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Title:

An Investigation of Pre-Service Teachers' Learning in Physical Education Teacher Education: Schools and University in Partnership

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Abstract

This study explores the role of school and university partnership teams in the professional development of physical education pre-service teachers (PSTs) during their one year Postgraduate Certificate in Education (PGCE) course in England. The paper focuses on the key influences and processes that impacted on PST subject knowledge development. An interpretive methodology informed by constructivist grounded theory (Charmaz, 2005) was adopted.

This research highlights that the process of knowledge development in physical education teacher education (PETE) is socially constructed and complex. Much of the PSTs' development was influenced by various communities of practice, particularly their school placements' PE departments, but also their university-based learning community. Of these, the legitimised practices within the PE departments were found to be especially important to PSTs' development. University-based learning was credited by PSTs with enhancing their holistic understanding of the learning process, developing those aspects of critical pedagogy that were under-developed in schools.

This study identifies the capability of school/university partnerships to facilitate enhanced knowledge development in PETE. Taking into consideration the evolving nature of PETE within a political context that is progressively moving towards an entirely school-based model, an evidence-based debate over the manner and nature of the subject knowledge to be developed is needed.

Introduction

In this paper we seek to explore the role of school and university partnership teams in the development of pre-service teachers (PSTs) subject knowledge. In doing so it makes a timely contribution to the current debate surrounding the progressive changes to the English initial teacher education (ITE) training framework and physical education teacher education (PETE).

The initial teacher education (ITE) system in England is currently at a crucial turning point, as neo-liberal government policies threaten to fragment the teacher education as well as school landscapes (Evans and Davies, 2014). The challenge for schools and universities who are expected to work in partnership with each other is to navigate such policy shifts in a way which continues to recognise and deal with the problem of complexity in learning to teach, effectively address those challenges associated with apprenticeship of observation and the problem of enactment (Westrick and Morris, 2015), at the same time as promoting 'research-informed practice /principles supported by an understanding of pedagogy [*which enables*] teachers and learners to collaboratively and critically engage with a dynamic social process that empowers them and supports their critical judgement and the possible choices that they can make as teachers and learners in and of the twenty-first century (Waring and Evans, 2015: xi)

PETE has a central role to play in providing transformative learning experiences for aspiring teachers of physical education (PE) and in developing high quality PE programmes in schools (Amade-Escot, 2004/2007; ICSSPE, 2005; Rovegno, 2008). In England the aspiration for a 'World Class System of Physical Education' which was formulated in the manifesto of the Association for Physical Education (AfPE) highlighted the importance of PETE in achieving it (AfPE, 2008). However, whilst there may be a general consensus as to such a role for PETE, the actual impact and effectiveness in facilitating transformative learning experiences in physical education continues to be questioned (Chambers and Armour, 2012; Capel et al., 2011). Velija et al. (2009) identify how PETE struggles to impact on PSTs' personal philosophies of teaching. Hayes et al. (2008) note that PETE in England has been largely unsuccessful in challenging the hegemony of content-focussed teaching practices in school physical education. Other research on English PETE stresses that PSTs and their mentors frequently continue to prioritise content knowledge over other knowledge bases and favour knowledge with direct practical application for the school setting during their teacher education (Kinchin, 2009). Capel et al. (2011) observe that the pre-dominance of traditional sporting practices and content-centred approaches to teaching physical education in many English schools continues to present significant challenges

to developing critically reflective, pupil-centred teaching practices through PETE, and is an issue of international concern (Pill, Penney and Swabey, 2012).

Physical education departments in secondary schools are seen to be of central importance in the development of physical education teachers' pedagogical practices (Keay, 2005; Hodkinson and Hodkinson, 2005; Sirna, Tinning and Rossi, 2008; Rossi and Lisahunter, 2013; Stolz and Pill, 2014). However, the quality of professional and occupational socialisation in these departments is, at times, inconsistent (Capel et al., 2011; Chambers and Armour, 2012; Green 2000; Velija et al, 2009; Sirna, Tinning and Rossi, 2008, 2010). Green (2000) criticises the lack of theoretically informed teaching philosophies in physical education departments. Mordal-Moen and Green (2014) identify shallow experiences and lack of deep reflection on PETE programmes which limit the value of PETE experiences in developing reflective and critical teachers. Sirna, Tinning and Rossi (2010) highlight concern over the sexist undertones in those physical education departments which supported their PSTs, whilst Chambers and Armour (2011) have reported personal stories of professional abandonment in unsupportive departments. Such reported experiences of PSTs highlights the 'lived reality of PE teaching' (Stolz and Pill, 2014, p. 3) and the importance of school-based communities of practice (CoP) on the professional development of PSTs.

