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An Analytical Toolbox for Research on Reflection

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ABSTRACT
This article presents a theoretical approach and an analytical toolbox for researchers on reflections in PE and PETE. Its purpose is to provide an approach to analyzing how reflections are composed. Previous research mainly asks how teachers and student teachers (STs) reflect and use different theoretical concepts to describe the way in which they reflect. The use of the analytical toolbox, as described in this paper, examines how the reflections of teachers and STs have different parts that are influenced by the direction—within a given context—of their gaze and focus on teaching. Their experiences and reflections are affected by the contexts, which influence the forward-moving spiral of the development of their professional judgment. Using a recontextualized version of Wackerhausen’s (2009) theory as an analytical toolbox in research, as proposed in this article, can contribute to more nuanced descriptions of teachers’ and STs’ reflections on teaching in PE.

KEYWORDS
Reflection; reflection anatomy; analytical toolbox; experience; judgment

Introduction

There has been discussion about reflection in teacher education since Dewey, van Manen, and —later—Schön highlighted the significance of reflection for creating experiences and developing knowledge (Tsangaridou & Siedentop, 1995; Fendler, 2003). This ongoing discussion is needed because teaching is complex and requires reflective teachers who are flexible and able to adapt their teaching to meet the needs of their pupils (Tsangaridou & Polemitou, 2015). However, the ability to judge wisely is closely associated with the ability to reflect with a versatile focus (Preece, 2006), which highlights the importance of both developing the judgment of student teachers (STs) and stimulating various focuses in reflections. A teacher who acts judiciously can decide what competence to use in a specific situation, and this develops as a result of experiences from and reflections in and on teaching. Thus,

[…] a teacher who possesses all the competences teachers need but who is unable to judge which competence needs to be deployed when, is a useless teacher. Judgments about what needs to be done always need to be made with reference to the purposes of education (Biesta, 2017, p. 445).

Teachers’ overall judgment affects how they feel about teaching while guiding them toward decisions based on their experiences; however, reflections on their experiences also affect how they judge upcoming situations. Teachers deploy certain competencies into their work according to how they view the purpose of teaching, something they reflect on when planning and deciding how to teach. Biesta (2010) states that teachers should not simply...
focus on prescriptions or preconceived notions about teaching because reflections should be used as antidotes “against technical, theoretical, political, and cultural powers – powers that might be exercised on individuals, professional practices, and cultural groups” (Procee, 2006, p. 241). Teachers always reflect on the teaching situation, but the reflection may not be completely conscious or versatile (Fendler, 2003; Procee, 2006). Conscious and versatile reflection is when a teacher applies several perspectives when focusing on teaching problems and tries to be aware of all the implications future action can have on the constructed problem. However, the concept of reflection is used differently in research, where there are “mixed messages and confusing agendas” (Fendler, 2003, p. 20). The concept of reflection is understood differently by research members of different discourse communities (Ovens, 2002) within the field of research on Physical Education (PE) and Physical Education Teacher Education (PETE). Standal and Moe (2013) stress how the concept has become a truism and needs to be clarified. They recommend that “future empirical research on reflection and reflective practice in PE and PETE ... [should] take care to clarify what is meant by these terms in the specific studies” (p. 231). In this article, I use PETE as a case to describe how researchers’ using this toolbox can contribute with important insights about how contexts influence how STs reflect, which in turn can provide directions for research on PETE development, and provide suggestions regarding content in PETE.

Research shows that PETE rarely develops STs’ perspectives on teaching content and the purpose of PE during their education (Ferry & Romar, 2020; Larsson et al., 2018), and if one purpose of reflection is that it serves as the antidote for static thinking, then teacher educators within PETE must consider how to promote STs’ development with regards to their reflection ability in reflective practice. Kirk (2010) states that there is a reproduction in PETE of understanding how to teach in PE. STs’ understanding of PE seems to be on repeat. Because of that, PETE must educate and stimulate STs to develop their ability to reflect critically if the landscape of PE and PETE is to change. Therefore, research that involves an in-depth analysis of STs’ reflections can develop contexts surrounding PETE, especially if they consider how good examples from research that show contexts that encourage STs to reflect critically on teaching in PE can be implemented in their education and change their understanding. However, the fields of PE and PETE need research that provides guidance on how to create tolerant and open-minded reflective environments for STs so that they dare to think out loud and develop as professionals. Open-minded reflection environments stimulate STs’ to think from different perspectives and to think more creatively (Schön, 1987). Therefore, I propose a theoretical approach and an analytical toolbox for researchers that enable a nuanced understanding of STs’ reflections. The analytical toolbox offers researchers tools to analyze STs’ reflections, which can contribute to deeper insights into how contexts within PETE influence STs’ reflections if researchers use the toolbox in further research.

