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The role of learning theory in learning to teach

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PART VII

Educating teachers ‘effectively’ from PETE to CPD

Introduction

This part is about learning to teach. Each chapter addresses a different aspect of this fascinating topic ranging from understanding how learning theory informs research and practice, to analysing issues in physical education teacher education (PETE) and continuing professional development (CPD), and considering teacher learning in two highly topical areas: health and inclusion. Yet, even though each chapter has a distinct focus, they are also linked by two shared understandings. The first is that in order to be effective in meeting pupils’ diverse and dynamic learning needs, physical education (PE) teachers must learn continuously throughout their careers. The second understanding is that whereas the term ‘effective’ is used widely to characterise – and scrutinise – contemporary teaching and learning, it is a highly contested concept that warrants critical analysis. None of the chapters, therefore, offers easy certainties or comforting recipes for success to inform learning/teaching in PE, PETE or CPD. Instead the authors invite readers to engage with the issues, review with circumspect enthusiasm the material presented, enter the debates with informed enthusiasm and, perhaps, reflect afresh on practice and/or research.

Handbooks serve a number of functions, one of which is to act as an authoritative point of reference in a field. To that end, the chapter authors have provided historical overviews of their topics and summarised key international literature. This, however, does not go far enough. In any considerations of learning and teaching there are a wide range of implicit and explicit views on the ‘correct’ purposes of teaching; what ‘should’ be learnt; the ‘best’ ways to learn, the ‘proper’ role of teachers and, by implication, the ‘best’ ways to educate – or train – them (terms which, in themselves, generate debate). Competing views on these topics are in a constant struggle for supremacy. This also explains why ‘effectiveness’ is such a slippery concept in teaching, learning to teach and education more widely. Ko, Sammons and Bakkum (2013) conducted a review of the research and evidence on effective teaching and highlighted a need to unpack the concept of effectiveness by addressing questions such as:

- Effective in promoting which outcomes? This relates to the goals of education for students.
- Effective over what time period? This relates to the idea of change and improvement over time.
Effective for whom? This relates to effectiveness in promoting outcomes for different groups of students (e.g. by gender or ethnic/language group). (p. 5)

These authors conclude that defining effectiveness is never straightforward and they question “whether it is appropriate to think in simple categories such as more effective or less effective teachers or teaching” (p. 40). This is an interesting question that also applies to the ways in which we decide to educate teachers and it is a theme that runs through all of the chapters in this part of the handbook.

In the first chapter, Quennerstedt and Maivorsdotter add a further layer to questions about effectiveness by focussing on the complexity of learning. Drawing on Sfard’s (1998) metaphors of learning as acquisition and participation, they review some of the most commonly used learning theories and consider the ways in which they impact upon our understanding of learning, teaching and research: “What is certain is that the different assumptions underpinning learning theories lead to different assumptions about how teachers could and should teach, and such understandings – rarely made explicit – lead researchers to ask different questions in educational research” (p. 420). They also highlight matters of some concern. A review of research published over the last ten years in key journals in our field reveals that the learning theories underpinning and informing research are rarely made explicit in publications, and that there is a pressing need to develop new learning theories in and for PE. Addressing both of these concerns is essential to enhancing teacher learning.

The chapter by McCuaig and Enright pursues the notion of effectiveness in the context of PETE by grounding their review in Hunter’s (1994) notion of ‘principled positions’. They point out that discussions about effectiveness usually rest on notions of an ‘ideal’ teacher and they discuss three examples of principled positions in PE (physically competent, healthy citizen and socially critical actor) and explore the implications for PETE. These authors draw on the work of McCuaig and Hay (2013) to argue for the value of focussing on understanding the principled positions of others. Moreover, in setting reflective questions, they ask readers to spend some time interrogating their personal principled positions including origins and implications. In conclusion, the chapter suggests that much work remains to be done: “Some five decades on, an expansive body of research, advocacy and critique has done little to resolve the challenges we face in establishing agreed criteria for PETE effectiveness” (p. 440).