The literature on the impact of CoP in physical education on PSTs concentrates broadly on social aspects around the development of teacher identity and power differentials between agents (Keay, 2009; Rossi and Lisahunter, 2013). Whilst notions of apprenticeship learning and legitimate peripheral participation (Lave and Wenger, 1991) are explored within that literature, there is a relative lack of explicit emphasis on the development of knowledge generally and subject knowledge specifically. This lack of attention on the development of PST knowledge highlights again the need within a PETE context for us to address the insufficient attention paid to the influence of CoP, the associated legitimised practices and their role in the development of the subject knowledge of PE PSTs.

A theoretical framework in teacher knowledge research

A prominent theoretical framework considering the nature of the knowledge bases for teaching is Shulman's (1987) conceptualisation using seven categories: content knowledge; general pedagogical knowledge; curriculum knowledge; pedagogical content knowledge (PCK); knowledge of learners and their characteristics; knowledge of educational ends. Shulman (1987, p.8) sees content knowledge as "the specific subject matter knowledge, understanding and skills that are to be learnt by school children" and

PCK as "the special amalgam that is uniquely the provenance of teachers… It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organised for instruction." Whilst Shulman highlights the importance of a rounded knowledge base, he identifies PCK to be the dimension of teacher knowledge which makes learning accessible to the student.

With respect to what type of knowledge is developed, the prioritisation of content knowledge to the detriment of other knowledge bases constitutes a major criticism of PETE in England (Capel, 2007; Hayes et al. 2008; Kinchin, 2009; Velija et al. 2009). On the other hand, it is also recognised that content knowledge deficits can have multiple and profound negative impacts on PSTs in PE (Gower and Capel, 2004; Herold and Waring, 2011; Siedentop, 2002; Sloan, 2007). Variable content knowledge profiles in PSTs are currently the norm in English PETE, yet their impact on PSTs remains under-researched (Griggs and Wheeler, 2005; Herold and Waring, 2009).

Research in teacher knowledge that focuses on the process of knowledge development (how) argues for the need to acknowledge social and situated dimensions of learning, thereby taking a less individualistic perspective on knowledge development (Amade Escot and O'Sullivan, 2007; Hodkinson and Hodkinson, 2005). The importance of situated learning experiences, as well as the wider social and cultural setting in which these occur is highly significant (Grossman and McDonald, 2008; Korthagen, 2010; Shulman and Shulman, 2004), influencing learning through enculturation, professional socialisation and co-construction (Curtner-Smith, Hastie and Kinchin, 2008; Green, 2006; Keay, 2005; Miller, 2009; Sirna, Tinning and Rossi, 2010).

Shulman and Shulman's (2004) use of the term CoP has been employed to clarify the position and use of CoP taken in this paper. Such conceptions of teacher learning frequently draw upon Lave and Wenger's (1991) work on situated professional learning, which firmly locates the process of becoming 'knowledgeable' within the context of 'communities of practice' (CoP) in which the learning takes place. The importance of salient CoP is similarly acknowledged by Shulman and Shulman (2004) in their later work on teacher learning. Distinguishing characteristics of both these definitions of CoP fundamentally involve opportunities for reflection and learning from experience within a communal setting. In the context of this study PSTs experienced learning in a variety of communal contexts (most notably school-based and university-based) and were asked to reflect on them. As such, and with a common objective around PSTs' learning the school/PE department/University are, for the purpose of this paper, considered to be inter-

related CoP. Whilst these may or may not constitute effective CoP in the sense of Lave and Wenger's (1991) conceptualisation, it is nevertheless important to understand how these communities affected PSTs' learning. It is the intention of this study to gain a better understanding of how the membership in these communities influence the development of subject knowledge and emerging practice of the PSTs.

Methodology

The Setting: Background to the structure of the PGCE course

The participants followed a masters level post graduate certificate in education (PGCE) secondary age (11-18 yr olds) course based at a single English university, that was 36 weeks long and comprised a 24 week school-based and 12 week university-based learning experience. University-based learning combined aspects of general pedagogical theory, and sport pedagogy with sport-practical workshops and seminars that were aimed at developing subject specific content knowledge, PCK, curricular knowledge and general pedagogical knowledge in a holistic manner. Such an holistic approach involved the fusion of theory and practice in hybrid workshops and seminars, which developed significant themes of learning such as the use of instructional models or the application of the spectrum of teaching styles, rather than focussing on the development of activity specific content knowledge. Aspects of theory relating to general pedagogy were developed together with students from other subject disciplines.