**Purpose**

The purpose of this article is to propose a perspective on the composition of reflection and analytical tools for research to investigate STs’ reflections in-depth. A further purpose is to offer an analytical toolbox for researchers with which they can analyze how various contexts in PE and PETE influence the composition of teachers’ and STs’ reflections. In the following section, I discuss various theoretical perspectives on reflection.
Theoretical perspectives on reflection

Ovens (2002) identified three different ways of understanding the concept of reflection, which he calls discourse communities since they express their understanding differently. The first discourse community, situated learning, understands reflections as being influenced by the surrounding context. STs are taught in various contexts, such as during a practicum at a school or in a course at a university. These contexts influence STs’ reflections and affect how they experience and understand teaching. Scholars in the discourse community of situated learning are interested in the influence of context on individuals and search for aspects to develop in the reflective environment in which individuals find themselves. Ovens’s (2002) second discourse community, the phenomenological discourse community, highlights the individual’s ability to reflect in various and complex ways. In contrast to situated learning, the phenomenological discourse community highlights the individual’s reflections and zooms in on the specific ways or levels in and on which the individual reflects. Researchers within the phenomenological community mainly focus on the capacity of the individual. The third discourse community, critical reflection, is influenced by critical theory, and Ovens’s (2002) stresses how researchers in this community argue that reflections should lead to changes that liberate the oppressed from pre-conceived thoughts, limiting norms, and pre-determined rules. In this discourse community, scholars tend to prescribe what it is reflections should lead to and argue for the necessity of other focuses that problematize the purpose of teaching from other perspectives than the hegemonical one. In this paper, I suggest highlighting the perspective of situated learning and focusing on the influence that contexts have on STs’ reflections on teaching since different contexts in PETE affect how and what STs focus on when they reflect (Ovens & Tinning, 2009). In addition to the perspective of situated learning, Fendler (2003) stresses how all reflections are necessary, no matter their focus or complexity, and how all teachers have the ability to reflect on their teaching. However, there are more perceptions on reflections to consider. Theorists mainly understand reflections as being the thinking that takes place after a situation relating to the experienced problem (Dewey, 2018; van Manen, 1977, 1995; Wackerhausen, 2008, 2009); however, there are different views on reflection as an activity and whether they can take place in action or not: this I elaborate on in the section below.

Reflection as an activity and a thinking tool for identifying and solving problems

van Manen (1995) stresses that a reflection cannot be done in action because teaching “can only be reflective in a qualified and circumscribed sense” (p. 35). Schön (1983, 1987) on the other hand, emphasizes how practitioners reflect in action and communicate with situations while acting and reflecting in practice all the time. Both van Manen (1995) and Schön (1983) highlight how practitioners should be sensitive to situations and judge them with the help of their acquired knowledge and experience. Practitioners are, as novices, restrained when they act in situations and develop progressively their ability to judge situations later in their careers. To explain how this acquired experience guides teachers’ action in situations, van Manen (1995) uses the word tact (pp. 40–42), while Schön (1983) uses the term reflection-in-action (pp. 49–53). An experienced teacher can choose how to act in situations having become more tactful and able to reflect-in-action. They have developed
their judgment. According to Proce (2006, p. 242), van Manen’s notion of tact is overwhelmingly similar to the concept of judgment, and thus it influences my interpretation of Schön’s reflection-in-action.

In this paper, reflections are understood as being possible in-action as well as after the action (Schön, 1983, 1987), and reflections are tools with which to develop individuals’ judgment. According to Dewey (2018), teachers’ judgment is used when they reflect in or on situations. Reflections are thought experiments, where teachers test hypotheses on the problem they identify and focus on in their reflection (Dewey, 2018). A one-sided focus on teaching in the reflection often leads to simple solutions because teachers quickly decide how to understand and solve problems that arise (Dewey, 2018). For example, when teachers reflect on their school context, they tend to focus on preconceived ideas, rules, and interests that determine their thoughts (Schön, 1987), and their understanding of the teaching becomes therefore one-sided. At other times, the context enables teachers to think in more versatile ways and to understand situations in a more nuanced way (Dewey, 2018; van Manen, 1977). To reflect with a versatile perspective, teachers often need time and distance from situations (Dewey, 2018; Schön, 1983; van Manen, 1977), yet van Manen (1995) asserts that this is difficult. This is especially true for STs, whose reflections tend to focus on merely technical aspects (Hatton & Smith, 1995; Tsangaridou & O’Sullivan, 1994). Technical reflections mean, for example, reflections on leadership in teaching and organizational changes during lessons (van Manen, 1977). STs’ reflections are most likely technical because their teaching has a one-sided focus at the beginning of their careers. A narrow repertoire of experiences limits their focus and the direction of their gaze in teaching situations, and previous research (Hatton & Smith, 1995) has shown that STs seldom reflect with a versatile focus in several directions. Thus, the technical focus can become a habit if the context steers their gaze in a one-sided direction (Dewey, 2018), which shows the importance of investigating the influence of contexts on reflections. Therefore, I argue that the concept of iteration is an important aspect to highlight in discussions on reflection within research in the fields of PE and PETE. Teachers and STs experience teaching in different ways, and this influences what they reflect on and how they understand their teaching since reflections and experiences are interrelated.

