How prepared are postgraduate primary pre-service teachers in delivering physical education as they approach their NQT Year?

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Abstract

Background

Each year, primary pre-service teachers (PPST's) graduate from initial teacher education (ITE) and transition into the primary workplace as newly qualified teachers (NQTs). With NQTs expected to be able to hit the ground running delivering the national curriculum, this study explores how prepared PPSTs feel in regards to teaching physical education (PE) and how the primary PE and school sport (PESS) premium funding could be affecting this. The funding has catalysed distinct changes to the PE workforce in primary schools that has also had an effect on the experiences of PPSTs whilst on school placement. In order for schools and ITE to respond and better prepare PPSTs, an understanding of these feelings would be beneficial to promote more effective development towards feeling confident and competent to teach PE.

Method

The study involved 48 participants completing a postgraduate in primary education as they approached the end of their course. Of those participants, 26 were on a generalist pathway, whilst 22 participants were on an 'additional PE ITE hours or modules' pathway. The participants were representative of six university's from around England. Participants completed an online questionnaire based around their thoughts and feelings relating to four key themes. The four key research themes were:

1. Experiences
2. Outsourcing
3. 'Preparedness'
4. Continual Professional Development

Key Findings

1. Experiences:
   Prior to starting the course, the majority of PPSTs had taught zero hours of PE, but had observed 1-5 hours of PE.
   On completion of their PGCE, the majority of PPSTs had taught and observed 1-5 hours of PE.
2. Outsourcing:
   The majority of PPSTs found the use of outsourced coaches to be a benefit to pupils; however, they had mixed feelings regarding the benefits towards teachers.
3. 'Preparedness':
   The PPSTs felt that their university contact time on PE was "about right". The PPSTs ability to use technology within PE was rated as their lowest area of confidence. Activity areas of least confidence were swimming, dance and gymnastics, with a lack of experience being the defining factor.

4. Continual Professional Development:
   Learning technology was found to be the largest CPD need. Observing other teachers/coaches was determined as the most likely method of CPD in their NQT year, whilst engaging in social media was least likely.

Conclusions

It is clear that numerous factors affect how prepared a PPST feels towards teaching PE. Based around the findings related to the four key themes, I encourage action be taken on the following four recommendations:

1. The delivery of PE to become the sole domain of the teacher with QTS, a recommendation specified in the APPG (2019) report, but not transpiring into the current day.
2. Schools to provide as many experiences in PE for the PPST whilst on placement. With the majority of PPSTs receiving between 1-5 hours, it is no wonder that not all feel very prepared for their NQT year.
3. A call for ITE to address their use of technology and improve a PPST's TPACK.
4. Provide additional experiences during ITE around PE, including activity areas outside of games, namely swimming, gymnastics and dance.

Moving forwards, I recommend that we evaluate the effectiveness of primary PE and discuss conceptual models towards future transformative practice, investigating whether a generalist teacher or a specialist primary PE teacher be responsible for delivering PE in the primary school of the future.

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Introduction

Primary physical education (PE) is in constant change. Where we position ourselves concerning health, national policy, and curriculum ideals can change frequently and how these are then interpreted and delivered by a school will generally decide what the outcomes of PE become. It is therefore debatable what the best-intended outcomes for PE in this country should be and why. However, what is not in question is that it must be delivered well. Who is delivering PE and what is taking place in order to best prepare primary pre-service teachers (PPSTs) to enter the workplace and deliver PE effectively has been a source of discussion over the past few decades. Several studies have produced findings of low confidence and lacking sufficient specialist expertise, therefore raising questions, of not only effectiveness, but also relating to primary teachers' motivation and enjoyment in teaching the subject. The role of this paper is to consider how prepared PPSTs feel about teaching PE as they approach their NQT (newly qualified teacher) year and to consider what could be done to improve this. This paper will aim to look at the feelings of PPSTs on a PGCE (postgraduate certificate in education) who are on a primary education QTS (qualified teacher status) course in relation to their feelings of being "prepared" to teach and in particular teach PE and how they envisage developing into their NQT year. The study will analyse the findings across those on a generalist pathway and those on a generalist 'plus additional hours/modules of PE' pathway.

This paper will consider the ever-changing landscape of primary PE, and look at the different factors affecting how prepared PPSTs feel. Since 2013, the introduction of the PE and school sport (PESS) premium has brought in a substantial amount of funding within the primary school sector. Whilst this funding is ring fenced towards the promotion of PE, school sport and physical activity (PESSPA), it has also had a large impact on the workforce regarding who is delivering PE. Despite this funding, the position of PE within a school's curriculum has continued to be in question (Meir and Fletcher, 2019), with a number of lessons being dropped in order to focus on maths, English lessons or whole school activities (such as the school nativity). At an initial teacher education (ITE) level, PPSTs have continued to receive few hours in order to raise their confidence and competence to teach the subject. In most parts, the introduction of the PESS premium has been welcomed by many, but has also opened the door to a number of schools "outsourcing" their PE offer. Because of these factors (and many others), the status of PE, regardless of the funding stream, does not seem to be flourishing in a way that was expected.

Literature review

Traditions of Primary Education

Traditionally, primary education has promoted the thematic or topic approach. Because of this, primary education in the UK has been delivered through a multi-subject curriculum, taught by generalist class teachers who teach most, if not all, subjects (Jess, McEvilly and Carse, 2016). When it comes to a 'secondary model' of teaching, where teachers teach to their 'specialist subject', it was found that only 6% of primary school teachers were classed as specialist teachers of PE (Jess, McEvilly and Carse, 2016). Going back to the early 1990s, HMI (Her Majesty's Inspectorate) found that around 30% of lessons in primary schools were taught as single subjects (Alexander et al, 1992), with those subjects namely being music and PE, with some maths and English lessons. It has long been argued that creating separate subject lessons would not be beneficial to primary aged children as it is inconsistent with a child's view of the world and their lack of abstract thinking (Schaffer, 1988). It was acknowledged that children be allowed to construct their own meaning and understanding of the world around them, whereas subject teaching involves the imposition of a received version of knowledge (Alexander et al, 1992). However, the introduction of mandatory planning, preparation and assessment (PPA) time in 2005 created a demand for additional timetable resourcing. Many schools answered this by outsourcing their provision of PE. However, this must be done through the school's staffing budget.

Why begin a career in primary education?