During school-based placements it was stipulated that PSTs would be observed and provided with feedback from school-based mentors or other teachers in the department for every lesson. A formal meeting with their school-based mentor was convened each week at which targets for development were agreed. School-based mentors acted as a key support during school experience (SE) and also facilitated the assessment for this part of the training. The delivery of University-based learning was pre-dominantly facilitated by University tutors, although school mentors were used to enhance specific aspects of teaching on occasions. Contact with the University tutors during school placements was facilitated through formal school visits and via the University Virtual Learning Environment (VLE) allowing for a venue for PSTs' experiences and best practice to be shared.

The participants and their involvement in the study

The twelve PSTs who participated in this study had been academically successful on their undergraduate courses, holding good Honours degrees in Sports Science/PE with a classification of 2.1 and higher. The age range of PSTs was between 22 and 26 years. The twelve PSTs (six male, six female) and their school-based mentors (six male, six female) consented to participate in this study in line with the ethical procedures approved by the University Ethics Committee. The choice of participants was in part purposive and opportunistic, taking into account the PSTs' gender, individual knowledge and experience profiles. It also relied on the PSTs' placement allocation having a mentor who was willing to participate in the study over 36 weeks.

The twelve mentors in this study were secondary physical education teachers who had been teaching between 7-24 years and PGCE mentoring experience working with the University between 3-8 years. All mentors in this study had participated in ongoing mentor training in collaboration with the University.

PSTs participated in three tape-recorded semi-structured interviews during different stages of the course: early stage of the course (after school experience (SE) 1), mid-stage of the course (half-way stage of SE2) and at the end of the course. The interview schedule was flexible and gave the participants the opportunity to discuss their viewpoints, feelings and beliefs without being restricted by the interview framework (Richie and Lewis, 2003). The progressive nature of the interview themes for each round of the interviews with PSTs is outlined in Appendix 1. PSTs also agreed to participate in three lesson observations (1/SE 1, 2/SE 2) including post-lesson reflections. Moreover, PST's weekly reflections on the University's VLE were used as a supplementary source of data.

Interviews with mentors were conducted immediately at the end of the course to capture their perspectives on PSTs' construction of knowledge, in doing so enhancing the holistic picture of the PSTs' development. The sources of data were authentic and consistent with the activities that naturally occurred throughout the duration of a PGCE course.

Qualitative data analysis

The desire to place PSTs at the core of the study is reflected in the methodology and methods. The methodology aligns with interpretive and constructivist notions of grounded theory (Charmaz, 2006, 2008). The process of coding comprised of two principal stages, initial coding and focused coding (Charmaz, 2006). During the process of initial coding, all of the transcription data was interrogated in detail to identify and assign meaning to it. This was achieved by taking fragments of data (words, phrases, lines, paragraphs) and identifying what was being expressed by assigning it a representative code. Subsequently the focused coding separated, sorted and synthesised the initial codes generated. By comparing initial codes with each other potential relationships and associations between them were identified. This allowed for the initial codes to be grouped, merged and renamed in ways which allowed for broader conceptual themes to be identified. In line with the principles of simultaneous and concurrent analysis in grounded theory frameworks (Harry et al. 2005) new themes that emerged throughout the investigation were integrated into the ongoing analysis and previously coded material was revisited in the light of this. The analysis was conducted by the primary researcher, who was also a University tutor on the course. Throughout the study, the analysis was supported by the advice and counsel of the independent secondary researcher, who also systematically cross-checked the coding of the data to ensure consistency.

Findings and Discussion

**Knowledge acquisition as situated and social learning**

Much of the development of PSTs' knowledge, as well as their views about important aspects of teaching PE were influenced by the CoP in which their learning was contextualised. The relationships and processes that underpinned the learning and development within these contexts were complex. At the macro-level, the school itself, its culture, its pupils, its people and its policies, influenced PSTs' learning experiences. Frequently, the school's interpretation of the education environment, nuanced by the National Curriculum in England and OfSTED inspection requirements, impacted on the learning of the PSTs. A significant influence was

exerted through immediate school-based CoP, most notably the PE department and its constituent members. Furthermore, the university-based learning experiences were seen to be influential on central aspects of PSTs' knowledge development. It is important to note that these communities were themselves located in a wider education context and many of the legitimised practices within the immediate CoP originated from this wider context. PSTs' learning can only be fully understood within this broader contextual background.

