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Citation for the original published paper (version of record):

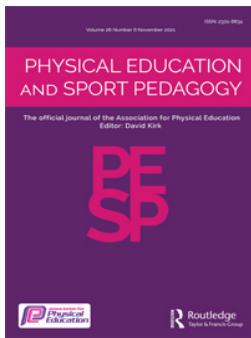
Backman, E., Tolgfors, B., Nyberg, G., Quennerstedt, M. (2021)
How does physical education teacher education matter?: A methodological approach to understanding transitions from PETE to school physical education
Physical Education and Sport Pedagogy
<https://doi.org/10.1080/17408989.2021.1990248>

Access to the published version may require subscription.

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Permanent link to this version:

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To cite this article: Erik Backman, B. Tolgfors, G. Nyberg & M. Quennerstedt (2021): How does physical education teacher education matter? A methodological approach to understanding transitions from PETE to school physical education, Physical Education and Sport Pedagogy, DOI: [10.1080/17408989.2021.1990248](https://doi.org/10.1080/17408989.2021.1990248)

To link to this article: <https://doi.org/10.1080/17408989.2021.1990248>



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Published online: 26 Oct 2021.



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How does physical education teacher education matter? A methodological approach to understanding transitions from PETE to school physical education

Erik Backman ^a, B. Tolgfors ^c, G. Nyberg^b and M. Quennerstedt ^{c*}

^aSchool of Health and Welfare, Dalarna University, Falun, Sweden; ^bSchool of Education and Learning, Dalarna University, Falun, Sweden; ^cSchool of Health Sciences, Örebro University, Örebro, Sweden

ABSTRACT

Background: In this paper, we will address the question of how physical education teacher education (PETE) matters and suggest one way to explore the potential impact of PETE. A distinguishing feature of the studies of PETE's impact on physical education is that they either include perspectives from preservice teachers involved in PETE courses or perspectives from physical education teachers in schools looking back at their education. Longitudinal attempts to follow preservice teachers' journey from education to workplace, in order to grasp how they perceive the relation between teacher education and teaching practice in schools, and the transition between these contexts, are few and far between. This gap of knowledge is a missing piece of the puzzle to further develop PETE, and to inform life-long professional development for teachers.

Purpose: The purpose of this paper is twofold. First, we develop and present a methodological approach for investigating the transition of content areas from courses in PETE into teaching practice in school physical education. Second, we will illustrate the potential utility of this methodological approach in longitudinal studies by showing how one particular content area, Assessment for Learning (AfL), was investigated through the use of methods and theories described in the first part of this paper.



Methodology: The suggested longitudinal approach involves Stimulated Recall (SR) interviews with pre- and postservice teachers, observations and communication with groups of students and teachers through social media. The construction, recontextualisation and realisation of pedagogic discourses regarding content areas are suggested to be analysed through a combination of Bernstein's concept of the pedagogic device and Ball's concept of fabrication.

Results and Conclusions: The longitudinal design and the suggested methodology can provide answers to how content areas are transformed in and between PETE and school physical education. A combination of the theoretical perspectives of Bernstein and Ball enables us to say something not only about how pedagogic discourses regarding content areas are constructed, recontextualised and realised in PETE and school physical education, but also about what content areas become in terms of fabrications in the transition between these contexts. To conclude, we argue that the methodological research

ARTICLE HISTORY

Received 16 March 2021

Accepted 4 October 2021

CONTACT Erik Backman  ebk@du.se  School of Health and Welfare, Dalarna University, Falun, Sweden

*Present address: Inland Norway University of Applied Sciences, Faculty of Social and Health Sciences, Elverum, Norway.

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design can be used to explore different content areas in PETE and that this methodology can contribute to knowledge about how PETE matters for school physical education.

Introduction

An enduring question in teacher education, and in this case specifically physical education teacher education (PETE), is *if* and *how* teacher education matters for beginning teachers. In this paper, we will specifically address the *how*-question and suggest one way to explore the potential impact of PETE, i.e. how PETE matters. In research on PETE and physical education, this issue has been explored through a range of methodological approaches and theoretical perspectives, including, for example, occupational socialisation (Hemphill et al. 2015), critical pedagogy (Philpot and Smith 2018), biographical narratives (Christensen et al. 2018), conceptual analysis (Lisahunter et al. 2011), and retrospective analysis (Brown 2005). Research on the effect of PETE on the teaching of physical education appears to demonstrate that it is both ineffective and weak in terms of its impact on how preservice teachers approach their future profession (Enright et al. 2018; Macken, MacPhail, and Calderon 2020). Some scholars further claim that the sport experiences of preservice teachers in PETE strongly contribute to the fact that their initial teaching practice aligns weakly with contemporary educational policy documents and that their teaching is not inclusive (see, for example, Dowling 2011). In contrast, some studies on PETE - and even more so on teacher education in general - show that teacher education seems to have a significant impact on professional teaching practice (Adamakis and Zounhia 2016; Hemphill et al. 2015; Ingvarson et al. 2014; Martin and Dismuke 2018; Tatto 2015).

A distinguishing feature of studies on the significance of PETE on physical education is that they include perspectives from *either* preservice teachers involved in PETE courses *or* school physical education teachers reflecting on their education. Longitudinal attempts to follow the journey of preservice teachers *from* education *to* the workplace as a way to understand how they perceive *the relation* between teacher education and teaching practice in schools and the *transition* between these contexts are few and far between (for an exception from the context of PETE and physical education see Rossi, Christensen, and Macdonald 2015; Klemola, Heikinaro-Johansson, and O'Sullivan 2013; and Dyson, Howley, and Shen 2021. For an exception from general teacher education and the general school context see Crosswell et al. 2018). In short, there is not enough knowledge about the transition *from* teacher education (in this case PETE) *to* the teaching of the school subject (in this case physical education), and how pedagogic discourses regarding different content areas are produced *in* and *between* these contexts. Possible explanations for this lack of knowledge might be that these types of studies are time-consuming and/or that applications to research councils are rejected. Another reason might be that there are not (yet) sufficiently effective approaches for investigating these types of questions. This gap in knowledge is a missing piece in the puzzle that will allow for further development of PETE and thus inform life-long professional development for teachers.