It is important to understand a teacher's background, experiences, and qualifications and why they have moved into the profession in the first place. In a study by McKinsey (cited in Barber and Mourshead, 2007), who looked at why some school systems consistently perform well and improve faster than others, they found that two of the three most important factors were down to getting the right people to become teachers and developing them into effective instructors. Attracting the "right people" is a difficult concept. Teachers are initially attracted to the teaching profession for a number of reasons. Perhaps the best way to consider these reasons is to look upon Lortie's (1975) five themes behind why people join the teaching profession. Based on these themes, Ralph and MacPhail (2015) concluded that PPSTs in ITE on a PE specific course, did so likely because of Lortie's "continuation theme" (individuals wanting to continue an association with something they enjoy), due to the strong relationship that sport and coaching has with PE. However, for those carrying out ITE in primary education (on a generalist route), this is not likely the case, with the biggest factor arguably being the "interpersonal theme"

(choosing a career in teaching because they want to work with and help others). The generalist teacher (typically attributed within the interpersonal theme) does not revolve around teaching a subject based on their enjoyment of that particular subject area; therefore, it is perfectly reasonable to believe that a teacher's motivation could naturally differ across subjects, therefore influencing their motivation and willingness to teach PE but underpinned by their drive to help others.

Alongside motivation, PPSTs will begin ITE courses with varying beliefs and experiences. However, their knowledge and understanding of PE can be limited (Chedzoy, 2000). Richardson (1996; cited in Mecchede et al, 2017) stated that beliefs could be defined as understandings that are personally felt to be true by that person. When starting a course in ITE, the PPST's beliefs will have been borne out of their own experiences. Thomson (2002, cited in Le Cornu and Ewing, 2008) recognised that PPSTs bring along a whole 'virtual schoolbag' of understandings, skills, expertise, experiences or 'institutional biographies' with them, rather than coming to the profession with a blank slate. The impact these 'institutional biographies' (Richardson, 1999, cited in Le Cornu and Ewing, 2008) could have on the engagement of a PPST could vary the experience and motivation from one PPST to the next. Teachers can hold negative views of PE (Morgan and Hansen, 2007), based upon reflection of a "critical incident" (Flanagan, 1954) of their own experiences of PE as a pupil. Retaining this negative view could also therefore have a negative impact on their teaching (Haynes, Miller and Varea, 2016). Based upon this, Jess, McEvilly and Carse (2016) discussed the differences in teacher experiences and their view of PE, finding that only 56% of teachers within their study felt that PE was 'very important' or 'important', whilst 39% considered PE to be of 'limited importance' or of 'very limited importance' within the education system. Reviewing teachers' personal histories, they found that 20% of the teachers involved rated their own experience as less than good. One of the factors surrounding this has been centred on the lack of formal training at an ITE level (Randall and Maeda, 2010) stating that PPSTs tended to use their prior experiences in order to shape their teaching. This is supported by the work of Tsangaridou (2012), who suggests that the majority of primary teachers do not feel competent teaching PE due to low confidence, minimal skills and knowledge to deliver PE, plus having limited subject knowledge. If ITE and education are to develop, then Morgan and Bourke (2008) recommend that positive experiences of PE be provided to PPSTs through reflection, group work and encouraging self-esteem towards PE; however it is uncertain whether this would be enough (Linker and Woods, 2018).

ITE

In order to teach in a primary school in England you must first obtain QTS through completion of an undergraduate or postgraduate degree with an ITE provider. For an external provider (a sports coach for example) to deliver a lesson, this is not necessary. To meet the basic requirements of becoming a teacher and be recommended for QTS, PPSTs will complete a number of varied modules and placements to satisfy the teacher standards (Department for Education - DfE, 2013). The time spent on developing knowledge of PE in these modules or through CPD (continual professional development) has been highlighted as variable across Europe, both at a PPST and teacher level (Green and Hardman, 2005). In the UK, PPSTs reportedly receive an average of anywhere between six (YST, 2017) to twelve (Kirk, 2012) hours of PE specific training during ITE. This is based upon a generalist model, where the PPST will be teaching all subject areas of the national curriculum (NC). Universities can set up their degrees in a way that they believe fit, however it is evident that the time allocated towards PE is minimal when compared to the core subjects of maths and English (Ardzejewska et al, 2010). The findings in an Australian study (Lynch and Soukup, 2017), looking into the quality of primary PE, found that the largest barrier to teaching PE were the qualifications and preparation of teachers. Whilst additional hours during ITE could develop deeper subject knowledge, by following a generalist ITE model, it tended to focus on pedagogy (Jensen et al, 2016). Because of this, it has therefore been suggested (Ardzejewska et al, 2010) that the core subjects (English and maths) become the focus of the generalist teacher, whilst PE be taught or supported according to the available expertise in school (the PE co-ordinator's role).

Other concerns related to PE ITE are that the courses or modules are often delivered by a single teacher (Stroot and Ko, 2006), whom do not have significant support and are often constrained by policy and the potential low status of the subject. Interestingly, an investigation by Linker and Woods (2018) found that whilst ITE improved PPSTs appreciation of PE and their willingness to incorporate physical activity in to their teaching, they still did not want to teach PE lessons once in the workplace. This echoes the sentiments felt by Ní Chróinín et al (2018) citing the study of Kretchmar (2000), who implied that ITE programs are not preparing PPSTs in delivering PE well enough. Two decades after the Kretchmar study, the argument remains. In a study promoting CPD amongst generalist teachers, it was found that generalist teachers had not previously considered the importance of learning outcomes and success criteria in PE lessons, despite having to do this in the classroom (Morgan et al, 2019). Could this be down to a subconscious hierarchy of subjects or due to the amount of training at an ITE level? Huddleston (2019b) found that PPSTs often linked their motor ability to participate in sport with their ability to teach PE. A notion supported by Graber et al (2008), who also highlighted teacher

concerns related to personal liability and pupil safety. Importantly, teachers who have a positive relationship with physical activity (Sallis and McKenzie, 1991), are more physically active themselves (Cheung, 2019) and have a positive attitude towards PE (Hayes, 2017) are likely to be more effective in promoting enjoyment and physical activity with pupils. What is important to note is that 'how prepared' a teacher is to teach PE is down to their perception of themselves (Freak and Miller, 2017) and that actually, the reality could be very different.

How do we define "prepared"?

'Prepared' can be defined as being "properly expectant, organized, or equipped" (Dictionary.com, 2020b) or "ready and able to deal with something" (Oxford Learner's Dictionaries, 2020b). Meanwhile, 'ready' can be defined as being "completely prepared or in fit condition for immediate action or use" (Dictionary.com, 2020a) or "fully prepared for what you are going to do and able to start it immediately" (Oxford Learner's Dictionaries, 2020a). So how do we measure whether being prepared has been met? Is being 'prepared' a state of mind or has it been acknowledged by a more experienced teacher/mentor/tutor? When carrying out ITE in England, PPSTs must satisfy the teacher standards (DfE, 2013) to gain QTS. However, against a generalist ITE model, evidence can be shown across all areas of the school curriculum. Freak and Miller (2017) carried out a study on how prepared PPSTs were before teaching PE, focussing upon their perception of readiness and exploring what the PPSTs felt they were ready to teach. Whilst the Freak and Miller study is relatively recent, its generalisability against the English landscape is challenging. It is based within a specific area of Australia, where the curriculum is very different to the English NC, but also the factors surrounding preparation are very different (for example, the large role the PESS premium has had in England). PPSTs in the Freak and Miller study were offered 39 hours of face-to-face PE learning time, with 26 hours being used practically – a very different story to the picture being painted within English based ITE (Fletcher, 2012; Kirk, 2012; YST, 2017). Whilst the participants in the study (Freak and Miller, 2017) reported feeling prepared to teach primary school PE, results varied regarding PPSTs concept of the subject. A study by Huddleston (2019b) found that whilst confidence and competence rose across all NC areas in PE with just six hours of contact time, some areas of the curriculum were still very limited in both confidence and competence.