On a more detailed level, it is evident that the acquisition of knowledge for teaching encapsulates both individual, as well as social aspects of learning. Whilst Shulman's (1987) conceptualisation focuses on the knowledge base of the individual teacher, Shulman and Shulman's (2004) more recent observations emphasise the need to understand teacher learning within the context it is situated. The analysis of data from this study created a model of socio-constructivist learning, encapsulating the complexity of the learning context. Figure 1 provides a representation of the different factors that were found to have a significantly influenced the PSTs' learning. When viewing Figure 1, the reader should be mindful of the need to undertake analysis at an individual, as well as at a community level, as recognised by Shulman and Shulman (2004).

With the PST very much at the centre, the individual make-up of PSTs (self) and their engagement with the learning and development process (processes and actions) constitute an individual level of engagement, recognising individual differences. Moreover, Figure 1 emphasises that such learning cannot be understood without considering the impact of others (people) and the contexts in which this learning takes place.

Figure 1   Conceptualising the learning process
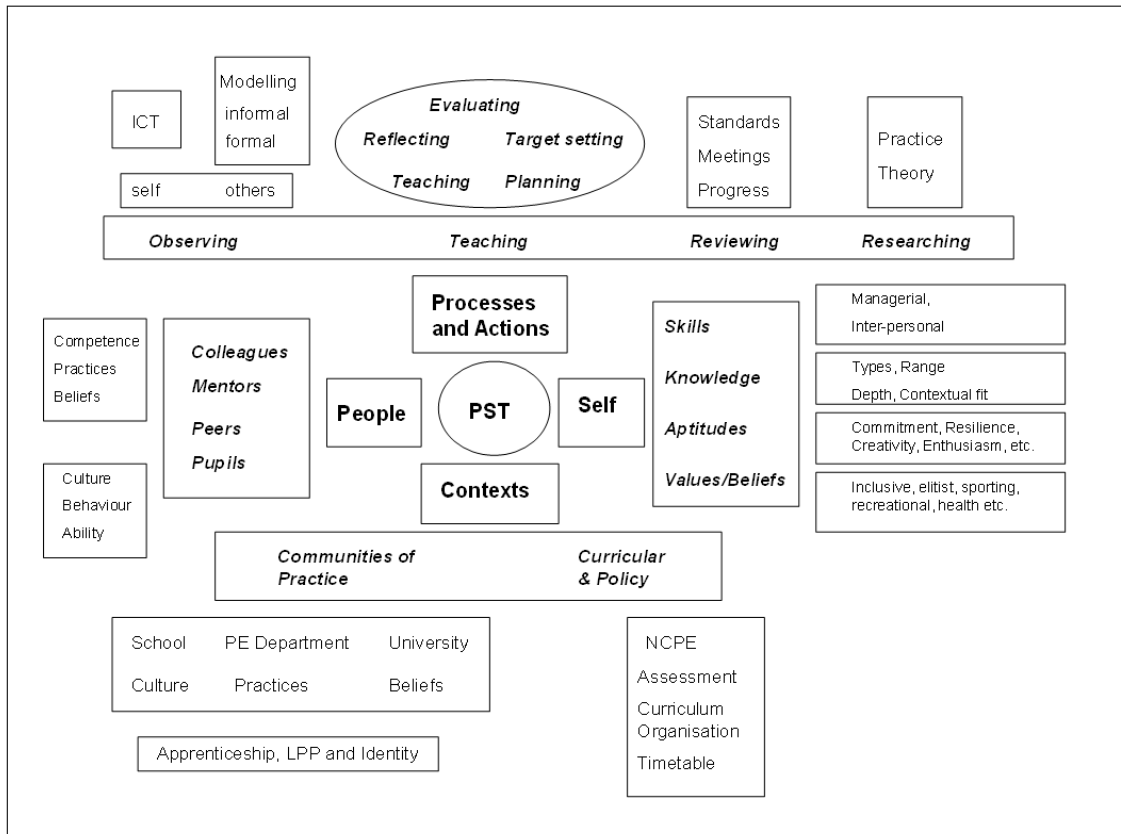
Having provided the wider context, using Figure 1, the following analysis will particularly focus on the impact that respective CoP (school and university) had on the development of subject knowledge for the PSTs in this study.

The impact of school-based settings on PSTs' learning

PSTs identified a range of school-based experiences that impacted on their learning. Their reflections included comparisons of perceived commonalities or differences in their two placement schools and how these influenced their own learning and teaching, highlighting the importance of the school-settings on PSTs pedagogical thinking. The school culture and its embedded practices provided an important frame of reference. PSTs appreciated the opportunity of having placements in two different schools and they clearly recognised the schools' influence on shaping their practice or as Phil observed, their power to 'institutionalise' those within them.