We argue that what is needed are methodological approaches that can take the whole transitional journey from PETE to physical education teaching into account, including the phase when beginning teachers are, in a sense, 'in transit' as they enter a new workplace. In order to understand how different content areas in PETE are transformed and transmitted into school physical education, and how pedagogic discourses are recontextualised in these contexts, we need to apply methodological approaches that can develop cumulative knowledge about transitions from PETE to physical education, i.e. approaches that can answer the question *if* PETE is significant and *how*. We would argue that these issues pose a number of challenges:

- (1) How can research projects that take longitudinal features into account be designed?
- (2) What types of data and continuous data generation strategies are needed so that contact with beginning teachers after they graduate, and transition into the workplace, can be maintained?
- (3) What conceptions of content areas and their transformation from teacher education to school practice does this type of study imply?
- (4) What theories can help in an understanding of how different content areas are constructed and transformed in the journey from PETE to teaching practice?

In the following, we will outline and illustrate a methodological approach that addresses these challenges. In order to understand the methodological approach suggested in this paper, the conceptualisation of *content* deserves clarification. In PETE and in school physical education, the conceptualisation of content is messy and has been debated with regard to different culturally dependent meanings (see, for example, Backman and Barker 2020). In this paper, we use *content area* to describe how learning activities take shape in subject matter courses in PETE. Examples of content areas in the context of Swedish PETE (where the authors are positioned) are as follows: invasion games, sports history, body image, outdoor education – or, for the purpose of illustration – Assessment for Learning (AfL). However, we suggest that the methodology described and discussed in this paper could be applied in any content area.

The purpose of this paper is thus twofold. First, we develop and present a methodological approach for investigating the transition of content areas from courses in PETE into teaching practice in school physical education. Our idea is that this part of the paper can be helpful to anyone interested in the transition from PETE to school physical education, regardless of content area. Second, we will illustrate the potential utility of this methodological approach in longitudinal studies by showing how one particular content area, AfL, was investigated through the use of methods and theories described in the first part of this paper.

Background

Methodological approaches used in general teacher education to understand the transition from teacher education to school teaching practice

As reflected in several reviews, there is a plethora of work on the preparation of teachers for teaching subjects in schools (BERA 2014; Cochran-Smith et al. 2015; Ingvarson et al. 2014; Tatto 2015). Cochran-Smith and Villegas (2015) outline three major study clusters: (a) research on teacher preparation, accountability, effectiveness and policies; (b) research on teacher preparation for the knowledge society; and (c) research on preparing teachers for equity and diversity. While they found many studies on how teacher education can change preservice teachers' beliefs and values, they identified a lack of studies on how teacher education can influence preservice teachers' teaching practice. Investigations of this journey from teacher education to the teaching profession demands more longitudinal approaches (BERA 2014), and Cochran-Smith and Villegas (2015, 117) conclude that 'we need more research that goes beyond assuming that changing teacher candidates' beliefs necessarily leads to different behaviours and actions in their classrooms'.

The above-mentioned investigations suggest there to be a lack of knowledge on which *research methodologies* have proven to be the most successful with regards to investigating the influence that teacher education has on school teaching practice (BERA 2014; Ingvarson et al. 2014; Tatto 2015). One exception is Martin and Dismuke's (2018) work, which used mixed-methods and complexity theory in an investigation of links between teacher education coursework in writing and subsequent teaching practices. They found that involvement in writing courses had a positive effect on later professional development in writing. While we acknowledge the importance of their work, our opinion is that Martin and Dismuke's (2018) study does not address the full journey of preservice teachers' professional development as it focuses on how working teachers can develop their

teaching practice by returning to take teacher education courses. Our impression is that there needs to be more research examining the phase when newly graduated preservice teachers leave university and enter the workplace as teachers.

Methodological approaches used in PETE to understand the transition from PETE to school physical education

Over recent decades, there has been a significant increase in research on the influence PETE has on school physical education. The literature emphasises the lack of alignment between PETE and school physical education, for example with regards to issues of social justice, morals, and ethics (Enright et al. 2018); critical pedagogy (Philpot and Smith 2018); norm-critique (Whatman, Quennerstedt, and McLaughlin 2017); and the implementation of content areas such as Afl (Macken, MacPhail, and Calderon 2020; Tolgfors et al. 2021). However, there are also studies claiming the strong potential of PETE to produce and maintain messages through educational systems, for example when it comes to the philosophical and pedagogic beliefs relating to physical education (Fyall 2017) and what pedagogic discourses preservice teachers find attractive in a neo-liberal education-market (Kårhus 2010).

Many scholars investigate issues in the PETE context during *school placement studies*, often through the voices of preservice teachers, and then discuss the *potential* consequences for school physical education based on their findings (Dowling 2011; Enright et al. 2018; Fyall 2017; Lorrente-Catalán and Kirk 2016; Macken, MacPhail, and Calderon 2020; Philpot and Smith 2018; Whatman, Quennerstedt, and McLaughlin 2017). This is similar to studies focusing on the professional development of physical education teachers from an occupational socialisation theory perspective (Curtner-Smith, Hastie, and Kinchin 2008; Hemphill et al. 2015). Curtner-Smith, Hastie, and Kinchin (2008), for example, proposed that professional and organisational socialisation could explain the extent to which beginning teachers implemented the Sport Education Model in their teaching. Further, Hemphill et al. (2015) demonstrated that Case Based Learning may provide a method that could enhance preservice teachers' cognitive growth and their focus on future teaching situations.

In both teacher education in general and PETE specifically, few empirical studies exist that have a *longitudinal* perspective on the journey of the preservice teacher from teacher education to school teaching practice. There exist a couple of longitudinal studies on preservice teachers during certain periods *in* PETE (e.g. Christensen et al. 2018) or certain periods as teachers *within* school (e.g. Keay 2009). None of these studies shed light on how preservice teachers construct particular content areas when they move *from* PETE *to* school physical education.

However, there is one important exception to this, and it is the work of Rossi, Christensen, and Macdonald (2015). They studied how preservice teachers in physical education learn their profession by focusing on *workplace learning*. In a longitudinal project, they followed preservice teachers on their journey from school placement in PETE to their entrance into the workplace as physical education teachers. More specifically, their object of research was how professional learning processes take form in physical education staff rooms in schools (Rossi, Christensen, and Macdonald 2015).

What we find to be missing are empirical studies on how *particular content areas in PETE* (such as Afl, invasion games, sports history, body image, outdoor education) are constructed, transmitted, and transformed in terms of pedagogic discourses during the preservice teachers' journey from PETE to school physical education teaching in schools. Our ambition is thus to add to the knowledge base that builds on longitudinal studies focusing on the journey of preservice teachers to beginning physical education teachers. In our search for answers on how content areas take shape when preservice teachers move from PETE to physical education teaching practice, we were inspired by Bernstein's (1996) theory of *how* pedagogic discourses in educational systems are constructed, recontextualised, and realised through the pedagogic device.