Shifting from PETE to CPD, the chapter by Parker and Patton focusses on teacher professional learning from the point of initial certification through to retirement. These authors begin by arguing that “although there is a growing recognition of the importance of CPD for the professional growth of teachers, numerous questions remain about the nature of optimally effective CPD” (p. 447). A review of the international literature on CPD in both education and PE suggests that we have made little progress from Guskey’s (2002) claim that what is required is an ‘optimal mix’ of CPD types and formats for each teacher at each career stage. The evidence suggests, however, that we are a long way from achieving anything close to an effective, personalised CPD offering. The authors also highlight concerns about CPD that is designed to introduce new teaching ideas without due consideration of impact on student learning, and there is certainly a lack of research that captures such impact. They also point to a largely neglected concern: that of the educational needs of CPD facilitators and providers. In concluding, these authors make a plea for more robust studies – including quantitative research – to try to better understand the impact of different CPD approaches on teachers’ and pupils’ learning. This, they argue, may lead to the development of more ‘effective’ forms of CPD.
Part VII introduction

While previous chapters have focussed on learning and teaching at a generic level, the next two focus on more specific aspects of professional practice in contemporary PE. Haerens, Aelterman, De Meester and Tallir address the challenges of developing PE teachers’ pedagogies in the field of health. There can be little question that this is a key contemporary concern. ‘Health’ has become entwined with PE’s aims and aspirations and, in some countries, this has resulted in a change of name for the subject (HPE, for example). The authors note, however, that this growth has not led to consensus on the most important goals and learning outcomes of health-based PE. There are disagreements about the definition of health in and beyond PE contexts, and on whether PE should be involved in developing fitness or merely increasing physical activity levels – or neither.

Haerens et al. review the literature on goals such as physical fitness development, increasing physical activity, motor development and stimulating autonomous motivation. They conclude that to better support teachers, more research is needed “regarding possible mechanisms that determine the effectiveness of training in health-based PE at the teacher level” (p. 467). Moreover, we need more transparency in studies on different teacher education approaches in order to support teachers in this field. Similar to Parker and Patton in the previous chapter, and Quennerstedt and Maiorsdotter in the earlier chapter on learning theory, Haerens et al. make a plea for research to be reported in more consistent ways to facilitate the development of a cumulative body of knowledge. They also suggest that teachers need to be more centrally involved in the design and content of CPD in the area of health.

In the final chapter in this section, Makopoulou and Thomas consider ways in which we might support teachers to develop ‘effective inclusive pedagogies’. The authors note that, over time, the agenda in this field has shifted from ‘special educational needs’ and ‘mainstreaming’ to inclusion, which is about equal access and opportunities for all. The authors draw on the work of Reiser to argue:

Inclusion is about the child’s right to participate and the school’s duty to make learning more meaningful and relevant for all, particularly those learners most vulnerable to exclusionary pressures. Inclusion is based on “a paradigm shift from a deficit model of disability to one of social/human rights” (Rieser, 2013, p. 1). (p. 473)

What this means is that the development of inclusive pedagogies can be regarded as one of the tenets of any claims to be an ‘effective’ teacher. Yet, the review undertaken in this chapter highlights numerous unresolved questions about how best to support teachers to learn in this field. The authors argue that more research of all kinds is needed – descriptive, evaluation and experimental – to inform policy and practice. Here again, a need for greater conceptual clarity is signalled and, similar to Haerens et al., it is suggested that CPD programmes should be better grounded in teachers’ experiences.

As was noted earlier, these chapters fulfil the functions of a handbook in that they have surveyed and summarised their topics. The bibliographies alone will serve as rich material for new researchers. In addition, the explicit attempt to tackle thorny questions of ‘effectiveness’ has raised a number of questions for further critical reflection. A common theme to emerge is an urgent need for the PE-related research base to be more helpful for practice. Pleas are made in these chapters, for example, for research that is more transparent at all levels – including making explicit the learning theories underpinning studies – and that is more consistent and detailed in the reporting of findings. These are serious concerns and it could be argued that they stem from the persistent theory/research-practice gap that characterises the field (see Armour, 2014,
for a fuller discussion). The evidence presented in this part confirms my view that finding new mechanisms to bridge this gap is one of the most pressing challenges to be tackled in our field.