The importance of "preparedness" is an important indicator for teachers' awareness and future performance, but could also help estimate job retention and support issues in ITE (Mohammed et al, 2017). In a study based on music PPSTs in Alabama, USA, Randall (2012) described how changing their ITE offer away from 'what we teach' and more towards 'how we teach' could help

make their PPSTs better “prepared”. It is important to note however that PGCE PPSTs have to cover many theoretical elements alongside their placements in school. This includes knowledge and understanding of SEND, behaviour management and planning within PE. Coates (2012), whilst carrying out a study on secondary school PE PPSTs, found that due to the time constraints of the PGCE year, the PGCE PPSTs received limited SEND training and that whilst they felt confident to teach children with SEND, they deemed their ITE as ineffective. Poznanski et al (2018) reflected this sentiment concerning classroom management, stating that there remains gaps in PPSTs knowledge when they progress towards their NQT year. Whilst an undergraduate route, that takes place over a longer period, could be seen as more beneficial to plug these gaps, based on NQT satisfaction across all subjects, there seems to be no particular reason to promote or support one route at the expense of the other (Gorard, 2017). One strategy to help support and promote development of the NQT is the establishment of the early career framework (ECF), which entitles NQTs to a fully-funded, two-year package of structured training (DfE, 2019). The vision for the ECF is to build on ITE.

Arguably, another area that teachers who teach PE must address is how they promote health amongst their pupils. Dewhirst et al (2013) stated that ITE across England demonstrated little consistency in regards to provision. This lack of consistency and the variability shown in provision could suggest a lack of priority placed on health issues, leading to inadequate preparation of PPSTs (Dewhirst et al, 2013).

Subject Knowledge

According to Quennerstedt (2019), the end goal of PE should be more education, more physical education, and thus the capacity for further PE (the subject). There seems to have been a paradigm shift from education of the physical to education through the physical (Chen and Garn, 2018) and that the key role now is to educate children through being active, however Fleet and Huddleston (2019) highlight that education in PE is all about learning in, through and about movement. In order to ensure that PPSTs are best prepared for entering the workplace, they must be aware that teachers are accountable for the learning that takes place in their lessons. Therefore, PPSTs must be aware of what makes a PE lesson effective. The Australian paper by Dudley et al (2011) stated three observed elements of quality PE would likely include pupils participating in high levels of physical activity, movement skill and practice, and active learning strategies, emphasising enjoyment. Improvements made in teaching and learning could be partly answered through developing one’s pedagogical content knowledge (PCK) and following four major assumptions, outlined by Backman and Barker (2020). Dyson (2014) argues that PCK is what creates positive learning environments, supporting pupil learning. What

the teacher does is critical to whether the pupil learns (Rink, 2014) and this can be brought about by the use of different orientations to teaching (for example the use of different pedagogies, such as the sports education model or teaching games for understanding). These types of models promote pupil centred learning and are often advocated (Ennis, 2014; Casey and MacPhail, 2018). When teaching music, de Vries (2015) recommends two key factors in order to better prepare generalist teachers (factors that can also be attributed to the PPST preparing to teach PE): the headteacher must ensure that (1) they are regularly teaching their subject and that (2) CPD opportunities must take place in pairs. Transferring these two factors to PE, it has already been shown that factor one is becoming less apparent (Randall et al, 2016) and that funding used for PE CPD has been relatively low (Huddleston, 2019a). To respond to this difficulty, subject co-ordinators are often in position in schools where they support, develop and model effective practice in their subject. This echoes the sentiment by Duncombe, Cale and Harris (2016, p11), who suggest that specialists be encouraged to “work with, learn from, and share their knowledge with generalist teachers” and vice versa.

In practice however, whilst co-ordinators (or specialists) have often had a significant impact upon both whole school curriculum planning and the management of resources, in many schools they have had little real influence on the competence of individual teachers and the quality of classroom teaching and learning (Alexander et al, 1992). It is important to note that a co-ordinator is not always a specialist and vice versa. In a study by Rainer et al (2011) it was found that their PE co-ordinators generally had no specific PE training background, with one headteacher indicating that the PE co-ordinator was selected on the basis that they played sport most of their life, suggesting that they were more equipped than other staff members. In the academic year of 2014/15, 46% of schools are said to have had a “specialist” (Callanan et al, 2015), but what one was, was rarely defined or agreed. Griggs and Randall (2018, p10) stated that defining a specialist is somewhere between “contested” or “not known”. During the ITE phase, that follows a less specialised, generalist route, there is the expectation that the development of a PPST will continue once in the workplace through a variety of forms of CPD. It is therefore important that the co-ordinator and specialist roles be defined properly. Jensen et al (2016) described “specialisation” across two categories: ITE, based on the modules undertaken and what is happening within school, based on subjects taught. Therefore, during ITE, the more modules undertaken around your given subject would make you more of a specialist, whilst in school, the less subjects you teach would make you more of a specialist in the ones that you do. For the purpose of this paper, a “specialist” is a teacher who has received specific primary PE training (through either additional CPD or ITE) and a co-ordinator is a teacher who has responsibility for the management of PE in their school; both have QTS. For

the most effective support of generalist teachers, it is important to note that schools promote a specialist co-ordinator in position in their school.

Who is teaching PE?