We were also inspired by Ball's (2003) theory of performativity, which helped us to identify different fabrications of *what* a particular content area in PETE becomes in physical education teaching. Here we add to this knowledge base by developing and illustrating a methodological approach for investigating transitions from PETE to school physical education. Examples of research questions that address this knowledge gap and that we suggest and relate to in the remainder of this paper are as follows:

- (1) How are pedagogic discourses regarding content areas constructed in PETE in university courses?
- (2) How are pedagogic discourses regarding content areas recontextualised in PETE during school placements?
- (3) How are pedagogic discourses regarding content areas realised in the initial physical education teaching practice of beginning teachers?
- (4) What do content areas become in terms of fabrications in the transition between PETE university courses, PETE school placements and school physical education?

Theoretical framework

In this section, we first present our use of Bernstein's pedagogic discourse and second, Ball's ideas relating to performativity. We then argue for how the combination of these can be used to move between questions on *how* content areas are constructed and recontextualised as pedagogic discourses in different contexts in PETE (Bernstein 1996) and *what* content areas become in terms of different fabrications (Ball 2000).

How are content areas constructed and recontextualised in PETE, and how are they realised in school physical education?

Several studies on teacher education (see, for example, Alvunger and Wahlström 2018; Beach and Bagley 2012) as well as on PETE (see, for example, Munk Svendsen and Tinggaard Svendsen 2016) clearly demonstrate that Bernstein's (1996) ideas of *how pedagogic discourses are constructed, recontextualised, and realised* can contribute with an in-depth understanding of the transformation of content areas. Bernstein (1996) suggests that pedagogic discourses contain not only content but also values (for example, PETE educators' personal preferences in terms of how to present content areas), which means that teaching about the same content area in PETE often differs between teachers. According to Singh (2015), teacher education and teacher educators have important roles in the system of rules and principles on which pedagogic discourses are constructed. She argues that a pedagogic discourse is a 'regime of rules or principles of power and control by which knowledge (content, skills and processes) is selected and organized for pedagogic purposes' (Singh 2015, 367).

Pedagogic discourses are shaped when content areas from different contexts (for example, PETE and school physical education) meet, and are regulated at different levels. At the distributive level, the boundaries for the possible/thinkable and the impossible/unthinkable expressions of content are constructed in, for example, research, course literature, and policy documents. Further, the pedagogic discourses regarding content areas in PETE and in school physical education are shaped through processes of recontextualisation. During this process, pedagogic discourses constructed in PETE meet pedagogic discourses constructed in school physical education.

According to Bernstein (1996), the recontextualisation process suggests that certain pedagogic discourses (i.e. the regulative ones) tend to dominate others (i.e. the instructional ones). For example, Macdonald, Kirk, and Braiuka (1999, 43–44) have suggested that 'the regulative discourse of the physical activity field, the communities of practice of sport, physical recreation and exercise has similarly shaped discourses in schools and universities' (see also Hay, Tinning, and Engstrom

2015). This process of recontextualisation may be studied through, for example, observations and reflective interviews. At the evaluative level, the specific pedagogic discourses expressed in the classroom are realised. The process within which pedagogic discourses meet and are regulated through distributive, recontextualising, and evaluative rules are by Bernstein (1996) called *the pedagogic device*. A complexity that is built into the pedagogic device and that operates in the transition from PETE to school physical education is that content areas in PETE can have their equivalent as content areas in school physical education (as in the case with invasion games), but they can also be transformed into teaching methods (as in the case with AFL).

What do particular content areas become in the transition from PETE to school physical education?

Some researchers of general teacher education and of PETE combine Bernstein's theory with ideas from Ball (2003) to illustrate how teacher education and PETE have adapted to neo-liberal ideologies and become a market for consumers (Kårhus 2010; Singh 2015). Ball's concepts, such as the concept of *fabrication*, can here be useful in an analysis of *what* content areas become in the transition from PETE contexts to physical education contexts, thus adding to the Bernsteinian focus on *how*. According to Ball (2000, 10), 'the particular disciplines of competition encourage schools and universities to *'fabricate'* themselves to manage and manipulate their performances in particular ways' [authors' emphasis]. In line with Ball (2000, 2003), fabrications of content areas must be understood in relation to a widespread performativity-culture in the educational system that is imbued with ideas of productivity, effectivity, and maximisation. A fabrication of a content area is to be seen as the product of what is performed in the interactions between different agents in PETE and can thereby provide a tool by which to analyse what content areas in PETE and in school physical education become in an educational context.

Along with Braun and colleagues (Braun et al. 2011), Ball also emphasises the importance of school contexts and the way different *contextual dimensions* (situated, professional, material, external) can function as *enablers* and *constraints* when it comes to the implementation of educational policy. The work of Singh (2015), as well as that of Kårhus in PETE (2010), builds on a combination of ideas from Bernstein and Ball. However, Singh (2015) and Kårhus (2010) reason around what *potential* consequences pedagogic discourses in higher education might have for teachers and teaching practices in schools rather than explore empirically the transitions from PETE to school physical education. What we add is that the combination of Bernstein (1996) and Ball (2003) can be used to analyse empirical data and shed light not only on *how* pedagogic discourses regarding different content areas are recontextualised *in* PETE (on the one hand) and *within* school physical education (on the other hand), but also on *what* content areas become in terms of fabrications in the transition from PETE to school physical education. This is an area that as far as we know has seldom been investigated.

Study design suggestion

To investigate the transition of content areas from PETE to school physical education, and to address the presented challenges and potential research questions as outlined, we would argue that it is reasonable to start at *the distributive level* on which pedagogic discourses are produced (Bernstein 1996). Course literature, course syllabi, unit outlines, and lesson plans, together with recordings from lectures and practical units during PETE, can constitute important empirical material for this. We further suggest using recordings of seminars in which students discuss course literature, written assignments in which students interpret the content area, and/or recordings of practical lessons as data, depending on which content area is under investigation.