**The impact of iteration on teachers and student teachers**

Reflections, experiences, and judgment interweave because of the situated nature of learning (Dewey, 2018) and the temporal aspect of developing professionals. Rodgers (2002) stresses that:

... reflection is not an end in itself but a tool or vehicle used in the transformation of raw experience into meaning-filled theory that is grounded in experience, informed by existing theory, and serves the larger purpose of the moral growth of the individual and society. It is an iterative, forward-moving spiral from practice to theory and theory to practice (p. 863).

This “iterative, forward-moving spiral” enhances the development of STs’ judgment because of the opportunity they have to experience new situations and ask themselves questions about the purpose of teaching. The iterative procedure, involving the temporal aspect, indicates how reflection influences experiences and how experiences influence reflection. Wackerhausen (2008) highlights the importance of the forward-moving spiral
between reflections and experiences, which develops judgment, by stating: “reflections are blind without experiences, and experiences are empty without reflections” (p. 19). Reflections lead to more intelligent actions (Dewey, 2018), and teachers who do things without reflecting on what they do never learn from their experiences. For STs to develop their judgment so that it becomes wider and more comprehensive, those within the surrounding context must offer them opportunities to think about teaching in many ways as this also opens up for different teaching experiences. Teachers who can make wise, conscious decisions have a repertoire to choose from when acting and reflecting; indeed, they have a developed judgment.

**Judgment**

Judgment is a special “faculty or power of the mind, a faculty not governed by (logical) rules; instead, it is a (personal) power to determine which concepts and theories are and are not appropriate for ‘concrete’ situations” (Procee, 2006, p. 246). Procee (2006) suggests that there are two different sorts of judgments: reflective and deterministic. Deterministic judgment is guided by given rules. Meanwhile, reflective judgment is freer in that individuals set their own rules. Teaching requires teachers to set their own rules on how to teach according to the situation because teaching is complex, value-laden (Biesta, 2010), and rich, and can be understood in different ways, depending on how individuals frame their teaching (Dewey, 2018; Schön, 1983). For some teachers, the purpose of teaching is obvious and never questioned, while others have their doubts and focus on different perspectives in the teaching and on when they reflect on it. Teachers develop their reflective judgment over time while communicating and reframing their understanding of situations with their acquired experiences (Schön, 1983; van Manen, 1995).

Teachers’ acquired reflective judgment is also influenced by certain aspects of teaching that the context directs their focus toward. Therefore, the influence of the context has a significant impact on teachers’ ability to judge situations from several perspectives. Wackerhausen (2009) argues that working teams – for example, teaching teams – are like immune systems that repel dissent and influence how teachers judge, experience, and reflect in and on situations. Teachers’ ability to frame situations depends on what they focus on in situations, and their ability can be categorized using van Manen’s (1977) reflection levels and Wackerhausen’s (2008 2009) orders of reflection. In this paper, I suggest understanding levels and orders of reflection as different directions of the focus on something in STs’ reflections. In the section below, I describe van Manen’s levels and Wackerhausen’s orders, and show how they interrelate and how they can be understood as directions of the focus on something.

**Technical, dialogical, and critical reflections**

The technical reflection does not provide opportunities for teachers to reflect beyond prescribed ideas of “best practice” (van Manen, 1977, p. 226). This type of reflection fits with Wackerhausen’s (2009) first order of reflection, where practitioners reflect in a routine-based pattern (p. 464) “inside the box” and follow a defined focus on teaching that concerns, for example, management and control. The first order of reflection is mainly habitual, and practitioners follow predefined rules when facing problems. As such, they
seldom scrutinize their ontological starting point and preconceived thoughts. van Manen’s (1977) second and third reflection levels (dialogical and critical) are characterized by teachers’ internal dialogue concerning the problem(s) in the situation (p. 226–227). For example, teachers ask themselves: “what should [teaching] work for?” (Biesta, 2010); who should it work for?; and why should I teach this? In dialogical reflections, teachers frame and understand situations in different ways. They have an internal dialogue and ask which way would be the best for their future teaching. Meanwhile, what is desirable in critical reflection concerns issues about liberation from hegemonic norms and rules that oppress individuals. Teachers who reflect in these two categories of reflection frame situations differently and set or choose rules to focus on by themselves (van Manen, 1977); therefore, they are perhaps seen to be more autonomous. Autonomy is crucial for reflective judgment: it enables the individual to be open-minded and to have a versatile focus, which is necessary for developing reflective judgment. Wackerhausen’s (2009, p. 466) second-order reflection corresponds to dialogical and critical reflection. In the second-order reflection, the individual steps out of their comfort zone and reflects outside the box in a more open-minded and scrutinizing way. In such second-order reflections, teachers focus on, for example, aspects relating to how to teach pupils so that they develop as individuals and so that there is more opportunity for them to acquire experiences and develop knowledge in a specific subject. The teachers challenge themselves to reflect with other perspectives in a versatile way and to look at the problem from different ontological starting points. An explanation of the technical and first order of reflection is that teachers make sense of an experienced situation that has predefined rules and norms that guide their focus on teaching. STs’ dialogical, critical, and second-order reflections change sense in teaching by redefining the rules and norms that guide STs to focus on other teaching aspects.