An important factor affecting the PPSTs confidence and competence towards teaching PE and one that influences how "prepared" they feel relates to who is currently teaching PE in the primary school. Jones and Green (2015) determined that three different groups of people currently deliver primary PE lessons: generalist teachers, specialist PE teachers, and adults other than teachers (AOTTs); in most cases, a coach. The curriculum model of delivery is therefore taught or supported through one or a combination of these three groups, however according to Jones and Green, the "generalist plus one model" was the most commonly used (69% of schools). This diversity of deliverers in the primary school could be attributed in part to the earlier PESSCL (PE, school sport and club links) strategy (OFSTED, 2005), followed later by the PE and sport strategy for young people (Youth Sports Trust, 2009), where secondary school PE teachers were encouraged to work with a link teacher in the primary school. The link teacher would then take responsibility for raising standards of teaching and improving the quantity and quality of PE and sport provision in their primary school. Alongside the integration of secondary school PE teachers was also the use of degree qualified and non-degree qualified coaches. In the modern day, the workforce delivering PE in our primary schools can currently be strongly attributed to the introduction of the PESS premium, introduced in 2013 (HM Government, 2013). Since its introduction, the workforce delivering PE has transitioned greatly, revealing that a large number of coaches are now being outsourced to deliver curricular PE lessons alongside or instead of QTS staff (Griggs, 2010, 2016, 2018; Huddleston, 2019a; Lawless et al, 2019; Ofsted, 2013; Rainer et al, 2011; Randall et al, 2016). A sentiment highlighted in the All Party Parliamentary Group (APPG, 2016) report explaining that the "primary PE workforce is no longer expected to be comprised of qualified teachers" (p29). This workforce shift, whilst clearly affecting qualified teachers, has also had a large impact in the experiences and possibilities for PPSTs whilst on placement.

Funding and Outsourcing

In English primary schools in 2016, more than a third of staff delivering PE did not hold QTS, but held a range of qualifications (Randall et al, 2016). A report by the DfE (2015) found that 35% of schools reported coaches to have qualifications ranging from UKCC to level three qualifications, with only 3% exploring qualification status to degree level or higher. In fact, very few schools even reported the qualifications of external providers at all. A Birmingham-based

case study (Huddleston and Randall, 2018) found the use of coaches was one of the most common and costly uses of the PESS premium spend. It was found that 88% of schools were outsourcing their curriculum for coaches - one of the most common themes of the funding, but also the largest expenditure (Huddleston, 2019a). Meanwhile, 60% of schools spent some money on CPD opportunities; however, this was comparatively low in monetary terms (Huddleston, 2019a). This has raised a number of concerns, regarding this spread of largely unregulated array of private coaching companies delivering in schools, but also the fact that priority, it seems, is being given to short-term delivery over long-term development (Lindsey et al, 2020).

These findings are not relevant to the UK alone; an Australian study by Williams et al (2011) found that 85% of Queensland schools outsourced their PE offer in some way. It is interesting to note that outsourcing was found to differ between activities within the curriculum (outdoor adventurous activities being the highest, an area highlighted as often being insufficient by Chedzoy, 2000) and that outsourcing within schools came down to supply and demand (Williams et al, 2011). It is clear that nationwide, a large number of coaches must be readily available, so moving into school PE seems a logical transition; however, it is important to highlight that there are numerous differences between a coach and a teacher. An uncertainty that remains of employing a non-QTS workforce in PE is the impact it has on pedagogy, curriculum and assessment (Sperka and Enright, 2018) in order to advance quality in PE (Penney et al, 2009). The decisions the stakeholders make in choosing external providers and what influence and affect they have on pedagogy, curriculum and assessment requires much further exploration.

Confidence and competence of teaching staff

The wholescale introduction of outsourcing curricular PE has not happened by chance. The trend towards outsourcing PE to AOTTs has been growing according to Green (2008) and it is more evident in primary schools than any other industry area. Alongside the portrayed low hierarchical worldwide landscape of PE in primary schools, the increased use of AOTTs covering PE is often justified by schools due to the lack of competency or confidence the teachers have (Tsangaridou, 2012) to plan, deliver and asses PE (Hayes, 2017). An additional concern was raised by Domville et al (2019) who stated that children's enjoyment and competence in PE is affected when they sense that their teacher lacks competence to teach PE. Findings from the Domville et al study showed little evidence to suggest generalist teachers were achieving clear learning activities and optimal challenge.

Whilst Tsangaridou (2012) acknowledged that teacher confidence, skills and knowledge to deliver PE is known to be limited, several studies (APPG, 2019; Griggs, 2008, 2010, 2016, 2018; Huddleston, 2019a; Huddleston and Randall, 2018; Lawless et al, 2019; Randall et al, 2016) have alluded to how schools now see coaches as a possible solution to teachers' concerns over delivering the subject. It was found that teachers even had a willingness to give up on the delivery of PE (Griggs, 2010), which therefore gave rise to the increased use of coaches to deliver more curriculum PE; with generalist teachers stating that a lack of training was a barrier to delivering PE lessons (Faulkner et al, 2008). This 'lack of training' could stem back to when the teacher was within the ITE system or based upon a lack of CPD in the school. Another concern is the perceived hierarchy of subjects, shown when PE lessons are cancelled over 'more important' school commitments such as school productions, improving an inspection grade or science, technology, engineering and mathematics lessons (Morgan et al, 2019; Rainer et al, 2011). Whilst having a coach delivering PE will often satisfy a generalist teacher's needs (Griggs, 2010), it does however decrease the opportunity for teachers (and PPSTs) to observe and teach PE (Pickup, 2006) and this can trigger stakeholders (pupils, teachers, parents) to see PE as 'less important' than other school subjects (Smith, 2015).

The case of low confidence amongst generalist teachers delivering PE lessons is evident. Many teachers have lacked sufficient specialist expertise, received inappropriate ITE in PE, and/or have had few opportunities to undertake CPD (Smith, 2015). Freak and Miller (2017) note their concern in relation to ITE and highlight the challenge to change pre-existing beliefs and prior experience of PPSTs in order to create a positive attitude to PE, a sentiment carried across by Huddleston (2019b). Alongside the confidence and competence to teach PE, a generalist teacher's pedagogy (and variety of), motivation, inspiration, understanding, enjoyment, and modelling of behaviours, have also come into question (Pickard and Maude, 2014; Cope et al, 2015). Perhaps one pathway to explore would be a teacher's self-efficacy (Bandura, 1997). Studies have shown that teacher qualifications and their general credentials are not necessarily always linked to academic achievement (Early et al, 2007; Justice et al, 2008; LoCasale-Crouch et al, 2007), but that the teacher's self-efficacy is a factor that can bring about the desirable behaviour changes and academic achievement. Guo et al (2011) found that teachers in pre-school, when working together, had higher self-efficacy and promoted better achievement. However, it is unlikely that self-efficacy in any subject would develop in isolation (Pattison, 2014); therefore, PPSTs must socially construct their experiences in order to strengthen their self-efficacy and therefore feel better prepared to teach the subject. The process of developing self-efficacy within PE requires much further study and is outside the remit of this paper.