The school placement is a further valuable yet also complex component of PETE. On the one hand, the school placement means a step closer to the reality of school in the form of meetings

with school cultures, teachers, and students, while on the other hand, there are built-in limitations with regards to feeling ‘at home’ (Christensen et al. 2018; Rossi, Christensen, and Macdonald 2015), making your voice heard (Enright et al. 2018), implementing content areas (Macken, MacPhail, and Calderon 2020), and establishing relations with students (Tolgfors et al. 2021). Intensified collaboration between schools and universities is often brought forward as a potential solution for making school placements more authentic (Amaral-da-Cunha et al. 2020; MacPhail, Tannehill, and Karp 2013). During school placements, we suggest using observations combined with stimulated recall (SR)-interviews (Vesterinen, Toom, and Patrikainen 2010) to capture the *recontextualisation* of a content area in PETE (Amaral-da-Cunha et al. 2020; Tolgfors et al. 2021).

Observations and SR-interviews can also be used when preservice teachers work as school physical education teachers to capture *how* the pedagogic discourse is recontextualised as well as *what* the content areas become in school physical education. As several studies highlight, the critical reflection of preservice teachers and teachers on physical education teaching for their professional development as teachers is of utmost importance (Dowling 2011; Fyall 2017; Philpot and Smith 2018). To stimulate reflection on teaching practice, SR-interviews have proven to be a favourable method (Endacott 2016). SR-interviews involve being able to observe video-recordings of one’s own teaching while simultaneously being prompted to express thoughts on decisions and actions (Vesterinen, Toom, and Patrikainen 2010). According to Endacott (2016, 32), this methodology ‘situates teachers’ learning within the social context of their practice’ and ‘enables the observer to target deeper understandings of practice’.

In order to meet the longitudinal challenge presented by studies of transitions from PETE to school physical education, it is crucial to maintain contact with preservice teachers when they enter the profession as physical education teachers. In this regard, closed groups on social media can, as suggested by Goodyear, Casey, and Quennerstedt (2018), be useful and serve to support knowledge sharing and learning between preservice teachers, beginning teachers, and teacher educators/researchers. As suggested in several studies, there are many opportunities for learning in online communication (Casey, Goodyear, and Armour 2017; Goodyear, Casey, and Quennerstedt 2018). These online discussions can then, together with observations and SR-interviews, be used as data to capture the sense of being in transit during the journey from PETE to school physical education.

The challenges outlined in the introduction demand a certain type of methodology and – as we have suggested – empirical material. As a consequence, we would argue that the described methodology makes it possible to say something not only about *how* the construction, recontextualisation and realisation of pedagogic discourses regarding content areas between university (including the school placement) and schools take place (Bernstein 1996), but also about *what* content areas in terms of fabrications become (Ball 2003) in the transition between these contexts.

An illustration of the methodology

In the second part of this paper, we will illustrate the potential utility of the methodological approach in longitudinal studies by showing how one particular content area, AfL, was investigated through the use of methods and theories described in the first part of this paper. In the choice of what content area to study, content with a clear object of learning often facilitates the research process. Our reasons for the choice of AfL start from it being brought forward as a potential solution to the long-lasting lack of alignment between learning objectives, teaching, and assessment in school physical education (Hay and Penney 2013; MacPhail and Halbert 2010), as well as in PETE (Loriente-Catalán and Kirk 2016; Macken, MacPhail, and Calderon 2020). We also assumed that preservice teachers had little experience of AfL compared to other content areas in PETE, which helped us clarify and delineate the object of learning. Other PETE content areas that fill these criteria are, for example, aesthetical forms of dance, critical perspectives of health, models like TGfU, and issues of

social justice in physical education. But again, we would argue that what we suggest has the potential to be used in any content area in PETE.

In relation to AfL, Lorente-Catalán and Kirk (2016) emphasise that the transition from university to teaching in schools is especially problematic with regard to which assessment strategies are implemented in schools. Consequently, it is reasonable to assume that the pedagogic discourse of AfL is likely to find new expressions during the transition to the school context. AfL is also of particular interest since it is a content area in PETE that should be transformed not into a content area for pupils to learn but into a way to work and assess in school physical education.

With the described methodology as our starting point, the specific purpose of the project underlying this illustration was to investigate *how* AfL, seen as a pedagogic discourse, is constructed within campus-based studies in PETE at two universities in Sweden, how it is further recontextualised in school placement studies in PETE, and, finally, how it is realised in school physical education. A further purpose was to analyse *what* AfL becomes in the transition from campus-based courses in PETE to school placement studies in PETE, and finally to school physical education. The theoretically based questions for our analysis were as follows:

- (1) How are pedagogic discourses regarding AfL constructed in different educational contexts in PETE and school physical education?
- (2) How are pedagogic discourses regarding AfL recontextualised in the transition between different educational contexts in PETE and school physical education?
- (3) What fabrications of AfL are produced in the transition between different educational contexts in PETE and school physical education?

The project that underlies this methodological discussion is longitudinal and will run over five years (2019–2023). The project follows five groups of PETE students (with between 8 and 12 pre-service teachers in each group) from two different PETE institutions in Sweden over a two-year period, from the last year of PETE until their first year as physical education teachers. In this paper, we will not be able to show the results of the whole project (see Tolgfors et al. 2021). Instead, in order to illustrate the usefulness of the methodological approach described above, we provide a few empirical samples from the studies of (i) how AfL is constructed as a pedagogic discourse at university, (ii) how AfL is critically reflected on when SR-interviews are used, (iii) how AfL is discussed in social media during the transition from PETE to school physical education, and (iv) what AfL becomes in terms of fabrications.

AfL at university – an ideal pedagogic discourse

In the campus-based assessment course (the distributive level), the construction of AfL is based on the pedagogic discourse presented in research and course literature. The five key strategies of AfL form a point of departure for the further recontextualisation (Black et al. 2004). One of the learning outcomes for the campus-based assessment course at one of the universities reads ‘the student should demonstrate an understanding for pedagogic assessment in relation to the profession’ and the task is for the preservice teacher to ‘problematisé assessment for and of learning’ in a reflective paper. In the campus-based course, the pedagogic discourse of AfL was expressed somewhat idealistically by the preservice teachers. In a seminar, preservice teacher G said ‘I can imagine AfL in everything’ and preservice teacher E stated ‘I really believe in this way of learning [AfL]’. The ideal and regulative pedagogic discourse that was introduced at university also became visible when the preservice teachers reflected on their experiences from collaborating with physical education teachers during their school placements. Preservice teacher G said ‘I think it can be difficult to have a colleague who doesn’t know anything about AfL’ and further stated ‘it seems that the university is far ahead when it comes to AfL, and the others are a step

behind'. The lens of Bernstein (1996), which have lately shown to be useful for exploring assessment discourses in PETE (Hay, Tinning, and Engstrom 2015), shows, firstly, that the construction of the pedagogic discourse regarding AfL in the campus-based course at university is very similar to that of the literature. Secondly, the pedagogic discourse of AfL at university seems to be raised as a desirable ideal.