From now on, when I talk about judgment, I mean specifically reflective judgment. The ST can become open-minded and their judgment can develop from the context and the actors (in this article, actors refer to supervisors, teacher educators, teachers, and peer STs) within it. These actors choose how to direct STs’ gazes, and they can influence what and how STs experience and reflect on situations (Wackerhausen, 2009).

The context influences individuals’ judgment

All actors within a context influence how individuals experience and reflect on situations. The actors in a given context influence the direction of the gaze of STs both while they are teaching and while they are reflecting on their teaching. The actors within the context set the rules in terms of allowing certain concepts, theories, and interpretations while dismissing others (Wackerhausen, 2008, 2009). Wackerhausen (2008, 2009) and Schön (1983, 1987) find that actors within contexts disable or enable STs to be more autonomous in their reflections based on how tolerant or open-minded actors are to STs who think differently. Teaching requires reflexivity since teachers decide on their focus in practice, and when and how to teach is seldom, if ever, written in stone. For example, a team of teachers decide what they will focus on when teaching, both when talking about the purpose of teaching and when teaching their pupils according to that purpose. Wackerhausen’s (2009) would describe a teaching team as a developed immune system that deals with dissent and that is intolerant to thoughts other than those that are hegemonic. Schön (1983, 1987) states that practices, interests, and goals direct the gaze of practitioners in one way and determine how they reflect in and on the action.
The opportunity for STs to develop broad judgment depends on the ability of actors to support STs’ reflective judgment and to guide STs’ reflections in new directions within the context they are reflecting in; it also depends on whether they pre-determine the focus or allow STs to co-determine the focus. Immune systems can be understood as collective judgments that influence the individuals’ focus, rules, and motives in their reflections within the given context. However, there are other aspects in the context that influence STs’ experiences and reflections: for example, traditions, norms, the amount of time they spend in it, the positive and negative aspects of the physical premises, the material they have access to, and the given role and mandate they have within the context.

Below I present previous research in the field of PE and PETE to shed light on how scholars understand reflections in their studies. First, I present different perspectives on reflections in PE and PETE and on how to develop the reflective practice of PE teachers and PETE STs. I then present aspects that influence reflection according to previous research. Finally, I argue for the relevance of asking a new question in the field of research that might contribute to a more versatile understanding of why STs reflect as they do.

**The rationales of reflection in previous research on PE and PETE**

Several scholars have identified how technical reflection is the most common type of reflection and stress how STs’ ability to reflect in a more versatile manner develops at a later stage in their teacher education (Hatton & Smith, 1995; Lee and Choi, 2012; Lamb et al., 2012; Tsangaridou & O’Sullivan, 1994). Uhrich (2009) constructed a theoretical framework that aimed to help teacher educators develop STs’ ability to reflect on their teaching. According to Uhrich (2009), STs need technocratic skills before they start to reflect in a wider, more versatile way. They are supposed to develop their ability to reflect in steps. STs should learn how to follow pre-constructed strategies and defined focuses before they decide on the strategy for and focus of their reflections. The technical focus in reflections seems to capture STs’ attention at the beginning of their education, and it is the task of teacher educators to work toward having STs adopt a multiple and in-depth focus in their reflections.