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References

Learning is a complex matter, and it is difficult to find generally accepted definitions of or clear boundaries for what learning is or can be understood as. However, given the centrality of learning in education, it is imperative to consider how researchers, teachers, coaches and other stakeholders within the field of physical education (PE) approach and address it. The purpose of this chapter is to introduce central learning theories in relation to PE and to present an overview of current research regarding the role of learning theory in learning to teach. In this context, current trends and implications for research and practice are discussed.

What can be considered as learning and, in consequence, a learning theory? A wide definition of learning is that proposed by Knud Illeris (2007, p. 3) as “any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or ageing”. This will almost certainly include theories ranging from Howard Gardner’s theory of multiple intelligences to Michel Foucault’s writings about power and knowledge. A different and more delineated option is the classical division between learning theories based on different philosophical frameworks, such as behaviourist, cognitivist and constructivist theories of learning (Macdonald, 2004), the latter of which is often divided into individual/cognitive and social constructivism (Cobb & Bowers, 1999).

In this chapter we use Anna Sfard’s (1998) two metaphors of learning to structure the chapter: the acquisition metaphor and the participation metaphor. This division of different learning theories helps to map basic assumptions the theories entail both in general and in research in PE. In the chapter the metaphors are used to facilitate an understanding of learning and its consequences for learners, teachers and researchers. We do not have the space to give a comprehensive overview of, for example, theories of reproduction, teaching, motivation, power relations, system theory or modern brain research all of which have consequences for learning. Instead we focus on theories explicitly focusing on what and how people learn.

Historical overview

As problematised in The Handbook of Physical Education edited by Kirk, Macdonald and O’Sullivan (2006), research in PE has generated relatively few studies explicitly using learning theories to explore how individuals learn. According to Rink (1999) this also applies to the use of learning theory in relation to research on teaching in PE. In the body of research presented in the 2006
handbook, it is noted that interest in learning in PE research primarily starts in the 1970s with so-called time-based research, even if earlier studies focusing on the acquisition of motor skills also were closely related to issues of learning (van der Mars, 2006). These studies implicitly start with a behaviourist orientation to learning, where teachers’ actions are considered as directly linked to student behaviour in terms of learning as a product of the teaching process (Hastie & Siedentop, 2006). Other chapters in the handbook reveal the introduction of the classroom ecology paradigm in the 1980s as a response to the earlier process-product paradigm (Hastie & Siedentop, 2006). This research took an interest in students’ responses to tasks in the classroom, and how teachers and students act together in PE practice. Another perspective critical of the process-product paradigm emerged from cognitivist research. Solmon (2006) argued that PE research on learner cognition has its roots in the motor learning literature but that a movement towards issues of cognitive mediation, student and teacher perceptions and motivational research had significant impact.

Much of the constructivist research in PE can, with inspiration from Cobb and Bowers (1999), be labelled social constructivism. Some research does exist within an individual constructivist orientation with a basis in, for example, Piaget, but this is not the majority (Rovegno & Dolly, 2006). Instead it was social constructivist research including situated perspectives of learning that from the 1990s influenced PE research. This strand of research has, according to Rovegno and Dolly (2006) and Rovegno (2006), introduced the situated nature of knowledge into the field. Several studies focusing on how individuals act in socio-cultural settings have been published. These include studies focusing on different dimensions of learning, for example Teaching Games for Understanding, or teacher knowledge and teacher learning (Rovegno, 2006).

Overview of learning theories

In this chapter Sfard’s (1998) metaphors of acquisition and participation help us to structure current conceptualisations of learning and can be used to scrutinise some of the basic assumptions of learning found in different theories. Sfard details the ways in which educational research oscillates between these two metaphors and, what she calls, competing ontologies. This leads to different answers regarding the question of what learning is and how we really learn (cf. Quennerstedt, Öhman & Armour, 2014).