Stimulated recall – critical reflection on a (marginalised) pedagogic discourse of AfL in school teaching

SR-interviews, involving observation by way of video-recordings and follow-up interviews, offer possibilities for enhanced reflection on teaching and content (Endacott 2016). In the example below, the former preservice teacher E, in his/her new position as physical education teacher, is prompted to reflect on a class s/he just had in hit-full-body-workout (strength training to music). In this class, E was instructing pupils from the front of the classroom while following another instructor on a tablet. The group of pupils was instructed to follow E's movements.

E: The pupils could do this themselves [follow the instructor on the tablet] ... they could do that ... [silence] ... and then they could be in groups instructing each other. (...) When we did this before, they weren't following me, but instead they followed a clip on YouTube. I followed it too!

Researcher: Did you notice any differences from that time compared to now? (...) From what I could see, there was quite a distance between you and the group? It wasn't like you gave feedback to anyone?

E: No, I thought about that too! In that sense, it was better last time. It feels a bit stupid ... it feels better doing it yourself [instructing without following a clip], even though it doesn't really have to be negative. (...) If I had had more time, I would have practised for this so that I wouldn't have had to follow the clip ... because now I have to check the tablet instead of focusing on them [the pupils].

The researcher actively prompts E to reflect on alternative ways to instruct (Endacott 2016), in this case with regards to one of the key strategies of AfL – feedback (Wiliam 2011). E becomes aware of how his/her focus on the screen limits interaction with the pupils and therefore comes up with ideas about letting the pupils lead themselves or having them follow a clip so that s/he can give them more feedback. The quote above illustrates how one of the AfL-strategies here is lost because of the intense focus on instruction, but when prompted to reflect on his/her behaviour, E comes up with ideas for new feedback strategies. As it appears, from the perspective of one of the preservice teachers who took part in the study, part of this recontextualisation, or perhaps marginalisation, of a key AfL-strategy is due to limited preparation time. Here, the SR-interview not only serves to identify an instructional school-related pedagogic discourse, but it also helps the teacher to develop his/her teaching and to recall how AfL was introduced during the campus-based course (Endacott 2016).

Social media – capturing the transition from preservice teacher to beginning teacher

A way to find out about what happens between the time teacher students leave university and enter the teaching profession is to provide them with tools with which they can report back to PETE. When graduating from their PETE university, the project participants were invited to a closed Facebook group. Below, an online discussion about the challenges of implementing AfL in school physical education illustrates how online forums enable beginning physical education teachers, in this case, who are one month into their job, to learn from each other and to reflect on their teacher education.

E: Have you used any AfL-strategies yet? I've had problems getting going with them. I try to make aims visible, but I'd like to have more group discussions and self-reflection (...), but that means lots of responsibility for the pupils ...

B: I always talk about the purpose of a lesson or a content area. I've tried to reflect together with the pupils at the end of the lessons, but they aren't used to that. They're very impatient and want to finish the lesson as soon as possible.

E: For me, it's mostly been about getting to know the pupils and understanding everything ...

The conversation between teacher E and B illuminates the struggle that beginning teachers have trying to balance the implementation of content areas learnt during PETE, such as in this case some of the key learning strategies from AfL (Wiliam 2011), with the reality shock of entering their new profession (Starck et al. 2020). Besides the communicative advantages of using social media in our methodology (Casey, Goodyear, and Armour 2017; Goodyear, Casey, and Quennerstedt 2018), we can also make stronger claims in terms of how AfL is recontextualised and fabricated during the transition from PETE to school physical education.

What does AfL become in terms of fabrications during the transition from PETE to school physical education?

The discourse of measurability and accountability that dominates contemporary ideology in schools and teacher education (Ball 2003; Braun et al. 2011; Singh 2015) is also expressed in terms of a performance culture in physical education (Evans and Davies 2006). As illustrated by preservice teacher D below, who reflects on his/her experiences from the PETE school placement course, there is heavy emphasis on a summative assessment in school physical education in Sweden, and therefore ideas of AfL are concealed (Redelius, Quennerstedt, and Öhman 2015; Tolgfors and Öhman 2016).

The older one [of the supervisors] was like 'I assess you continuously!'. And then it will all end up in a grade ... I think it [the talk of AfL] is a bit contradictory ... I don't hear the feedback, 'cause it's all just about summative assessment all the time.

Obviously, the idealistic and regulative pedagogic discourse of AfL that preservice teacher D was introduced to at university (Wiliam 2011) is likely to be recontextualised into something new when it is journeyed through PETE and into physical education. Preservice teacher D (above) describes a contradiction in that the pedagogic discourse of AfL at university does not seem to be valued in schools, where the discussion instead is mostly about performance, measurement, and summative grading. This pedagogic discourse of assessment in schools is not only reproduced in policy documents (Evans and Penney 2008) but also upheld by students (Redelius and Hay 2012), as illustrated by preservice teacher F below.

Unfortunately, many pupils have the notion about physical education that it is about performance, performance, performance, and then you get graded on that. Not for all pupils, but for the majority of them.

In a sense, AfL then becomes 'AfL as grade generation' (Tolgfors et al. 2021) enacted under the contextual conditions provided. In this way, a *performativity-perspective* (Ball 2003; Singh 2015) enables us to make claims regarding *what* AfL becomes in the transition between educational contexts in terms of different *fabrications*. At a time when pedagogic discourses in schools are imbued with summative aspects of assessment, the combination of Bernstein (1996) and Ball (2003) thus provides answers as to *how* recontextualisations of pedagogic discourses take place and *what* the pedagogic messages are recontextualised into.