The increased use of coaches delivering PE could be viewed as a form of CPD in order to develop the teacher's confidence and competence to teach the subject through observation (Huddleston, 2019a). However, the quality of coaches used within schools has been highlighted on a number of occasions (Griggs, 2010; Ofsted, 2013; Randall et al, 2016) and is an area that requires further investigation regarding how appropriate and effective external coaches are (Lindsey et al, ND). Whilst coaches can often have more understanding of a specific activity or sport, they commonly do not have an education background (Cope et al, 2015; Jones and Green, 2015). Other concerns that have been highlighted have included classroom management, prioritising sporting objectives over educational ones and knowledge of both the NC and pupils (Smith, 2015), thus potentially becoming a threat to the professional identity and status of PE (Sperka and Enright, 2018). Randall (2015, 2019) promotes a professional knowledge model in order to frame CPD for both PPSTs and teachers. However, Headteachers have often used PE in order to provide PPA time (Smith, 2015). The study by Randall et al (2016) would suggest the same, finding that generalist teachers were present in only 2.3% of PE lessons that were taught by a coach, meaning that CPD through observation was not happening. By not gaining the opportunities to teach PE, it would not only lead to a diminished confidence to teach PE, but also not address the PPSTs training needs (Huddleston and Randall, 2019). With evidence that PPSTs receive limited hours within PE ITE and limited PE teaching when in school (Fletcher, 2012), it is of no surprise that PPSTs entering the profession could have low levels of confidence and competence when teaching the subject and therefore not feel prepared when entering the profession. Regardless of these factors, Randall (2019) calls for teachers to remain the main deliverers of PE and that external agencies support the development of subject knowledge. It is therefore of paramount importance to gauge how PPSTs feel once coming to the end of their qualification and going forwards, calculating what could be improved to develop the subject and its workforce.

Rationale

There are a number of factors shaping the rationale for this study. Traditionally, primary education relies on teachers delivering all subjects, with them receiving training across numerous subject areas during their ITE and then continuing to develop these as they work in the profession. However, as explained, there are currently numerous aspects "upsetting" this tradition. The hours dedicated to PE at an ITE level are commonly low for those on a generalist model, intending that experience and expertise will need to be 'supplemented' whilst on school teaching practice in order to develop and apply confidence and competence to their teaching. However, what the literature currently shows is that what is taking place in schools does not

support this. One of the key influencers to this, the PESS premium funding, has created an increase in outsourcing and the use of non-qualified staff to deliver primary PE. Based on the current evidence, this has seemingly led to trainees not gaining the support they need to develop their subject knowledge and therefore them entering the profession with low levels of confidence and competence around PE.

Therefore, the aim of this study is to gain an insight into how prepared PPSTs feel in regards to teaching PE as they finish ITE, both from a generalist and additional PE module perspective. The key research questions are:

1. What experiences of PE are PPSTs receiving once they complete ITE?
2. What impact is outsourcing, staffing and funding having on the PPSTs placement experience?
3. How prepared do PPSTs (on either route) feel about teaching PE effectively once they finish ITE?
4. What CPD needs to PPSTs have as they complete ITE?
5. Therefore, what action can be taken to rectify any issues surrounding the preparation of PPSTs in teaching PE?

Methodology

This study followed the British Educational Research Association's (2018) ethical guidelines for educational research and gained ethical clearance in February 2020, before any data collection took place between May – July 2020. The ethical approval for this research was category A, where there were no invasive procedures and the participants gave informed consent, with full details of the research explained through a participant information sheet.

The method of data collection involved an anonymous online questionnaire through Microsoft Forms (Appendix 6: Figure 25), where data was easily transferred to a Microsoft Excel spreadsheet for analysis. The anonymity of the questionnaire is important as responses are much more likely to be telling the truth (Brookfield, 2017). Due to the restrictions of Microsoft Forms, one questionnaire was given to PPSTs on a non-PE (generalist) pathway, whilst another questionnaire was available for PPSTs on a PE 'additional contact hours' pathway; both questionnaires were identical, so this approach was used solely to identify responses from the different PGCE route. PPSTs on the non-PE (generalist) pathway carried out their ITE in university, receiving the minimum number of PE contact hours their university provided. The PE PPSTs, whilst also classed as generalist teachers and receiving training across all subjects,

received additional hours, through an additional module/s of PE content. The questionnaire was sent to 22 universities who deliver a PGCE in primary education.

The questionnaire involved a mixed methods approach. The online questionnaire involved 12 questions, 9 questions resulting in quantitative data and 3 questions resulting in qualitative data. Due to the nature of Microsoft Forms, a Likert scale (Ary et al, 2014, p226) was used for questions 4, 6, and 9, whilst a Bipolar Adjective scale (Ary et al, 2014, p229) was used for questions 8, 10, and 11 (used to try to prevent socially desirable responses). The 12 questions were based around four key concepts, unknown to the participant:

1. Experiences (questions 1, 2, and 3);
2. Outsourcing (questions 11 & 12);
3. 'Preparedness' (questions 5 – definition, 4 and 10 - PGCE, 6 and 7 PE specific);
4. Continual Professional Development (questions 8 and 9).

The research adopts the lens through the 'learner's eyes' (Brookfield, 1995) using PPSTs as they approach their NQT year to provide valid and reliable evidence for ITE practices to understand and reflect upon how and what PPSTs are learning and experiencing. This is important as it allows ITE institutions, acting upon this research, to make decisions on the organisation and learning processes involved; ultimately promoting student-centred teaching, building bridges from where they are now and towards a new destination (Brookfield, 2017). Through a joint interpretivist (Myers, 2008) and pragmatist approach (Cohen, Manion and Morrison, 2018, p9), the data has been analysed through grounded theory (Ary et al, 2014, p495) in order to make sense of the responses and 'ground' these to common themes. Each question aligned with one of the four concepts and this is shown within the results. Quantitative responses acted as axial codes (Strauss and Corbin, 1990) and fell within the aligned concept for that question. Qualitative responses were analysed looking for similar themes across the responses and these were grouped together using open coding (Basit, 2010, p192), with the new 'themes' acting as new axial codes. Theoretical memoing (Charmaz, 2005) was used to conceptualise the main outcomes to summarise results across the four key concepts. Based on the results, the promotion of more effective outcomes for PPSTs have been considered. Responses to individual questions have also been compared between PGCE routes (generalist & PE) where appropriate.

Limiting Factors

It is acknowledged that the use of the Likert Scale or Bipolar Adjective Scale can sometimes promote social bias or positional favour (Ary et al, 2014, p230). Other problems acknowledged are generosity error (the participant gives the benefit of the doubt, so would 'go positive'), and the error of central tendency (participant rates all down the middle, to miss out any extremes). To manage these errors, terms have been clearly defined and the questions used simple language. The mixed methods approach used close-ended (single frame of reference) questions for the majority of questions in order to support data analysis and to remain a focus on responses, whilst using open-ended on three questions in order to gain new responses, specific to that person and to help give meaning to their other responses.