Learning as acquisition

The acquisition metaphor, which has dominated research on learning for a long time, includes a wide range of learning theories. According to Sfard (1998), these assumptions about learning are discernible in behaviourism, cognitivism, individual constructivism following the works of Vygotsky, research using Piaget and in some interactionist theories of learning. Even where there are significant differences between some of the theories (see Table 28.1), a common assumption is that knowledge is something external that individual learners can acquire, internalise or assimilate in existing schemas or patterns of behaviour. In other words, learning is about acquisition and gaining possession of something through changed behaviour (as in Skinner’s behaviourism) or active reconstruction (as in Piaget’s individual constructivism). Here, knowledge is a commodity; something that people have or possess.

Learning is usually understood as a change in behaviour in behaviourist theories, or in terms of concept development in most cognitive learning theories. In Piaget’s theories, for example, concepts are modified and, as a consequence, existing schemas of knowledge are reconstructed. Knowledge can accordingly be applied, transferred and shared. According to these theories,
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people learn through reception, construction of meaning, internalisation, discovery, appropriation or accumulation; teachers teach by delivering, conveying, facilitating or fostering the development of knowledge. Thus, learning as acquisition means that knowledge is something that individual learners have and own, and that can be transferred between different contexts as individuals build experience. Studies within this metaphor often focus mainly on the individual with less emphasis on context.

Learning as participation

On the other hand, understanding learning as participation involves viewing knowledge as an aspect of a practice or activity (cf. Illeris, 2007). According to Sfard (1998), this view of learning can be found in sociocultural learning theories building on, for example, Vygotsky’s use of concepts such as communities of practice, legitimate peripheral participation and apprenticeship (cf. Lave & Wenger, 1991; Wertsch, 1998). It also is expressed in research using the classic works of John Dewey, Donald Schön’s notions of the reflective practitioner, Michael Polanyi’s theory of tacit and embodied knowledge and in more recent attempts to further theorise learning in terms of ‘learning as becoming’ (Hodkinson, Biesta & James, 2007).

A basic assumption that links these theories is an understanding that knowledge is situated, mediated and centred on the ability to act in a certain practice. Knowing something is about becoming a ‘member’ of a particular practice, activity or discourse, as in situated learning theories (e.g. Lave & Wenger, 1991), or as a relation between action and its cultural, institutional and historical contexts, as in many sociocultural learning theories (e.g. Wertsch, 1998). This involves a shift from understanding knowledge as having, to knowledge as doing.

Issues of learning in the participation metaphor are always considered in light of the interplay between an individual and the environment, and are often connected to the ability to communicate. Learning is, accordingly, something social that occurs in communication and participation in different contexts. In the participation metaphor, it is assumed that people learn through interaction, communication, taking part and thus gaining access to different contexts. As a consequence, teachers teach by creating cooperative learning environments, communication, negotiation and guiding learners in and through inquiry in social contexts.

In short, learning as participation involves people becoming members of and participants in different practices. Knowledge is thus seen as an aspect of a practice, discourse or activity. Studies based on this metaphor often begin with the location in which the learning takes place

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<th>Table 28.1 Metaphorical mapping (adapted from Sfard, 1998, p. 7)</th>
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<td><strong>Acquisition metaphor</strong></td>
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<td>Behaviourist orientation</td>
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and sometimes downplay individual experiences and, as a result, tend to be criticised for being unable to explain transfer of learning (Sfard, 1998).

Of course, few contemporary learning theories in education or PE can be categorised wholly within either the acquisition or the participation metaphor. Most theories acknowledge, to some extent, individual aspects of the learner as well as sociocultural influences. The conceptualisation of learning within both metaphors, however, has been influenced by debates centring on individual–environment dualism (Hodkinson et al., 2007). What is certain is that the different assumptions underpinning learning theories lead to different assumptions about how teachers could and should teach, and such understandings – rarely made explicit – lead researchers to ask different questions in educational research.