Tsangaridou and O’Sullivan (1994) constructed what they called the Reflective Framework for Teaching in Physical Education (RFTPE) in “an attempt to describe the focus and level” (p. 18) of STs’ reflections. They identified different focuses and different reflection levels in STs’ reflections (Tsangaridou & O’Sullivan, 1994). Six STs were put into two groups of three and completed different assignments during their school practicum. The first group was specifically asked to “describe, analyze, and criticize different aspects of their teaching and the teaching they observed” (Tsangaridou & O’Sullivan, 1994, p. 17), while STs in the second group were encouraged to discuss and describe aspects of their own teaching and the teaching of others. Depending on the instructions they received, they reflected differently. The first group had an open-minded and versatile focus, while the other group had a narrow-minded and one-sided focus in their reflections. Tsangaridou and O’Sullivan (1994) concluded that it is beneficial for teacher educators and supervisors in the schools where STs are completing their practicum to provide questions that can help STs to develop their ability to reflect on several focus categories and on all levels. Tsangaridou and O’Sullivan’s framework contradicts Uhrich’s (2009) step-by-step-thinking because it suggests a more explorative way to develop the ability of STs to reflect.
Other researchers who used RFTPE concluded that supervisors have an influential role in what STs focus on in their reflections (Crawford et al., 2012; McCollum, 2002). In addition, Tsangaridou and O’Sullivan (1994) concluded that all focus categories are equally important in the reflection, and supervisors need to use strategies to promote reflections by challenging STs “to think and reflect about different aspects of teaching and schooling” (p. 26). McCollum (2002) states how RFTPE stimulates STs’ thinking from less to more complex thinking, and how this develops STs’ “future decision-making skills” (p. 40). Both Uhrich’s (2009) and Tsangaridou and O’Sullivan (1994) frameworks are constructed in such a way as to provide teacher educators with principles to use in practice with the aim of helping STs to develop their reflections when teaching PE. However, their understanding of how to develop STs’ ability to reflect is different. That said, there is one thing that both they and other scholars seem to agree upon, and that is that there must be sufficient time if they are to have an impact on the ability of STs to focus on several aspects in their reflections (Hatton & Smith, 1995; Lamb et al., 2012; Tsangaridou & O’Sullivan, 1997; Tsangaridou, 2005; Uhrich, 2009).

**It takes time to develop the ability to reflect with a versatile focus on teaching**

Uhrich’s (2009) argues that technical reflection skills must develop first, that STs must learn to reflect in a technical way, and that they must then focus on other aspects in their reflection. Several empirical studies indicate how technical reflections occur more often at the beginning of teacher education, and STs slowly shift their focus toward other aspects of reflection at a later stage (Lamb et al., 2012; Lee & Choi, 2012; Tsangaridou & O’Sullivan, 1997; Tsangaridou, 2005). For example, STs’ reflections during their practicums shift over time and become more versatile later when and if they are able to focus on the ability of their pupils to learn rather than on their own ability to teach (Lamb et al., 2012; Lee & Choi, 2012). Tsangaridou and O’Sullivan (1997) concluded that over the years, PE teachers “have changed considerably in their educational values, practices, and reflection” (p. 17). The PE teachers who took part in Tsangaridou and O’Sullivan (1997) study describe themselves as having a more authoritarian and rigid approach to teaching at the beginning of their career with their focus on control and management instead of on pupils’ personal needs. Later, their focus shifts, and they recognize the importance of considering pupils’ personal needs, which leads to more flexibility in their teaching. An important threshold is when they start to reflect at a macro level rather than remaining at the micro level. Instead of micro reflecting on isolated incidents in their day-to-day practice, these PE teachers started to macro-reflect and scrutinize their practice by looking at “the big picture.” A macro-reflection zooms out and frames situations as chains of events linked to a practice. These macro-reflections were influential in the professional development of the PE teachers in Tsangaridou and O’Sullivan (1997) study. Indeed, they changed their focus on teaching.

Professional development through reflection is based on constructing and reconstructing knowledge over time. Ideas, beliefs, professional theories, and values about teaching modified, changed, rejected, or reframed as new information becomes available and circumstances change. Improvement in teaching demands that teachers acknowledge, reflect, and build upon their experiences (Tsangaridou & O’Sullivan, 1997, p. 21).
Macro-reflections frame situations in new ways with new perspectives that provide opportunities for teachers to understand teaching differently. Rodgers’s (2002) iterative aspect of reflections can be seen in the influence that changed perspectives have on teachers’ and STs’ experiences from and reflections on their teaching, as in the research presented above. Iteration also appeared in Lee and Choi’s (2012) research when STs “who showed a pattern of adjustment and re-aiming did not view reflective peer coaching as a single event, but used it as a stepping stone for continuous reflection” (p. 153). Experienced situations can also be a stepping stone toward further and new reflections. It takes time for STs to acquire experience and a knowledge base that can support them in times of decision-making (Tsangaridou, 2005) and “reflective thinking seemed to depend on the acquisition of contextual knowledge” (p. 35) developed progressively during STs’ experiences teaching, for example, in their practicum. The recommendation is that STs begin to reflect early on in their careers so that they have time to shift focus to several aspects later in their PETE (Hatton & Smith, 1995; Tsangaridou & O’Sullivan, 1997; Uhrich, 2009). According to research, one way to learn how to reflect in more versatile ways might be for STs to incorporate educational theory into their reflections as well as their own experiences and those of colleagues or their ST peers.