A major bearing to this research came in the form of the global pandemic: Covid-19. On March 18th 2020, the DfE (2020a) published guidance that all schools, colleges and early years' settings would close from Friday 20th March 2020 for the foreseeable future. This resulted in every PPST during the 2019/20 academic year to have their school placements cut short (in a face to face situation) from the planned minimum of 120 days (DfE, 2020b). Based on conversations with the six participating universities and looking at timetables, it has therefore been estimated that participants in this research completed a minimum of 75 days in placement, with an error deviation of +/- 10 days. It is therefore possible that results from this study could have altered for the remaining days that PPST was in placement. The results of this study are therefore based on the PPST's feelings and experiences whilst on placement during that time and any ITE they received between September 2019 – July 2020.

Findings

Of the 22 universities, six university's PPSTs engaged with the research. Across the six universities, 48 participants engaged with the questionnaires in total. Results have been converted to percentages in order to support inductive reasoning and help generalise and make meaning of the data. Results of this study are shown across the four key concepts, with aligned questions from the questionnaire next to each concept. Where analysis is against the PGCE pathway, 'non-PE' or 'NPE' has been used for the PPST on a generalist primary education pathway; whilst 'PE' has been used for those on a PGCE route that includes additional PE module/s. Where individual statements have been used, the PPST has had their pathway and participant number stated. For example, the fourth PPST completing the questionnaire on the non-PE route has been coded 'NPE4'.

Analysis & Evaluation of Findings

1. **Experiences (questions 1, 2, and 3);**

The first three questions of this study looked at what experiences PPSTs have had prior to starting their PGCE (question one), what experiences they have had during and on completion of their PGCE (question two) and how they would best describe the majority of their experiences whilst on their PGCE placement (question three).

Prior to the PPSTs commencing their PGCE, it is clear that the majority (54% average) had taught zero hours of PE (Figure 1) and that 75% of the participants had taught 5 hours or less. Interestingly however, 24% of PPSTs had experience of teaching 6 hours or more (final three categories combined) of PE prior to starting their PGCE, with differences between a generalist and PE PPST being very similar.

Teaching of PE prior to the PGCE	PE	Non-PE	Average
0 hours	55%	54%	54%
1-5hrs	18%	23%	21%
6-10hrs	5%	0%	2%
11-15hrs	9%	4%	6%
16hrs+	14%	19%	16%

Figure 1 – Table of hours of 'taught PE' undertaken by PPSTs prior to a PGCE

The number of hours PPSTs spent observing PE lessons prior to starting their PGCE (Figure 2) had similar findings, however fewer were coming to the course with zero hours spent observing PE (24% average) in comparison to teaching. Intriguingly, 85% of generalist PPSTs, who will have less contact time with PE on their PGCE, had observed an hour or more of PE, whereas the percentage of PPSTs on the additional PE module pathway was less, with 68% observing some PE lessons before starting their course. The majority had received 1-5 hours of observation prior to beginning their PGCE, but again, like teaching experience, around a quarter of the participants had observed 16+ hours of PE.

Observing of PE prior to the PGCE	PE	Non-PE	Average
0 hours	32%	15%	24%
1-5hrs	27%	50%	39%
6-10hrs	5%	4%	4%
11-15hrs	9%	0%	5%
16hrs+	27%	31%	29%

Figure 2 – Table of hours of 'observed PE' undertaken by PPSTs prior to a PGCE

On completion of the PGCE, 83% of PPSTs had taught some PE, still leaving an average of 17% of PPSTs having taught no PE lessons. The majority of PPSTs (49%) experienced between 1-5 hours of teaching PE whilst on placement (Figure 3). However, there is a large difference between the generalist and PE pathways, with 36% of the PE PPST teaching 1-5 hours versus 62% for the generalist. This shows that whilst the average of 'PPSTs having taught no PE' was between 18-15%, the number of hours taught by the PE PPST was slightly higher than that of the generalist. The number of PPSTs who experienced teaching 11 hours or more of PE (equating to 11 lessons or more of PE based on the assumption and estimate that a lesson is one hour in length) was on average to be 19% of the participants.

Teaching of PE on completion of PGCE	PE	Non-PE	Average
0 hours	18%	15%	17%
1-5hrs	36%	62%	49%
6-10hrs	27%	4%	16%
11-15hrs	5%	15%	10%
16hrs+	14%	4%	9%

Figure 3 – Table of hours of 'taught PE' undertaken by PPSTs during their PGCE

The number of hours PPSTs spent observing PE whilst on placement was generally higher than that of teaching PE, with an average of 98% of the PPSTs having observed some PE with the majority of PPSTs (56%) observing between 1-5 hours (Figure 4). There is limited difference between PPSTs on the PE route versus the non-PE generalist route, with both observing a similar number of lessons whilst on placement. This equates to the overall outcome of school experience, in regards to teaching and observing PE, to be 1-5 hours for the majority of PPSTs.

Observing of PE on completion of PGCE	PE	Non-PE	Average
0 hours	0%	4%	2%
1-5hrs	55%	58%	56%
6-10hrs	27%	15%	21%
11-15hrs	9%	15%	12%
16hrs+	9%	8%	8%

Figure 4 – Table of hours of 'observed PE' undertaken by PPSTs during their PGCE

For PPSTs on the PE pathway, experiences have been limited, with the majority of both experiences being in the 1-5 hours bracket (Figure 5). Whilst 18% of PPSTs being trained on a PE pathway had taught no PE, it is perhaps a consolation that all had received the opportunity to observe some PE whilst on placement.

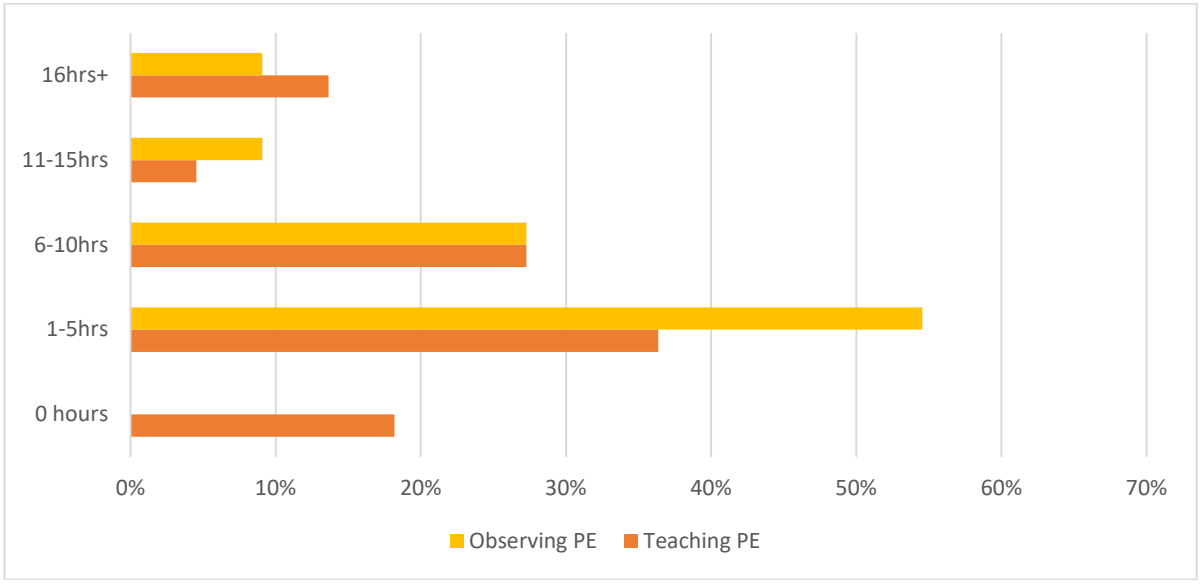

Figure 5 – Graph representing the percentage of hours spent teaching versus observing for PPSTs on the PE route