**Current trends and issues**

The trends and issues presented in this section are based on a review of studies published in the following journals between 2004 and 2014: *Sport, Education and Society*, *Physical Education and Sport Pedagogy*, *Journal of Teaching in Physical Education*, *European Physical Education Review*, *Quest* and *Research Quarterly for Exercise and Sport*. The key inclusion criteria for the search were: (i) that the word ‘learning’ was present in the abstract or key word list; (ii) there was a focus on the role of learning theory in learning to teach; and (iii) the studies were published in English (which also is a limitation). As a result, this section is based on a synthesis of the abstracts of about 300 articles. Sfard’s (1998) metaphors will again be used as the organising framework.

**Learning as acquisition**

Within understandings of learning as acquisition, individual–environment dualism underpins two predominant trends in PE research, namely studies based on motor learning theories and those drawing from cognitive learning theories. Historically, these trends have been based on similar assumptions; i.e. that learning is something external that the learner can acquire, and researchers within these fields explore learning with focus primarily on the individual rather than the environment. There are, however, also differences in understandings of where learning actually takes place; for example learning as embodied or in the mind through reflection.

Studies exploring motor learning have focused on the body in terms of observable, gross bodily behaviour to identify cause and effect. Studies often take a ‘functional’ approach to teaching and emphasise the use of feedback and reward systems to change and modify behaviour (cf. Wallian & Wei Chang, 2006). Numerous studies have explored motor learning in PE from these premises and show, for example, the positive effects of using self-controlled feedback (e.g. Chiviacowsky & Wulf, 2005) and the benefits of allowing individuals to control their own practice schedule to improve their motor skills (e.g. Keetch & Lee, 2007). In the last decade, more traditional views of motor learning have been influenced by new concepts, such as those featured in sociocultural perspectives of learning (Chow, 2013; Wallian & Wei Chang, 2006). Studies like these have led to diversity, new research questions and methodological developments where the relation between the individual and the environment is taken into account to some extent (e.g. Renshaw, Chow, Davids & Hammond, 2010; Robinson & Goodway, 2009).

Other PE research has focused on the body as being ‘governed’ by the mind. Studies like this often take their point of departure in learning cognition and are sometimes based on constructivist perspectives of learning (e.g. Chen, Rovegno, Cone & Cone, 2012). In this field of research,
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Learner perceptions and learning strategies tend to be at the centre of inquiry, and the ensuing studies have shed light on areas such as how peers can influence learning outcomes in PE (e.g. Ward & Lee, 2005) or the misunderstandings, pedagogical difficulties and resistance that can arise when teachers learn to teach (e.g. McCAughtry, Sofo, Rovegno & Curtner-Smith, 2004). Related to this are studies using pedagogical content knowledge (PCK) as developed by Shulman (e.g. Ayvazo, Ward & Stuhr, 2010). Although this research often focuses on issues of teaching and teacher knowledge rather than learning, PCK has been used in relation to how teaching influences pedagogy and, as consequence, learning (e.g. McCAughtry, 2004; Stran & Curtner-Smith, 2010).

The review demonstrates that studies taking learning as acquisition as their starting point have been helpful in identifying significant qualitative shifts in movement skills, student and teacher thinking, problematic instances of knowledge acquisition, and factors that facilitate and inhibit learning. The use of an acquisition approach to learning thus positions teachers’ learning as a process of learning how to become a provider of knowledge or a mediator of student learning (see Table 28.1).

Learning as participation

Research within the learning as participation metaphor is also underpinned by assumptions emanating from the individual-environment dualism. Researchers within this field tend to focus on the environment, with less emphasis on the importance of the individual and individual learning (cf. Hodkinson et al., 2007).