Conclusions

To draw conclusions from the methodological discussion in this paper, we return to the challenges posed in the introduction and the suggestions for research questions. There are a number of studies on PETE that focus *either* on preservice teachers' perspectives and discussions on *potential* consequences for future teaching (see, for example, Dowling 2011; Lorente-Catalán and Kirk 2016; Macken, MacPhail, and Calderon 2020) *or* on physical education teachers' perspectives and discussions on *potential* reasons for their current teaching in their prior education (see, for example, Backman 2011; Curtner-Smith, Hastie, and Kinchin 2008). There is accordingly a lack of longitudinal studies following preservice teachers in PETE, and their view of content areas, on the journey from university to professional practice as teachers in schools. Following the design and

methodology described in this paper implies not only discussions about what content areas can *potentially* become on the journey from PETE to school physical education, but it can also provide answers to how content areas are transformed in and between these contexts. The unique complexity characterising PETE school placement studies (Amaral-da-Cunha et al. 2020; MacPhail, Tannehill, and Karp 2013; Tolgfors et al. 2021), with features from university as well as from school, needs to be acknowledged in a longitudinal research design with the ambition to investigate how content areas take shape in the transition from PETE to school physical education.

The suggested methodology, involving SR-interviews after filmed observation of teaching (Vesterinen, Toom, and Patrikainen 2010), includes a *directness* and an *immediateness* in the reflection on teaching practice (Endacott 2016) that cannot be attained by separate in-depth interviews or observations. Furthermore, although establishing groups on social media for educational purposes is not without its challenges (Casey, Goodyear, and Armour 2017; Goodyear, Casey, and Quennerstedt 2018), it is still an effective and easily accessible strategy (compared to, for example, standard face-to-face interviews) for maintaining contact with beginning teachers and for investigating the recontextualisation of content areas through their perspectives.

As previously described, we deliberately chose a content area (AfL) that we assumed preservice teachers had little experience of before they began PETE (Lorente-Catalán and Kirk 2016). The lack of previous experience and pre-understanding among preservice teachers provides AfL with a *clear object of learning* in PETE. This object of learning is because AfL is new when it is presented to the students, and it also facilitates the research process. Similarities can be seen in other PETE content areas, such as aesthetical forms of dance, critical perspectives of health, models like TGfU, and issues of social justice in physical education. Another aspect of AfL that is unlike several other content areas in PETE (e.g. invasion games) is that in the transition from PETE to school physical education, AfL is transformed from a content area into a teaching method. When considering what content area to choose for this type of study, we accordingly suggest a *wide conception of content* – and not only content areas in PETE that have their direct equivalent in school physical education (see Author 2020 for further discussion).

The described methodology implies a combination of the theoretical concepts of Bernstein and Ball. These theorists, along with others (for example, Bourdieu and Lawson) have primarily been used *singularly* in former studies of preservice teachers or teacher educators in PETE (Christensen et al. 2018; Curtner-Smith, Hastie, and Kinchin 2008; Enright et al. 2018). We claim that the suggested *combination* of theoretical perspectives enables us to say something not only about *how* pedagogic discourses regarding content areas are constructed, recontextualised and realised (Bernstein) in PETE and school physical education, but also about *what* content areas become in terms of fabrications in the transition between these contexts (Ball). Combining the mentioned theorists has been proven fruitful for understanding general teacher education (see e.g. Singh 2015) as well as wider education policy and practice (see e.g. Iverson 2012). We suggest that more scholars involved in PETE should follow their lead. To conclude, we argue that the methodological research design described can be used to explore different content areas in PETE and that this methodology can accordingly contribute to knowledge about how PETE matters for school physical education.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors were funded by the Swedish Research Council and the Swedish Research Council for Sports Sciences: Centrum for Idrottsforskning; Vetenskapsrådet.

ORCID

Erik Backman  <http://orcid.org/0000-0002-4660-717X>
 B. Tolgfors  <http://orcid.org/0000-0002-1773-7792>
 M. Quennerstedt  <http://orcid.org/0000-0001-8748-8843>

References

- Adamakis, M., and K. Zounhia. 2016. "The Impact of Occupational Socialization on Physical Education - pre-Service Teachers' Beliefs About Four Important Curricular Outcomes. A Cross-Sectional Study." *European Physical Education Review* 22 (3): 279–297. doi:10.1177%2F1356336X15605519.
- Alvunger, D., and N. Wahlström. 2018. "Research-based Teacher Education? Exploring the Meaning Potentials of Swedish Teacher Education." *Teachers and Teaching* 24 (4): 332–349. doi:10.1080/13540602.2017.1403315.
- Amaral-da-Cunha, M., A. Graça, P. Batista, and A. MacPhail. 2020. "Giving Birth to a Supervisory Identity Built upon Pedagogical Perspectives on Teaching: The Case of a Novice Physical Education Cooperating Teacher." *European Physical Education Review* 26 (2): 353–374. doi:10.1177%2F1356336X19857181.
- Backman, E. 2011. "What Controls the Teaching of Friluftsliv? Analysing a Pedagogic Discourse Within Swedish Physical Education." *Journal of Adventure Education and Outdoor Learning* 11 (1): 51–65. doi:10.1080/14729679.2010.532988.
- Backman, E., and D. M. Barker. 2020. "Re-thinking Pedagogical Content Knowledge for Physical Education Teachers – Implications for Physical Education Teacher Education." *Physical Education and Sport Pedagogy* 25 (5): 451–463. doi:10.1080/17408989.2020.1734554.
- Ball, S. J. 2000. "Performativities and Fabrications in the Education Economy: Towards the Performative Society?" *The Australian Educational Researcher* 27 (2): 1–23.
- Ball, S. J. 2003. "The Teacher's Soul and the Terrors of Performativity." *Journal of Education Policy* 18 (2): 215–228. doi:10.1080/0268093022000043065.
- Beach, D., and C. Bagley. 2012. "The Weakening Role of Education Studies and the re-Traditionalisation of Swedish Teacher Education." *Oxford Review of Education* 38 (3): 287–303. doi:10.1080/03054985.2012.692054.
- Bernstein, B. 1996. *Pedagogy, Symbolic Control and Identity. Theory, Research, Critique Vol. 5, Class, Codes and Control*. London: Taylor and Francis.
- Black, P., C. Harrison, C. Lee, B. Marshall, and D. Wiliam. 2004. "Working Inside the Black Box: Assessment for Learning in the Classroom." *Phi Delta Kappan* 86 (1): 8–21. doi:10.1177%2F003172170408600105.
- Braun, A., S. J. Ball, M. Maguire, and K. Hoskins. 2011. "Taking Context Seriously: Towards Explaining Policy Enactments in the Secondary School." *Discourse: Studies in the Cultural Politics of Education* 32 (4): 585–596. doi:10.1080/01596306.2011.601555.
- British Educational Research Association (BERA). 2014. *The role of research in teacher education: Reviewing the evidence*. Interim report of the BERA-RSA Inquiry.
- Brown, D. 2005. "An Economy of Gendered Practices? Learning to Teach Physical Education from the Perspective of Pierre Bourdieu's Embodied Sociology." *Sport, Education and Society* 10 (1): 3–23. doi:10.1080/135733205298785.
- Casey, A., V. A. Goodyear, and K. A. Armour. 2017. "Rethinking the Relationship Between Pedagogy, Technology and Learning in Health and Physical Education." *Sport, Education and Society* 22 (2): 288–304. doi:10.1080/13573322.2016.1226792.
- Christensen, E., T. Rossi, R. Lisahunter, and R. Tinning. 2018. "Entering the Field: Beginning Teachers' Positioning Experiences of the Staffroom." *Sport, Education and Society* 23 (1): 40–52. doi:10.1080/13573322.2016.1142434.
- Cochran-Smith, M., and A. M. Villegas. 2015. "Framing Teacher Preparation Research: An Overview of the Field. Part I." *Journal of Teacher Education* 66 (1): 7–20. doi:10.1177%2F0022487114549072.
- Cochran-Smith, M., A. M. Villegas, L. Abrams, L. Chavez-Moreno, T. Mills, and R. Stern. 2015. "Critiquing Teacher Preparation Research: An Overview of the Field. Part II." *Journal of Teacher Education* 66 (2): 109–121. doi:10.1177%2F0022487114558268.
- Crosswell, L., J. Willis, C. Morrison, A. Gibson, and M. E. Ryan. 2018. "Early Career Teachers in Rural Schools: Plotlines of Resilience." In *Resilience in Education: Concepts, Contexts and Connections*, edited by M. Wosnitza, F. Peixoto, S. Beltman, and C. Mansfield, 131–146. Cham: Springer.
- Curtner-Smith, M. D., P. Hastie, and G. D. Kinchin. 2008. "Influence of Occupational Socialization on Beginning Teachers' Interpretation and Delivery of Sport Education." *Sport, Education and Society* 13 (1): 97–117. doi:10.1080/13573320701780779.
- Dowling, F. 2011. "Are PE Teacher Identities fit for Postmodern Schools or are They Clinging to Modernist Notions of Professionalism? A Case Study of Norwegian PE Teacher Students' Emerging Professional Identities." *Sport, Education and Society* 16 (2): 201–222. doi:10.1080/13573322.2011.540425.

