appropriate concepts and terminology combined with the culture of science-based teacher education has created a 'blind spot' and prevented the Finnish PETE from recognising and acknowledging the great impact of the 'informal' on professional identity construction and from integrating it into PETE studies.

Regarding pedagogical implications, we stress the need for PETE to recognise the holistic nature of professional identity and the importance of experiences outside of formal teacher training in the construction of professional identity. Thus, our pedagogical recommendation is to introduce an overarching concept, such as teacher identity, into Finnish PETE curricula to inform the process of professional development and learning (cf. Beijaard and Meijer, 2017). Introducing such a concept into the curricula would enable the recognition and acknowledgement of the 'informal' at various levels and stages of PETE and, thus, a better integration of theory and practice within PETE. It would also provide students a framework to make sense of themselves as PE teachers.

Moreover, we encourage PETE to support the construction of professional identity by simultaneously challenging PE student teachers' existing ideas and beliefs and answering students' many questions through versatile practical and theoretical studies in the main areas of PETE. We consider it crucial for PETE to identify individual student needs and stress flexibility at a structural level to offer meaningful challenges for students in various phases of their professional identity construction. In practice, this could mean, for example, more responsibility in teaching practices and appropriate or more demanding assignments integrating work experience and educational theory (cf. Elton-Chalcraft et al., 2020). This could all result in fewer years taken off from studies and prospective PE teachers with a professional identity that is better suited for meeting the challenges of contemporary schools.

Regarding the research limitations, it should be noted that only 20 out of the 50 students attending the final teaching practice course participated in the study. In fact, one must be cautious about generalising the findings, bearing in mind that the contexts of PETE vary internationally. Nevertheless, the study allowed us to gain a deeper understanding of the significance of informal learning contexts in the construction of PE student teachers' professional identity. Future research should employ qualitative longitudinal studies to explore the professional identity of in-service PE teachers a few years after graduation. This would provide us with a deeper understanding of the professional identity construction that occurs during different phases of PE teachers' career trajectories.

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