In PE research, learning as participation is clearly expressed in Kirk and Macdonald’s influential article ‘Situated learning in physical education’ (1998). Drawing on the work of Lave and Wenger (1991), the article underpinned a large number of later studies that used a situated perspective on learning (e.g. Curtner-Smith & Sofo, 2004; Sinelnikov, 2009). The situated approach highlights the context-embedded character of learning, its social dimensions and the importance of authentic participation based on membership of a social group (Kirk, 2012; MacPhail, Kirk & Kinchin, 2004; Metzler, Lund & Gurvitch, 2008). When reviewing the literature it became clear that there were numerous studies using, or more implicitly basing their studies in, a situated perspective. For example, such studies include: an understanding and exploration of learning using pedagogical models including Teaching Games for Understanding (TGfU) (e.g. Griffin, Brooker & Patton, 2005; Tan, Chow & Davids, 2012), cooperative learning (e.g. Dyson, Griffin & Hastie, 2004; Goodyear, Casey & Kirk, 2014) and Sport Education (e.g. Kirk, 2012; Wallhead & O’Sullivan, 2005).

Parallel with the development in English-speaking journals of viewing learning as participation, in France the didactique tradition began to attract the attention of a wider audience in PE research. It is important to note, however, that the didactic tradition of educational research in Europe had been prominent for at least 35 years (Amade-Escot, 2006). Studies within this tradition shed light on qualitative accounts and analyses of critical moments in the teaching process when content is brought into play, such as the dynamics of implicit negotiations between teachers and students over content issues, and the co-construction of meaning underpinning classroom interactions (Amade-Escot, 2005). In these studies, knowing content is about becoming a ‘member’ of the classroom practice (e.g. Wallhead & O’Sullivan, 2007).

Emphasis on the social environment also appears in research using what we term a sociocultural perspective, where learning is explored as a sociocultural process. Studies drawing on a sociocultural perspective of learning, for example using the work of Bourdieu, Bernstein or Vygotsky, have been important in research on PE (cf. Cliff, 2012; Evans, Davies & Rich, 2009; Light, 2011;
Quennerstedt et al., 2014), and continue to contribute new research insights (e.g. Bäckström, 2014; Dowling & Kårhus, 2011; Strandbu & Steen-Johnsen, 2014). For example, drawing on post-Vygotskian theory, Barker, Quennerstedt and Annerstedt (2015) show the flexible and fluid nature of ‘expertness’ in group work in PE, both in the unpredictable nature of member interactions and in the challenging role that teachers adopt when they include group work in their classes. Furthermore, Bernstein’s recontextualising principle in pedagogic discourse has not only been used to explore curriculum and assessment (cf. Penney, 2013), but also to understand learning (e.g. Evans, De Pian, Rich & Davies, 2011; Ivinson, 2012). For example, in Evans et al.’s (2009) well-cited article ‘The body made flesh: Embodied learning and the corporeal device’, the authors address a number of problems concerning how researchers have understood and explored the bodily aspect of learning in PE.

More recently, research based on a pragmatist framework that includes the works of Dewey or Schön has been used to explore learning in PE (e.g. Nyberg & Larsson, 2014; Quennerstedt, 2013). Here the focus is on how individuals and environment transform and are transformed by each other in an ongoing process (Quennerstedt, Öhman & Öhman, 2011). In these studies researchers open what they call ‘the black box of learning’ by empirically exploring how learning occurs when individuals interact in different contexts (e.g. Andersson, Östman & Öhman, 2015; Maivorsdotter & Wickman, 2011). For example, Maivorsdotter and Lundvall (2009) explore ways in which student teachers learn basketball and gymnastics. They demonstrate that the student teachers’ former experiences of sport play a crucial role in the ways in which they are able to learn. Moreover, tension between norms and values in competitive sport and those promoted in teacher education created contradictory feelings of pleasure/displeasure in the learning process.