- Dyson, B., D. Howley, and Y. Shen. 2021. "‘Being a Team, Working Together, and Being Kind’: Primary Students’ Perspectives of Cooperative Learning’s Contribution to Their Social and Emotional Learning." *Physical Education and Sport Pedagogy* 26 (2): 137–154. doi:10.1080/17408989.2020.1779683.
- Endacott, J. L. 2016. "Using Video-Stimulated Recall to Enhance Preservice-Teacher Reflection." *The New Educator* 12 (1): 28–47. doi:10.1080/1547688X.2015.1113351.
- Enright, E., B. Williams, L. Sperka, and K. Peucker. 2018. "Pedagogic Rights and the Acoustics of Health and Physical Education Teacher Education: Whose Voices are Heard?" *Physical Education and Sport Pedagogy* 23 (5): 524–535. doi:10.1080/17408989.2018.1470616.
- Evans, J., and B. Davies. 2006. "Endnote: the Embodiment of con-Sciousness: Bernstein, Health and Schooling." In *Body, Knowledge and Control. Studies in the Sociology of Physical Education and Health*, edited by J. Evans, B. Davies, and J. Wright, 207–218. London: Routledge.
- Evans, J., and D. Penney. 2008. "Levels on the Playing Field: the Social Construction of Physical ‘Ability’ in the Physical Education Curriculum." *Physical Education and Sport Pedagogy* 13 (1): 31–47. doi:10.1080/17408980701345576.
- Fyall, G. 2017. "Graduating Physical Education Student Teachers Perceptions of a Critically Oriented HPE Curriculum: (re)Constructing Constructivist Frameworks in PETE." *Asia-Pacific Journal of Health, Sport and Physical Education* 8 (3): 211–228. doi:10.1080/18377122.2017.1345285.
- Goodyear, V. A., A. Casey, and M. Quennerstedt. 2018. "Social Media as a Tool for Generating Sustained and in-Depth Insights Into Sport and Exercise Practitioners’ Ongoing Practices." *Qualitative Research in Sport, Exercise and Health* 10 (1): 1–16. doi:10.1080/2159676X.2017.1367715.
- Hay, P. J., and D. Penney. 2013. *Assessment in Physical Education. A Sociocultural Perspective*. London: Routledge.
- Hay, P. J., R. Tinning, and C. Engstrom. 2015. "Assessment as Pedagogy: a Consideration of Pedagogical Work and the Preparation of Kinesiology Professionals." *Physical Education and Sport Pedagogy* 20 (1): 31–44. doi:10.1080/17408989.2013.788145.
- Hemphill, M. A., K. A. R. Richards, K. L. Gaudreault, and T. J. Templin. 2015. "Pre-service Teacher Perspectives of Case-Based Learning in Physical Education Teacher Education." *European Physical Education Review* 21 (4): 432–450. doi:10.1177/2F1356336X15579402.
- Ingvarson, L., K. Reid, S. Buckley, E. Kleinhenz, G. N. Masters, and G. Rowley. 2014. *Best Practice Teacher Education Programs and Australia’s Own Programs*. Canberra, Australia: Australian Council for Educational Research.
- Ivinson, G. 2012. "The Body and Pedagogy: Beyond Absent, Moving Bodies in Pedagogic Practice." *British Journal of Sociology of Education* 33 (4): 489–506. doi:10.1080/01425692.2012.662822.
- Kärhus, S. 2010. "Physical Education Teacher Education on the Education Market – Who’s Defining What Physical Education Teachers Need to Know?" *Physical Education and Sport Pedagogy* 15 (3): 227–241. doi:10.1080/17408980903150139.
- Keay, J. 2009. "Being Influenced or Being an Influence: New Teachers’ Induction Experiences." *European Physical Education Review* 5 (2): 225–247. doi:10.1177/2F1356336X09345235.
- Klemola, U., P. Heikinaro-Johansson, and M. O’Sullivan. 2013. "Physical Education Student Teachers’ Perceptions of Applying Knowledge and Skills About Emotional Understanding Studied in PETE in a one-Year Teaching Practicum." *Physical Education and Sport Pedagogy* 18 (1): 28–41. doi:10.1080/17408989.2011.630999.
- Lisahunter, Rossi, T., R. Tinning, E. Flanagan, and D. Macdonald. 2011. "Professional Learning Places and Spaces: the Staffroom as a Site of Beginning Teacher Induction and Transition." *Asia-Pacific Journal of Teacher Education* 39 (1): 33–46. doi:10.1080/1359866X.2010.542234.
- Lorente-Catalán, E., and D. Kirk. 2016. "Student Teachers’ Understanding and Application of Assessment for Learning During a Physical Education Teacher Education Course." *European Physical Education Review* 22 (1): 65–81. doi:10.1177/2F1356336X15590352.
- Macdonald, D., D. Kirk, and S. Braiuka. 1999. "The Social Construction of the Physical Activity Field at the School/University Interface." *European Physical Education Review* 5 (1): 31–51. doi:10.1177/1356336X990051003.
- Macken, S., A. MacPhail, and A. Calderon. 2020. "Exploring Primary pre-Service Teachers’ use of ‘Assessment for Learning’ While Teaching Primary Physical Education During School Placement." *Physical Education and Sport Pedagogy* 25 (5): 539–554. doi:10.1080/17408989.2020.1752647.
- MacPhail, A., and J. Halbert. 2010. "We had to do Intelligent Thinking During Recent PE’: Students’ and Teachers’ Experiences of Assessment for Learning in Post-Primary Physical Education." *Assessment in Education: Principles, Policy and Practice* 17 (1): 23–39. doi:10.1080/09695940903565412.
- MacPhail, A., D. Tannehill, and G. G. Karp. 2013. "Preparing Physical Education Preservice Teachers to Design Instructionally Aligned Lessons Through Constructivist Pedagogical Practices." *Teaching and Teacher Education* 33 (July): 100–112. doi:10.1016/j.tate.2013.02.008.
- Martin, S. D., and S. Dismuke. 2018. "Investigating Differences in Teacher Practices Through a Complexity Theory Lens: The Influence of Teacher Education." *Journal of Teacher Education* 69 (1): 22–39. doi:10.1177/2F0022487117702573.