Yeah, I mean I think it is nice to see different schools… because I think you don't want to become too institutionalised or blinkered of one way that something needs to be done. (Phil, PST, Interview 3)

Experiencing different schools afforded PST's alternative perspectives on school culture and teaching practices. Through these, they recognised the potential variability of teaching in different schools and the impact this could have on teachers. In recognition of their own roles, PSTs generally accepted that they had to 'fit' into the given contexts and work within these parameters. In this, most PSTs acknowledged the extensive experience of their teaching colleagues as a legitimising factor for the practices they encountered.

There's certain things I don't agree with, there's certain things I think I'd do differently, but it's things that work for the school and again each school is different. I haven't got any real right to come in here and do it my way...The teachers have been here a lot longer than I have and they know the children, they know the way it works. (Andrew, PST, Interview 2)

Generally, PSTs accepted their peripheral roles as far as established teaching and management practices in the schools and PE departments were concerned, recognising their limitations as 'apprentice learners' within these school-based settings (Keay, 2005; Chambers and Armour, 2011). Perceived differences in school ethos, procedures, pupil culture and discipline significantly affected some PSTs. For example, having to teach within what they deemed to be more 'challenging' school environments could have a profound impact on their confidence.

This placement is more different to my previous placement than I would have believed possible. It's like learning a new job, I think. I finished School One and thought "I'm doing alright here….and I've come here and I've had a shock to my system, I've found it very difficult. The pupils are a big challenge, behaviourally. This school is quite tough. (Ryan. PST, Interview 2)

Different environments presented PSTs with unique learning challenges and thereby affected their progress. Differences between school cultures forced PSTs to re-examine their knowledge in the light of different contexts. Diversity of pupils' ethnic backgrounds was identified as a challenge by some, confirming Harrison et al.'s (2010) observation that, with increasing diversity, teachers need to develop their cultural competence as part of their knowledge base. The PSTs in this study, who were from a white Caucasian and British background, were not initially confident in their engagement with pupils from different ethnic backgrounds. However, they were

growing in confidence as they developed their experience in dealing with diverse populations.

> *The schools are different as well. This school is mainly white middle-class, whereas my last school was very multi-ethnic, a lot of children in wheelchairs, disabilities, you know, it was much more challenging. But then again, I really learnt a lot about kids from different backgrounds there. (Vikkie,PST, Interview 2)*

PSTs' practice and learning were contextualised within specific CoP in which they had membership and the development of specific pedagogical practices could not be divorced from the environment in which such practices were situated. For example, the inter-connection of school and departmental practices and the resulting learning culture and expectations of pupils impacted on PSTs. Garry's explanation of how the impact of a school-wide 'buddy system' had cascaded via the PE department demonstrated how the inter-relationship of people, policies and practices continually had an effect on PSTs.

> *Yeah. At School Two they've got this massive push at the moment on having a buddy system and having that across every subject. [The pupils] work with someone else and that person will continually tell you what you're good at, what you're bad at, how to improve, so it's assessment for learning all the time for our lesson… I've found it to be very valuable and I think that pupils like it and they're getting really involved. (Garry, PST, Interview 3)*

A mixture of influences related to both policy as well as agency impacted on PSTs' learning. The interpretation and implementation of school policies by the PE departments were commonly reactions to wider reaching education initiatives, or a response to perceived expectations by influential agencies, frequently the education inspectorate OfSTED.

> *Our department is going through a review at the moment and with me taking the lead for OfSTED… I've actually had to make that a focus, us being prepared as department. So, each lesson, that is one of my focuses, the subject knowledge of the children is paramount, really. We all have to take on board that we will have to focus on their knowledge more and not just their skills. (Craig, Mentor)*

Andrea's explanation of how the school's concerted push to integrate assessment for learning (AfL) into the teaching of every department affected firstly the PE department and then her mentoring strategy serves to highlight these inter-connections.

Well this year is different really because obviously our staff in the school have all been involved in assessment for learning. We've had training in it, we've been asked to follow this up so really, what I did with my students this year is I took them with me on that learning process. Obviously we all have certain beliefs in assessment for learning, some of it works, some of it doesn't… I've taught them to teach an assessment for learning way because I know that's what we all should be doing at the moment.
(Andrea, Mentor)

The commitment with which this PE department had adopted AfL as the way forward in their teaching had been explicitly extended to their mentoring of the PST.