**Reflection with something or someone**

In Østergaard’s (2018) research, two groups of STs in PE were asked to construct, conduct, and evaluate a lesson on ball games. The STs completed this task in different ways according to what they reflected with. STs who used the concept of inquiry-based learning framed the teaching of ball games in new and unconventional ways that challenged the way their peers thought about ball games in terms of cooperation, rules, etc. The first group recontextualized the ball game and constructed new norms and rules to play along with. The second group reproduced their knowledge and experiences in how they constructed, conducted, and evaluated the ball game; they did not challenge the conventions of the game. Instead of using the concept of inquiry-based learning, they started from their ontological position with assumptions about the ball game and focused on preconceived norms and rules in their thoughts. Østergaard’s (2018) classified the second group’s reflections as less complex and as showing less development than those of the first group. This is because the first group used the concept of inquiry-based learning to reflect with and develop a ball game lesson that involved all peers and gave it new meanings. However, previous experience with the teaching content does not have to be limiting when reflecting on teaching.

Tsangaridou (2005) concluded that STs often feel that experienced teachers can readily change their teaching. STs’ limited experience, compared to that of their supervisors, can either limit or stimulate their supervision. STs in Rossi and Lisahunter’s (2013) study felt they had to say what they believed was expected from them when they reflected on teaching with their supervisor during their practicum. In another study (Lamb et al., 2012), STs learned to think wisely about teaching, and they did not learn solely from supervisors; rather, STs “also absorbed this knowledge and applied it in the peer-review process” (p. 32). Peer coaching is often used in PETE practicums to stimulate STs’ reflection. Research indicates that peer coaching stimulates their ability to reflect (Lamb et al., 2012; Lee & Choi, 2012). When STs have a peer (that is to say, a ST who is at the same level as they are), they feel comfortable scrutinizing and criticizing actions from the context they find
themselves in. Bjørke et al. (2022) both implemented a theoretical concept to think with and used a participatory action research design, which meant that they collaborated with the teachers when they planned, taught, and evaluated all teaching together. The implementation of new theoretical concepts for the teachers to use in practice stimulated new reflections because they thought with another focus and, therefore, saw their teaching from a new perspective. At the beginning of the intervention, these teachers’ reflections were classified as first-order reflections (Wackerhausen, 2009), but after the implementation and the experiences from their teaching using these theoretical concepts in practice, they started to reflect in a more conscious way about how their teaching enables pupils to learn, and they reached the second-order reflection (Wackerhausen, 2009). To reflect with something or someone enables teachers and STs to teach in other ways. Reflections are action-based knowledge that they can use both to improve their teaching and to become wise, conscious teachers as a result of continual experience, reflection, and judgment.

Reflection leads to conscious action

Reflection leads to conscious, active decisions, and the teachers in Tsangaridou’s (2005) research made changes to their lessons when they found it necessary. In one lesson, a teacher realized that some planned activities were not appropriate for her pupils. She chose therefore not to use them and modified others while teaching. Schön’s (1983) reflection-in-action is used by Tsangaridou’s (2005) to explain how teachers make wise decisions during lessons and choose actions by listening and communicating with situations (Schön, 1983, p. 101). Decisions in action are practical knowledge, and Uhrich’s framework provides STs with questions “in efforts to engage in an internal conversation” (2009, p. 511) while teaching. Uhrich’s (2009) intends to develop STs’ technical reflection skills and make their decision-making more effective. STs’ reflections should lead to practical action by focusing on the technical aspects when they frame situations in their reflections (Uhrich, 2009). Tsangaridou and O’Sullivan (1997) state that: “Reflective practitioners are characterized not only by their ability to think critically but also by their association of thought and action” (p. 22). Teachers make decisions on the spot and change lesson plans in action by choosing an option that they think is suitable for their pupils. This practical knowledge develops during a teacher’s career, but according to Ovens and Tinning (2009), contexts must provide opportunities for teachers to continue to develop their decision-making by widening their reflective focus. For teachers to make conscious decisions, they need to learn how to shift focus and apply a versatile perspective in their reflections: that is to say, they need to shift from technical to critical reflections (van Manen, 1977).

Previous research has mainly been conducted using two different frameworks, and researchers within the field of PE and PETE use the concept of reflection in different ways, be it always with the same goal in mind: to develop teachers’ and STs’ ability to reflect. In the following section, I present an analytical toolbox that offers researchers other ways to analyze teachers’ and STs’ reflections. Research conducted with this toolbox aims to guide and develop tolerant and open-minded reflective environments in PE and PETE. As mentioned earlier, reflection can be understood in several ways. However, all reflections have a common pattern that Wackerhausen’s (2009) calls the anatomical structure of reflection (p. 465). The anatomical structure of reflection can dissect STs’ reflections and analyze them in more detail by looking at one anatomical part at a time and then describing
the relation each part has to the other by putting them back together again into, what I call, a reflection body. This approach to analyzing STs’ reflections opens up for more nuanced descriptions and categories than previous research. Researchers mainly used predefined categories inspired by van Manen’s categorical levels, Schön’s reflection-in-action and reflection-on-action (Standal & Moe, 2013), and Wackerhausen’s first- and second-order reflection (Bjørke et al., 2022; Østergaard, 2018). A reflection body can take any shape, is not dependent on any categories, and is highly influenced by the impact of the context on how the ST composes the anatomical parts.