For PPSTs on the generalist route, results were very similar to that of the PE pathway; that the predominant experiences being 1-5 hours (Figure 6). However, there is the possibility that some PPSTs on the generalist route received no experience of both observing and teaching a PE lesson. The key differences from the PE pathway is that opportunities after 5 hours were much fewer.

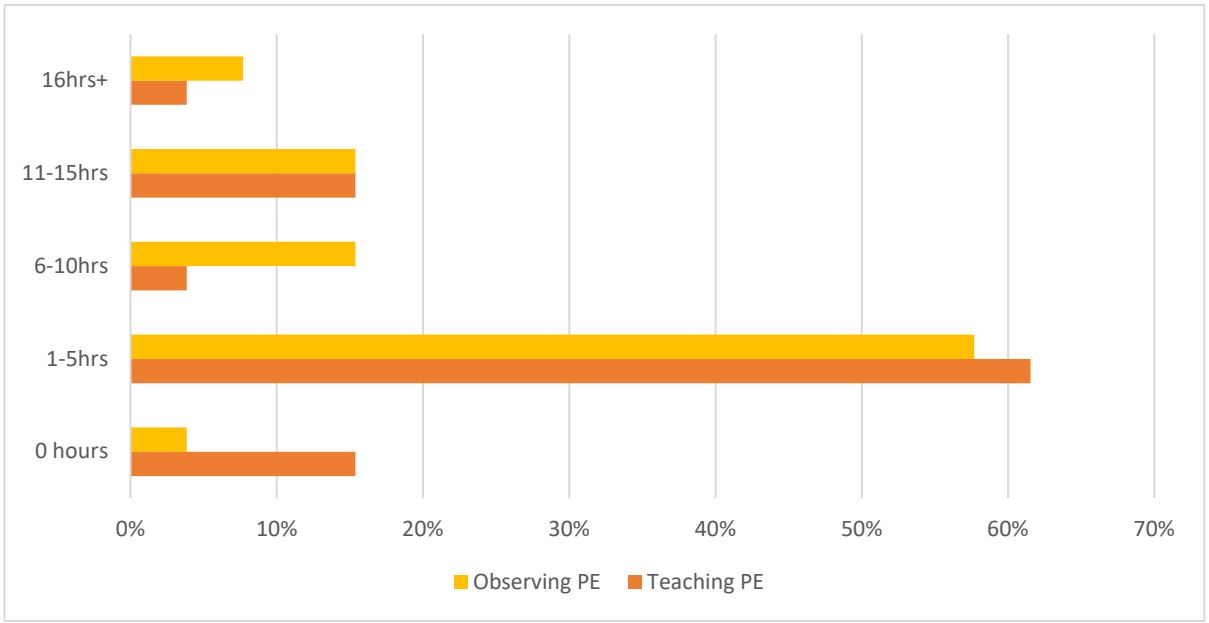

Figure 6 - Graph representing the percentage of hours spent teaching versus observing for PPSTs on the generalist non-PE route

To explain the responses to teaching experiences whilst on placement, 31% of PPSTs were able to teach the majority of their lessons independently (Figure 7). The most common form of teaching was with another adult present (52%) in their lessons (teaching assistant, coach/specialist, or class teacher). Unfortunately, 17% of the PPSTs stated that they had taught

no PE lessons during their PGCE. In schools that employed coaches or specialists, 19% of PPSTs had the opportunity to teach alongside them.

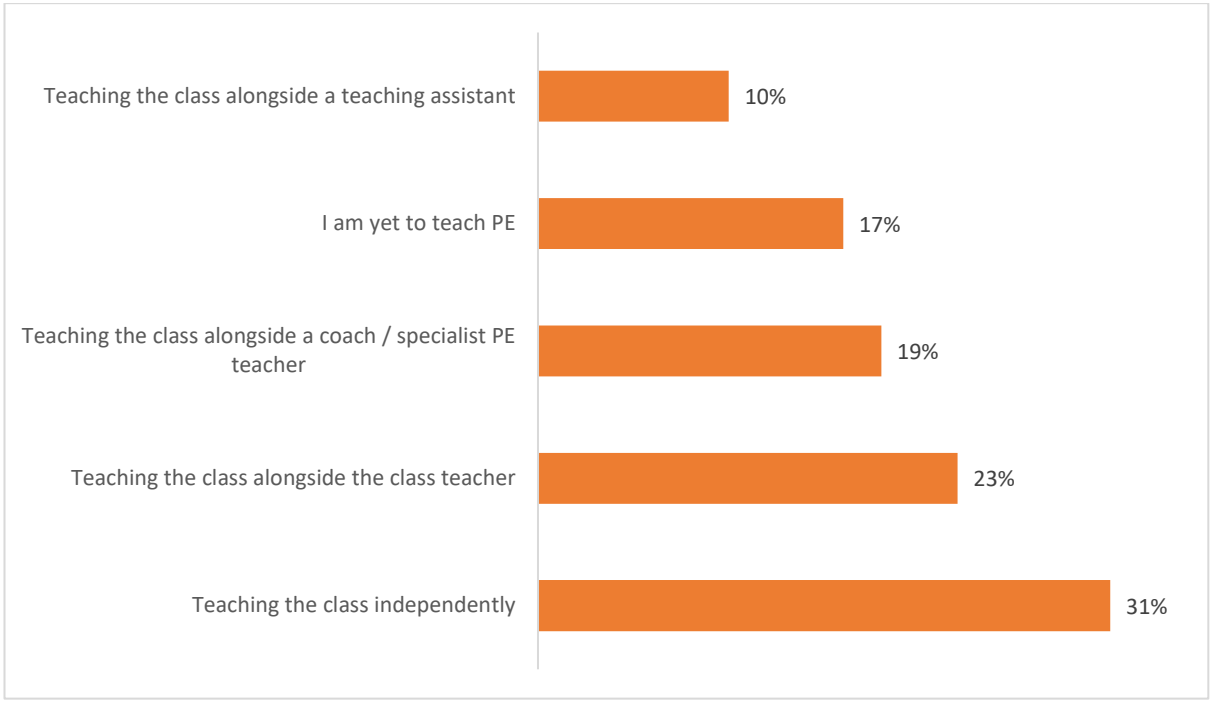

Figure 7 – Graph representing how the PPSTs would describe the majority of their experiences of teaching PE whilst on placement

2. **Outsourcing (questions 11 & 12);**

Question 10 and 11 explored the feelings that PPSTs had towards PE lessons being outsourced to coaches. Whilst question 10 looked at how beneficial they felt they were to pupils and teachers, question 11 was an open response question, seeking to explore reasons for their responses.