Whilst individual PSTs' experiences may differ, the influence of the school and departmental context on learning and development is always evident. This has a significant impact on how PSTs learn to teach. For example, the process of feedback on and evaluation of teaching by teachers and mentors was identified as a key learning tool by all PSTs.

When you're discussing the lesson with your mentor…For me, that was probably the most helpful part of the course. (Dale, PST, Interview 3)

Opportunities to observe other teachers and mentors as models of practice, frequently showcasing practice examples that could be adopted was also seen as significant by the PSTs.

I think that my reciprocal style possibly started from when I was here because my mentor does a lot of evaluating in pairs in her lessons...
(Jenny, PST, post-observation reflection 3)

PSTs were particularly influenced by the legitimised practices of the PE department (Keay, 2005) and individuals who assessed them and their progress on the school-based aspect of the programme of training (Smith, 2001; Capel et al., 2011). Conseqently, there was an acceptance of roles as apprentices within the PE department and school.

University-based learning

Beyond their observation of other teachers, much of PSTs' knowledge, including their knowledge acquired through their university-based learning was tested and developed as they were *actually teaching* pupils.

I mean I was aware during volleyball for example, that I was being taught how to teach it but it perhaps didn't all sink in and I didn't really understand exactly why everything was done the way it was until I got to teach it. And then you actually do understand it a little bit better, that it has prepared you for it better than you thought. (Chris, PST, Interview 3).

Similar to Kinchin's (2009) study, PSTs assigned value to university-based learning which was directly useful to their school practice. The particular emphasis of university-based sessions on developing PCK, helped to prepare PSTs for their teaching. This knowledge subsequently expanded through its application in school-based settings.

University-based learning was designed to challenge existing curriculum conceptions that were held by some PSTs on the course. This included challenging the games dominated PE curriculum so frequently criticised in the literature (Capel, 2007; Velija et al., 2009). Some PSTs as they reflected on their learning reported a shift in value judgements that favoured a more diverse curriculum.

I think that the University-based bit has had a big impact on how I value each activity. I wouldn't say that I was naive before but I wasn't fully aware of all of their values and I think now I have begun to really value the role of gym and dance and outdoor pursuits, and not just games. Maybe I was being a classic stereotype. (Andrew, PST, Interview 1)

PSTs also valued the inclusion of theoretical content right from the beginning of the course. The development of general pedagogical knowledge through their university-based work, particularly via academic assignments, associated research and related workshop debates were seen to be important learning activities and encouraged PSTs to reflect upon learning right from the very start of their training.

I think assessment for learning is paramount to what I do as a teacher. I think it was very important that we had that assignment right at the beginning on assessment for learning because I think it shapes how we all should be teaching. (Dale, PST, Interview 1)

...Doing assignments and everything, it obviously focuses you on different aspects and what you need to think about, for example the (curriculum) framework…it's a really interesting assignment actually and it's really made me think about in the future about how I would go about planning if I had that sort of job (Head of Department), how I would plan the year and

what to teach and everything... I mean loads like the SEN assignment, because you have to research so much to put in your essays you're reading reports and it does make you think and makes you more aware ... (Jenny, PST, Interview 3)

School-based mentors also recognised the university-based work as a vital part of PSTs' preparation for school. In addition to practical aspects of subject knowledge, mentors valued the development of other knowledge bases.

As far as I am concerned you prepare them for their teaching placements and then support them whilst they are with us. And I can honestly say that, when they come to us, whether that's in October [SE1] or for the second placement [SE2], they come very well prepared. They already have a grounding of knowledge about National Curriculum, about assessment, different initiatives, you've done some subject knowledge work with them, games, gymnastics, dance, athletics for the summer, etc. you give them the fundamental knowledge and when they come to us, then they put those into practice and develop them further. (Jill, Mentor)

Particularly well received by PSTs was 'serial practice', a series of sessions that were university-led, but jointly devised and delivered by university staff and school-based mentors in two schools during school experience 1. These included episodes of micro teaching and team teaching with school children at key stages 3 and 4 (ages 11-16), followed by small group and whole group reflections. Planning and reflection periods explicitly considered teaching and learning with respect to the learning processes that were outlined in the National Curriculum in England: physical education programmes of study (DfE, 2013).

Serial practice was an important learning curve in my opinion. It enabled me to experience a lot of discussion with my group members and expose me to a lot of different ideas about how to teach the different activities. The feedback resulting from each session really helped me to teach more effectively. (Grace, VLE reflection)

The positive responses from PSTs to the serial practice experiences underlined the benefits of close collaboration between university tutors, mentors and PSTs, and the value of closely linking theory to practice to enhance the learning and development process. University-based learning helped PSTs to consider pedagogical aspects of pupil learning more holistically and recognise that pupils' learning needed to focus on range of learning intentions, not just skill-based outcomes.