An analytical toolbox for research

This analytical toolbox will be presented in three parts. First, I present Wackerhausen’s (2008, pp. 14–15; Wackerhausen, 2009, p. 465) reflection anatomy, which is synthesized with Schön’s theory (Schön, 1983, 1987). Schön’s understanding of reflections as situated and interrelated in the practitioners’ practice offers useful concepts to clarify the content of the anatomical parts. I then explain the concept of a reflection body and what it describes and what this constructed concept offers researchers. Finally, I suggest how research can use the analytical toolbox, and I explain how results from empirical research can contribute to the development of PE and PETE.

The anatomical structure of reflection

The synthesizing of Wackerhausen’s (2008 2009) and Schön’s (1987, 1983) understanding of reflections may contribute to a useful conceptual apparatus that offers researchers analytical tools with which to dissect STs’ reflections and later put the parts back together into a reflection body. Below I describe the different parts that constitute the reflection anatomy.

- Within a context of something, since experiences and reflections are influenced by the whole context’s expectations of them, which may include, for example, actors, premises, material, time spent in the context, tradition, and norms. Contexts are like immune systems (Wackerhausen, 2009): they admit some thoughts and repel others. They have their own iterative and ongoing spirals of experiences and reflections, which shed light on the procedures and habits that steer individuals’ focus within the context. Therefore, STs are never blind, but they may be blinded by the influence the context has on the direction of their focus. The influential actors can be both tolerant and intolerant depending on the openness, vulnerability, and creativity they allow STs to express in their thoughts about teaching (Schön, 1987).
- On an object, phenomenon, person, or situation. The contexts affect how the STs understand the purpose of their teaching, and how they frame situations and problematize them; they direct the gaze of STs toward something. Schön’s (1983) writes that individuals frame situations and understand them from their perspective, both in-action as well as on-action. Situations are understood holistically as being events STs frame in their minds, influenced by the direction in which the context guides STs’ focus in a given situation (Schön, 1983, 1987). For instance, STs can focus on separate
parts, aspects, and singular situations, as in micro-reflections, or zoom out and focus on the whole situation, as in macro-reflections (Tsangaridou & O'Sullivan, 1997).

- **With** a concept, a theory, a question, or an ontological assumption. STs develop knowledge and create experiences about teaching in PETE that they can reflect with using their acquired repertoire as a tool to see the “new problem as a variation on the old one, so [STs] new problem-solving behavior is a variation on the old” (Schön, 1983, p. 139). Wackerhausen’s (2008) distinguishes between two sorts of concepts that STs can reflect with, which direct their focus.
  - STs who reflect with foreground concepts do so consciously and explicitly (Wackerhausen, 2008). Foreground concepts can, for example, be theoretical knowledge or reflected and acknowledged experiences that STs use to understand teaching situations in new ways and to solve problems with.
  - STs who reflect with background concepts do so unconsciously and implicitly. STs are not as aware in their thinking with background concepts as they are with foreground concepts. Previous empty experiences, conventions, and ontological assumptions are typical background concepts that form the starting point of STs’ reflections (Wackerhausen, 2008), which influence how they understand the content and purpose of PE.

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- **From** interests, motives, goals, and values. For example, interests influence how professionals understand (Wackerhausen, 2009) and communicate (Schön, 1983) with situations. Schön (1987) explains how different political and economic interests influence the actions of professionals in situations and their reflections on them. Their perspectives tend to be deterministic in the framing of the situations and problems they reflect on because certain interests govern their motives. Since actors within a context have certain interests, motives, and attitudes – or even understanding in terms of teaching – these actors influence what STs focus on, how they experience situations, and what they reflect with on situations.

**Reflection body**

The anatomical parts of the reflection provide researchers with a tool with which to dissect STs’ reflections and shed light on their impact on the composition of a reflection as a whole – hereafter called a reflection body. Thus, the concept of a reflection body is needed to describe how all parts are composed and put together. A reflection body is a description of a whole reflection and refers to the composition of all anatomical parts. The reflection body can take several shapes and is truly sensitive to the influence of the context. The content reflected upon, the place where the reflection is conducted, and those who influence the reflection have an impact on how STs frame the situation, what they reflect with, and which interest or motive they reflect from. If, for example, the ST frames the situation differently and reflects on it from another perspective than before, then the reflection body can change form. This way of describing the internal composition of the anatomical parts of
reflection offers researchers the opportunity to give more nuanced, in-depth, and complex descriptions of an ST’s reflection than does the use of rigid and prescribed levels or orders with which to analyze the empirical material. In the long run, these descriptions can serve as a basis for developing PE and PETE since the reflection body informs us about the influence of context on how teachers and STs reflect on, with, and from something in their teaching. Researchers that use the concept of reflection bodies to describe reflections can give the field of research more nuanced insights and in-depth descriptions of STs’ reflections. They can provide PETE with information about how contexts influence STs and offer examples of reflective environments that stimulate a versatile focus on situations and nuanced reflections.