- Munk Svendsen, A., and J. Tinggaard Svendsen. 2016. "Teacher or Coach? How Logics from the Field of Sports Contribute to the Construction of Knowledge in Physical Education Teacher Education Pedagogical Discourse Through Educational Texts." *Sport, Education and Society* 21 (5): 796–810. doi:[10.1080/13573322.2014.956713](https://doi.org/10.1080/13573322.2014.956713).
- Philpot, R., and W. Smith. 2018. "Making a Different Difference: Physical Education Teacher Education Students' Reading of Critical PETE Program." *Curriculum Studies in Health and Physical Education* 9 (1): 7–21. doi:[10.1080/18377122.2018.1425120](https://doi.org/10.1080/18377122.2018.1425120).
- Redelius, K., and P. Hay. 2012. "Student Views on Criterion-Referenced Assessment and Grading in Swedish Physical Education." *Physical Education and Sport Pedagogy* 17 (2): 211–225. doi:[10.1080/17408989.2010.548064](https://doi.org/10.1080/17408989.2010.548064).
- Redelius, K., M. Quennerstedt, and M. Öhman. 2015. "Communicating Aims and Learning Goals in Physical Education: Part of a Subject for Learning?" *Sport, Education and Society* 20 (5): 641–655. doi:[10.1080/13573322.2014.987745](https://doi.org/10.1080/13573322.2014.987745).
- Russi, T., E. Christensen, and D. Macdonald. 2015. *Workplace Learning in Physical Education: Emerging Teachers' Stories from the Staffroom and Beyond*. London: Routledge.
- Singh, P. 2015. "Performativity and Pedagogising Knowledge: Globalizing Educational Policy Formation, Dissemination and Enactment." *Journal of Education Policy* 30 (3): 363–384. doi:[10.1080/02680939.2014.961968](https://doi.org/10.1080/02680939.2014.961968).
- Starck, J. R., K. A. R. Richards, M. A. Lawson, and O. A. Sinelnikov. 2020. "The Influence of Socialization Factors on Physical Educators' Conceptions of Assessment and Perceived Quality of Assessment." *Journal of Teaching in Physical Education* 40 (1): 66–75. doi:[10.1123/jtpe.2019-0096](https://doi.org/10.1123/jtpe.2019-0096).
- Tatto, M. T. 2015. "The Role of Research in the Policy and Practice of Quality Teacher Education: an International Review." *Oxford Review of Education* 41 (2): 171–201. doi:[10.1080/03054985.2015.1017405](https://doi.org/10.1080/03054985.2015.1017405).
- Tolgfors, B., E. Backman, G. Nyberg, and M. Quennerstedt. 2021. "Between Ideal Teaching and 'What Works': The Transmission and Transformation of a Content Area from University to School Placements Within Physical Education Teacher Education." *European Physical Education Review* 27 (2): 312–327. doi:[10.1177%2F1356336X20949575](https://doi.org/10.1177%2F1356336X20949575).
- Tolgfors, B., and M. Öhman. 2016. "The Implications of Assessment for Learning in Physical Education and Health." *European Physical Education Review* 22 (2): 150–166. doi:[10.1177%2F1356336X15595006](https://doi.org/10.1177%2F1356336X15595006).
- Vesterinen, O., A. Toom, and S. Patrikainen. 2010. "The Stimulated Recall Method and ICTs in Research on the Reasoning of Teachers." *International Journal of Research and Method in Education* 33 (2): 183–197. doi:[10.1080/1743727X.2010.484605](https://doi.org/10.1080/1743727X.2010.484605).
- Whatman, S., M. Quennerstedt, and J. McLaughlin. 2017. "Indigenous Knowledges as a way to Disrupt Norms in Physical Education Teacher Education." *Asia-Pacific Journal of Health, Sport and Physical Education* 8 (2): 115–131. doi:[10.1080/18377122.2017.1315950](https://doi.org/10.1080/18377122.2017.1315950).
- Wiliam, D. 2011. "What is Assessment for Learning?" *Studies in Educational Evaluation* 37 (1): 3–14. doi:[10.1016/j.stueduc.2011.03.001](https://doi.org/10.1016/j.stueduc.2011.03.001).