From the uni work I have really tried to use reciprocal style because I really want my students to go away and be independent learners (Nikki, PST, Interview 3)

Just when we have been in uni really just the things we've spoken about trying different teaching styles. You know I have talked to my mentor and it was not something the school was doing too much of. It was very much command style. (Phil, PST, Interview 3)

As PSTs were trying out some of the ideas and concepts they developed through their university-based learning in schools, mentors also recounted how PSTs brought new ideas into the departments. Especially during School Experience 2, PSTs were encouraged to try out a range of different teaching styles they had explored during their university-based learning. The mentor narrative below describes the implementation of a more constructivist approach to teaching PE examination theory content where PSTs were challenged to devise a session about oxygen transport in a creative way, set within a practical teaching context.

Some of them are willing to take great risks, Thomas with the circulation of blood around the body. That was a big gamble for him. He had the idea from University. We talked about it in the department as to whether it could be taught that way, but he was prepared to give it a go and see what happened. At the end of the lesson he went away, knowing that there were certain things that he would change in it, but he recognised that yes, that worked, it got them involved and yes they remembered when it came to a test three weeks later. (Tony, Mentor)

Mentors often valued the two-directional dimension of their relationship with the PSTs. This kept them 'on their toes' and thereby enhanced their own practice. PSTs espoused many values and practices that resulted from their university-based learning experiences and developed these further through their teaching in schools. However, at times PSTs also had to reconcile variations between university-based values and practices with those in the school-based communities. The knowledge they had acquired from university-based learning also enabled them to be critical of school practices, as was evident for instance in Debbie's criticism of her school focussing too much on physical accomplishment in their assessment practices.

I don't agree with just looking at practical performance…She (female pupil) is so intelligent and her evaluating and improving and knowledge of health and fitness is amazing…. She's a big girl, massive girl, but her understanding of everything relating to evaluating and improving and how to improve and how to relate it to health and fitness was just amazing. And she was quite happy because she knew that when we did our

assessment it wasn't just on practical. It was on the other bits. (Debbie, PST, Interview 3)

For many PSTs, university-based learning provided a significant and progressive source of knowledge, ideas and support, in particular in the use of more pupil-centred teaching approaches for which there was not always significant modelling in some schools. Instructional models-based teaching practices such as Teaching Games for Understanding (TGFU) and Sport Education (SE) were significantly influenced by the university-based learning. This was relatively unproblematic for TGFU style approaches, which were commonly supported well by mentors and fitted into the timetabling framework. Implementing SE type teaching approaches was found to be more problematic for the PSTs in this study, since most planning and timetabling frameworks in the participating schools were not set up to accommodate this. PSTs did, however, find opportunities to incorporate aspects of SE approach into their teaching.

> *For me, some of the things we did in games, for instance the sport education sessions and all of that, that's been really one of the best things we've done [at University]. I learnt a lot about giving tasks and responsibilities to the kids. Especially with the older ones, I use a lot of it with the JSLA (Junior Sports Leader Award) group obviously, but I use it with the other kids as well, the younger groups. I mean, it is not the full thing we do, like not a full season of it, because of the timetable, and they didn't do it like that at the school, but my mentor was very supportive of me giving different roles to kids and letting them lead stuff. (Angelina, PST, Interview 3)*

Similar observations were made by Wright et al. (2006), who found that the PETE course could be an influential factor in inspiring PSTs to implement an innovative teaching approach to games teaching during their school placements. As part of drawing from the formal learning of the course, the PGCE cohort itself provided significant learning support via a variety of mechanisms. One of these was the Virtual Learning Environment (VLE), which encouraged PSTs to reflect on their teaching, as well as to collaborate with each other. As PSTs evaluated and shared ideas these were then critiqued and re-used by others, providing a platform to enhance their learning.