Summary of the analytical toolbox’s contribution to the field of research on PE and PETE

The anatomical parts of the reflection—on, with, and from something—are shaped and put together differently depending on the influence the contexts have on the individual’s reflection. Of course, the individual has some agency and autonomy, but, and especially for a ST, it is hard to act in other ways and focus on other things than what the influential actor wants the ST to do. Therefore, the reflection bodies are mainly shaped and composed by the influential actors within the context and their collective judgment of what to focus on in teaching, which perspective STs’ should reflect with, and which motive, interest, or goal they reflect from. This is what empirical research with this theoretical approach and analytical toolbox can offer the research field of PE and PETE. I believe that more extensive and more nuanced descriptions of teachers’ and STs’ reflections can provide important insight into how to develop PE and PETE. Such descriptions can sort out the issue of the placing of empirical reflection material in boxes, like van Manen’s levels or Wackerhausen’s orders. Researchers who use these boxes by looking at the reflection from the outside and deciding how to categorize it miss the opportunity to describe and understand the internal composition of the anatomical parts. Instead, researchers who present reflection bodies can help PE and PETE to change the sense that the influential actors within contexts make of situations by raising awareness of how their tolerance and open-mindedness or intolerance and narrow-mindedness influence the teacher or the ST’s development as a professional. Previous research states that the most common reflection among STs is technical (Standal & Moe, 2013; Tsangaridou & O’Sullivan, 1994; Tsangaridou & Siedentop, 1995), and Kirk (2010) argues that there is a reproduction within the field of PE and PETE and that the field needs change. This requires theoretical approaches and analytical tools to address the issue, which I think my approach and tool offer.

Discussion and conclusion

The way researchers understand reflections is rarely explained in-depth or clarified in research (Standal & Moe, 2013), which might be because of the complexity surrounding the concept, with several understandings and theoretical perspectives (Ovens, 2002). Reflections are described by different evaluating systems, such as Schön’s reflection-in/on-action, van Manen’s reflection levels, and Wackerhausen’s orders of reflection. Instead of using prescribed descriptions from the evaluating systems, the analytical toolbox suggested
in this paper focuses on describing the structure within the reflection based on Wackerhausen’s (2009) statement that all reflections consist of an anatomical structure that affects the composition of reflections (reflection bodies). Through the anatomical structure of reflection, used as an analytical toolbox, researchers can present a new question to the field of research in PE and PETE. Researchers can ask how STs’ reflection is composed and describe the reflection body, which provides them with nuanced ways to describe reflections. In the extension, research that uses this theoretical perspective and analytical tools can contribute to the possibility to investigate how context affects the composition of the anatomical parts and thereby adjust the context (e.g., PETE) in order to help STs to develop their reflective judgment.

The levels of reflection (van Manen, 1977), reflection in/on-action (Schön, 1983), and the orders of reflection (Wackerhausen, 2009) all contribute to the field of research despite approaching the concept of reflection in different ways. To enable the quest of developing PETE and stop reproducing the picture of PE (Kirk, 2010) STs’ reflections must move away from solely technical (Ovens & Tinning, 2009). As such, the theoretical approach and analytical toolbox that I present here can bring about change by contributing new perspectives on how context influences reflection. Since STs’ technical reflections make sense of situations and repeat teaching in slightly different ways, STs’ need to develop their ability to reflect critically. For this to happen, the contexts within PETE must change and guide the STs so that they focus on aspects, which they need help to see: if this does not happen, then their reflections continue to be “blind” (Wackerhausen, 2008). Results of research using the analytical toolbox can guide contexts within PETE on how to stimulate STs’ focus on other aspects through an awareness of what STs focus on, what they reflect with, and from which interest or purpose. An awareness of how STs compose their reflections is required if PETE is to guide STs to reflect in a way that is more versatile and more critical. Through their insight, reflection bodies can help build an understanding of the experiences STs have in certain situations and of how PETE contexts influence those experiences. To change STs’ experiences of PE, PETE must change the focus of their reflections so that their reflections work as antidotes for static thinking and, through this guidance, enrich the experiences they have teaching PE. Researchers using this analytical toolbox should be in the research community of PE and PETE interests since empirical results can direct further research on interesting issues. Furthermore, researchers using this toolbox can contribute with results to develop how contexts within PE and PETE can stimulate teachers and STs’ to reflect more versatile.

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1. Author’s translation.

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