The need to explore learning as a complex phenomenon in different contexts has also recently been raised and addressed by studies making use of a perspective on learning known as complex learning theory. This theory rests upon epistemology and assumptions drawing from social constructivist theories of learning (Light, 2008), and researchers argue that this theory has certain purchase in postmodern times that, it is argued, are characterised by uncertainty, multiplicity and contradiction (e.g. Atencio, Jess & Dewar, 2012; Jess, Atencio & Thorburn, 2011).

Conclusions

Although learning is clearly central to PE, a review of research published in key journals in the field and that have the term ‘learning’ in their keywords or abstracts suggests that such studies tend to focus on content and issues of teaching or coaching (cf. Quennerstedt et al. 2014). Quennerstedt and colleagues observed that studies that do focus on learning tend to discuss learning rather than analyse what and how people learn drawing from explicit theories of learning (cf. also Ward & Lee, 2005). The review does illustrate, however, that learning is, in essence, a complex concept. Moreover, as Akkerman and Van Eijck (2013, p. 60) remind us, the learner at the centre of PE practices is multi-faceted and has to be recognised as a “whole person who participates in school as well as in many other practices”. The number of variables operating in any pedagogical encounter is vast and, in order to cope with this complexity, teachers need to be supported by research using a clear learning theory framework simply to make sense of what is happening in any particular class (Quennerstedt et al., 2014). A conclusion that can be drawn from the issues raised in this chapter is that while the range of theories used in research has extended, no single theory will do the ‘whole job’ of identifying and analysing all the learning processes occurring during one single lesson in PE.
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Implications for teaching

Many of the studies in the review start from an assumption that PE is quite problematic in its current state. There also is evidence of pressure to clarify the role of PE in increasing physical activity levels in contrast, perhaps, to its more traditional focus on educational values. Regardless of the different positions on this debate, however, pedagogy and learning remain central aspects of PE.

For teachers learning to teach, as well as for others interested in learning in PE, the fact that researchers tend not to be explicit about the assumptions they have made about learning and knowledge is problematic. If researchers are not clear about the learning theories that drive what they do in research, it is difficult to see how they can claim to be analysing learning in any depth. In view of this, it also is pertinent to consider the role of learning theory in learning to teach. In order to successfully develop their teaching, teachers need to be familiar with a wide range of learning theories. All learning theories have their strengths and limitations, and it seems obvious to suggest that teachers learning to teach have to be able to reflect on learning from different theoretical perspectives.

The research review further indicates that both within the acquisition and the participation metaphors there are two lines of research explicitly dealing with learning to teach. The first is research that focuses on developing practice, and the second is research that aims to produce results and theoretical ideas that could be used as tools for reflection. What both of these lines of thought have in common is that they are interested in helping teachers to act in different ways with different consequences. There are, however, also differences. One line of inquiry is about developing strategies, lessons and models in order to test or work with teachers in various pedagogical interventions, such as models-based instruction, pedagogical models or teaching interventions aiming at increasing levels of physical activity. In these studies, the focus often is on ‘quality outcomes’ and testing what works and does not work in PE practice. Here, the emphasis tends to be upon changing teaching practice and developing ‘best practice’ and this has clear consequences for teacher education.

The other line of inquiry uses theoretical tools to map a problem, ask questions and support empirical study. Here, the studies focus on what students learn and how teachers teach in order to understand the learning that is happening. This research tends to suggest that findings can lead to reflective and nuanced decision-making among practitioners, thereby potentially leading to new discussions and new ways of thinking about teaching. The consequences for teacher education and teacher professional development lie in promoting career-long growth of teachers’ professional knowledge and critical judgement.

The two lines of research make different assumptions about how to address what has been called the gap between practice and research. However, both lines of inquiry indicate that PE teachers need to know more about what students learn, how students learn and also why this learning is important. For this, it is essential that teachers develop additional tools with which to explore the practices in which they are involved. This is yet another example of the indisputable fact that in addition to being in a constant process of learning to teach, teachers also are themselves engaged in a constant process of learning to learn.