VLE Theme: Discovery-based learning:

Post 1: Alex
Discovery based learning is extremely useful, especially when working with high ability pupils. Many pupils in my year 10 football group think they are the finished article and do not respond well to focus on the standard football skills. Last lesson I set them the task of getting into groups of 8 and then using DBL to create a minimum of 3 corner routines to use against other groups in a penalty shoot-out of corners. Pupils came up with many signals and patterns of movement to outwit opponents and I was pleased with the contribution of all. They identified when ideas failed to work and also tweaked ideas through trial and error process. (Alex, VLE contribution, mid-stage of the training)

Post 2: Natalie
I just wanted to thank Alex, really as I completely and utterly stole this idea for my Year 10s today. The idea is an obvious one but as football isn't my strongest forte I was running out of ideas and so today I recapped the 4 skills we have looked at so far then sent them away to devise their own practices for this, making sure they were including a way of making each practice more difficult.
WHAT A LESSON! They taught me things I could never have thought of and all were so creative they put me to shame, not to mention the fact I wasn't having the best day and I love the group!
So thanks for the idea Alex! (Natalie,VLE contribution, mid-stage of the training)

University directed tasks stipulated a number of enhancement activities that were designed to engage PSTs in different modes of teaching, reflection, and evaluation whilst they were on school placement. Varied methods of communication and reflection employed as part of the PGCE course were seen as valued learning opportunities by PSTs.

The tasks that we have had on WEBCT (the VLE), have been again very useful, because when the task comes along, it actually gets you to think about what actually has been going in your teaching, and subconsciously, you regenerate reflective analysis in that way, so that was definitely very useful as well…The number of videos that we've done, it's actually strange to see yourself obviously on screen, but to see the difference from that first lesson right through to the final lesson. So that's been really useful. (Ryan, pre-service teacher, Interview 3)

In the English context some authors have pointed to the prioritisation of content knowledge by PSTs and school-based mentors to be a limiting factor in achieving the development of more varied and more student-centred teaching approaches (Capel et al., 2011; Hayes et al., 2008; Velija et al., 2009). The acquisition of such knowledge was also to be valued by the PSTs in this study,

but their development of subject knowledge extended beyond this. University-based learning in this study contributed significantly to the development of PCK, curricular knowledge and general pedagogical knowledge. PSTs also appreciated the dimensions of their University work, which required them to engage in research and reflection on pedagogical constructs that were underpinning their teaching.

Mentors valued the partnership between school and University, highlighting the contribution both partners could bring to the PETE experience and synergy between school-based learning and University-based learning was observed. The findings of this study illustrated the value of closely linking theory to practice, and confirmed that close collaboration between University tutors, mentors and PSTs enhanced the learning and development process (Grossman and McDonald, 2008; Shulman and Shulman, 2004).

In summary, both in school and university-based CoPs, PSTs truly appreciated the variety of experiences they had, even though with different experiences came unique challenges for their learning. School culture, policies, and embedded practices were significant contextual factors impacting PSTs' learning in a school-based setting. Framed by notions of 'fitting in' with CoP, the legitimised practices of the PE department were central to the development of PSTs learning. Responding to the expectations of significant others PSTs were accepting of the role of 'apprentice' within the PE department and school.

University-based learning was seen to facilitate critical reflection and complemented many aspects of school-based learning. The direct relevance of PSTs university-based learning to their school-based teaching was seen by them as a key feature of their development. University-based learning offered PSTs a catalyst for reflection on their learning and teaching in schools, as well as the opportunity to question existing practice. Discussions at university about all aspects of PE curriculum, content and pedagogy were valued by PSTs and used to extend their knowledge gained from school-based learning.

Conclusions

Context is vitally important for PETE. This study demonstrated that subject knowledge development in PETE can only be fully understood if it is seen in the context of relevant CoP. Within the school-based learning experiences, the PE departments were of particular significance to PSTs' development of subject knowledge. Legitimised departmental teaching practices served as models for practice and PSTs found it easier to realise teaching strategies that were aligned with the existing teaching practices within the departments.

The impact of the PE departments extended beyond the mentor-PST relationship, suggesting that more school-based research in PETE should therefore also go beyond researching this dyadic relationship.

A focus on subject knowledge development as part of CoP does not mean ignoring the social and the power dimensions within these. The mechanisms, processes and dynamics of CoP inadvertently affect PSTs' development (Keay, 2005). The specific outcomes of this are, however, not pre-determined. What is important is how learning experiences and interventions are manipulated and occur at key points within a PETE programme.

Understanding the role of relevant partners in PETE is essential, if the nature of this social and communal process is to be truly understood. University-based learning offered significant opportunities for enhanced subject knowledge development and the synergy between university-based and school-based learning demonstrated the capability of school/university partnerships to facilitate enhanced knowledge development in PETE. Considering the nature of PETE within an ever evolving political context that is progressively moving towards an entirely school-based model, an evidence-based debate over the manner and nature of the subject knowledge to be developed is needed in England.

The point remains that the changing policy landscape demands robust research engagement to explore the changing nature and balance of the partnership between schools and universities and to monitor the evolution of future arrangements and how these impact on the development of PSTs as they learn to teach.

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