Future directions

Research exploring learning in PE has been undertaken from different theoretical perspectives in recent decades, and each perspective has its benefits and limitations. In the more recent research we reviewed there also are signs of a more varied use of learning theories. In comparison
to other curriculum areas such as mathematics education or science education, there has been limited debate in PE about the value and use of different learning theories (Quennerstedt et al., 2014). Sfard (1998) argues that in many fields, proponents of the two metaphors of learning are involved in academic discussions about central issues that separate their perspectives. Yet, the fact that there is debate in these areas is not necessarily problematic; rather, the problem is that the debate is not vigorous enough in the field of PE.

This chapter shows that learning is a complex concept. In order to grasp the complexity inherent in learning, theories such as ‘body pedagogies’ and ‘complex learning theory’ might be useful. In addition, rhizomatic ideas building on the work of Gilles Deleuze and Félix Guattari (cf. Enright & Gard, 2016), or ‘new materialist’ theories from, for example, Karen Barad (Larsson & Quennerstedt, 2012) are stressed by some researchers as ways of qualifying the investigation of learning in PE. Together with a need for methodological development, this theoretical diversification is important for the field because it supports more varied studies of teaching and learning in different contexts. Together with the theories being made explicit, this means that results could more easily be cumulative and that research findings across studies would have greater coherence.

The field also needs what can be called theory-generating research. Even though we now see an emergence of the use of learning theories in studies of different contexts, the field also needs to use insights from empirical and theoretical explorations in order to develop theories about teaching and learning in PE in relation to issues such as citizenship, embodiment, class, gender, sexuality and ethnicity. In this way, different aspects of embodied learning can be theorised and critical aspects of learning in relation to society at large taken into account.

With the strong focus on research using learning theory in schools, especially in the older age groups, there also is great value in researching other fields, both within and outside school. For example, there are gaps in the literature concerning studies using learning theories in movement practices in primary schools and preschools. This means that the practices in which young children engage are seldom represented in research. The tendency is for research to cover PE in general, and neglect knowledge about the growth, experiences, practices and standpoints of young children. Also, in contexts outside school there is a gap when it comes to youth sports and studies of learning in high performance sports and adult participation are also scarce. In terms of future directions, it is pertinent to mention the emergence of new studies of critical inquiry into learning in relation to digital media and ‘pedagogies of technology’. These consider how technology is used in PE in school, and also how digital technologies of health (for example apps in mobile phones) shape learning processes, affecting how and what is learnt about health. This is a clear area of development for the future.

**Summary of key findings**

- In the field of PE, an acquisition metaphor has dominated in terms of both behaviouristic and cognitive theories of learning.
- In the last 20 years the acquisition metaphor has been challenged by theories in the participation metaphor, most notably by research based on situated learning theory.
- There is strong evidence of studies on school interventions regarding learning, and studies based on situated learning theory and pedagogical models.
- Two main lines of scholarly debate related to learning theories in teaching were found in the literature: the first is research that develops and tests ‘quality outcomes’ and ‘best practice’, and the second is research that promotes ‘tools for reflection’ through empirical results and theoretical ideas.
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- The review of research reveals a persistent lack of explicit identification of learning theory underpinning and informing the research.
- There is a need for more theory-generating research that is grounded in explicit theories of learning in order to develop new theories in PE settings.

Reflective questions for discussion

In order to further scrutinise the role of learning theory in learning to teach we suggest the reading, discussion and analysis of significant learning theories within both the acquisition and participation metaphors. Questions that can be discussed in relation to the field of PE include:

1. What does a certain learning theory explain or fail to explain in terms of teaching and learning?
2. How do we as teachers or researchers know whether a student or learner has learned anything, and if they have, how do we know what this is?
3. If we teach a student about the relation between physical activity and health, what kind of citizen does that student then become? Also, if a student is a certain kind of citizen, what does s/he learn about the relation between physical activity and health?
4. What must a teacher know in order to become a better teacher? What would make them a better teacher, and in relation to what? Why is the suggested knowledge important?
5. What should teachers know about learning in order to make reflective and nuanced decisions in the gym?

References


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