Based on the responses, it was clear that the majority saw a benefit to pupils (over 70%); however, the benefit to teachers was varied, with 50% seeing them as beneficial to teachers whilst an average of around 38% (between PE and non-PE pathways) saw them as not being beneficial (Figure 8). What is important to find from this evidence is why the PPSTs responded in this manner, especially when 17% have stated they had taught no PE whilst on placement (Figure 7).

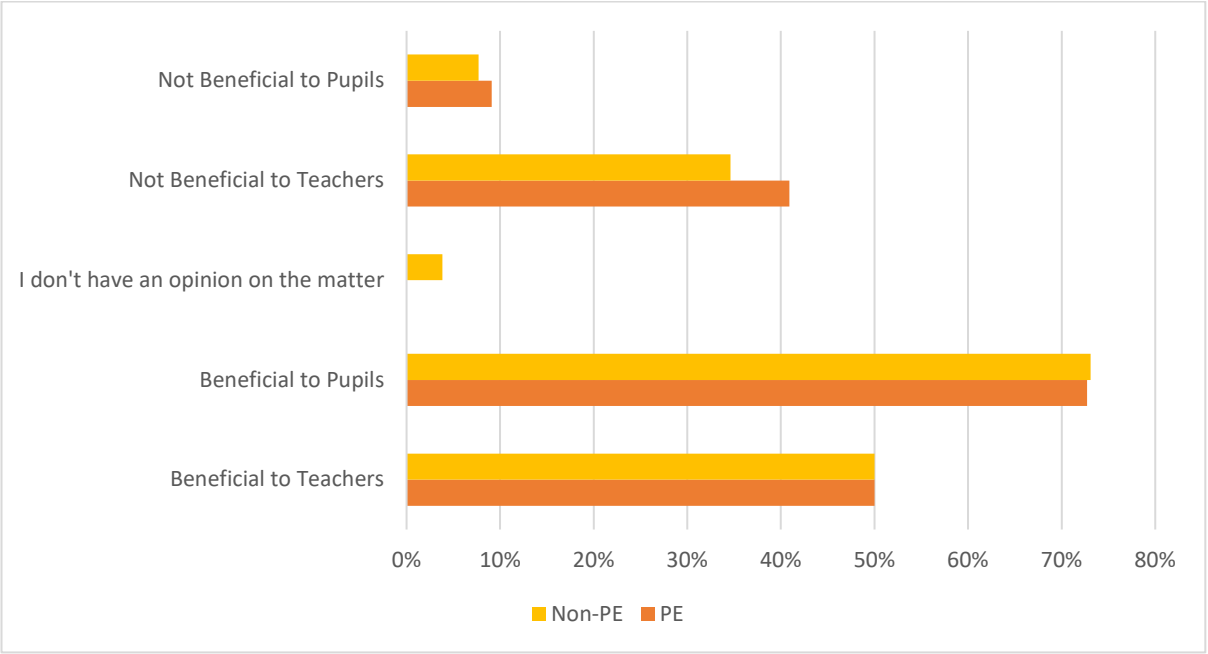

Figure 8 – Graph representing the opinion towards using externally outsourced coaches during PE curriculum time

Responses to question 12 were grouped (open coding) by theme (axial code). Due to the question being entirely open, the responses were varied, with some responses stating what they felt should be happening, but then comparing it to what was actually happening. What was very apparent was the largest occurrence (46%) of PPSTs viewing a coach as an expert (Figure 9). A sentiment outlined by the response by the participant NPE10 in responding:

> "*...it allows pupils to have a fully-trained person teaching a specific field, who is able to support a range of learning styles and a thorough knowledge of Primary P.E. standards*"

This idea that the coach is an expert, is an interesting one, as evidence would show that, based on qualifications, this is not always the case (discussed earlier in a number of studies) and so should be looked at on a case by case basis. Perhaps an explanation for these responses is the Halo Effect (Basit, 2010, p65). Are PPSTs/teachers/schools viewing coaches, in their branded sports clothing and demonstrating enthusiasm towards the subject, therefore as experts, without knowing if they have the experiences or qualifications to make them so? It would be impossible to distinguish this from the material present in this study.

A common finding from question 11 was the positive responses related to the creation of PPA time from using coaches to teach lessons (29% and second most common response after the 'expert'). A response from NPE12 stated that 'extra' time could be created, however also noted that the coach may not be most suitable, in regards to pedagogy:

"*It is often seen as extra PPA time for teachers, even though they should really stay to support the external coach. I am not always convinced that the coaches are trained in pedagogy as much as trainee teachers have been*"

Meanwhile, NPE17 responded with how the PE lesson can create PPA time, which can then be used to benefit other lessons:

"PPA time… will be useful for me to plan my lessons and liaise with my team on how to share ideas and resources."

Perhaps one way to explain these responses was a response from PE1 who stated:

"It doesn't feel as important a subject, as the responsibility is deployed to a level 2 sports coach."

It is interesting that PE1 has responded in regards to the perceived importance of the subject, but also that coaches (in this example) are replacing teachers who are trained to a much lower level of qualification. A response from PE10 saw the use of 'experts' (PE10 uses the term 'specialist PE teacher') as a partnership, where the coach delivers the more technical aspect of PE, whilst the teacher then delivers an "easier" version of that lesson:

"Specialist PE teacher lesson to be the main lesson and then their lesson [class teacher] to be more of a game/easy lesson"

A thought process that was similar to NPE19, who stated the importance to develop skills:

"…having a specialist teacher gives children the opportunity to have a more focused lesson, based on skills"

Interestingly, the third and fourth most common occurrence of themed responses relates to the preparation of PPSTs. 19% of PPSTs stated that the teacher observing the coach would be beneficial, whilst 17% of PPSTs felt that the use of coaches prevents the development of the teacher. PE4 stated that observing can be positive; however, it can also be a drawback if teachers are not able to apply what they learn:

"Beneficial to teachers as they can observe quality teaching of these areas of PE, however teachers may not have the opportunity to put this into their own practice due to constantly observing."

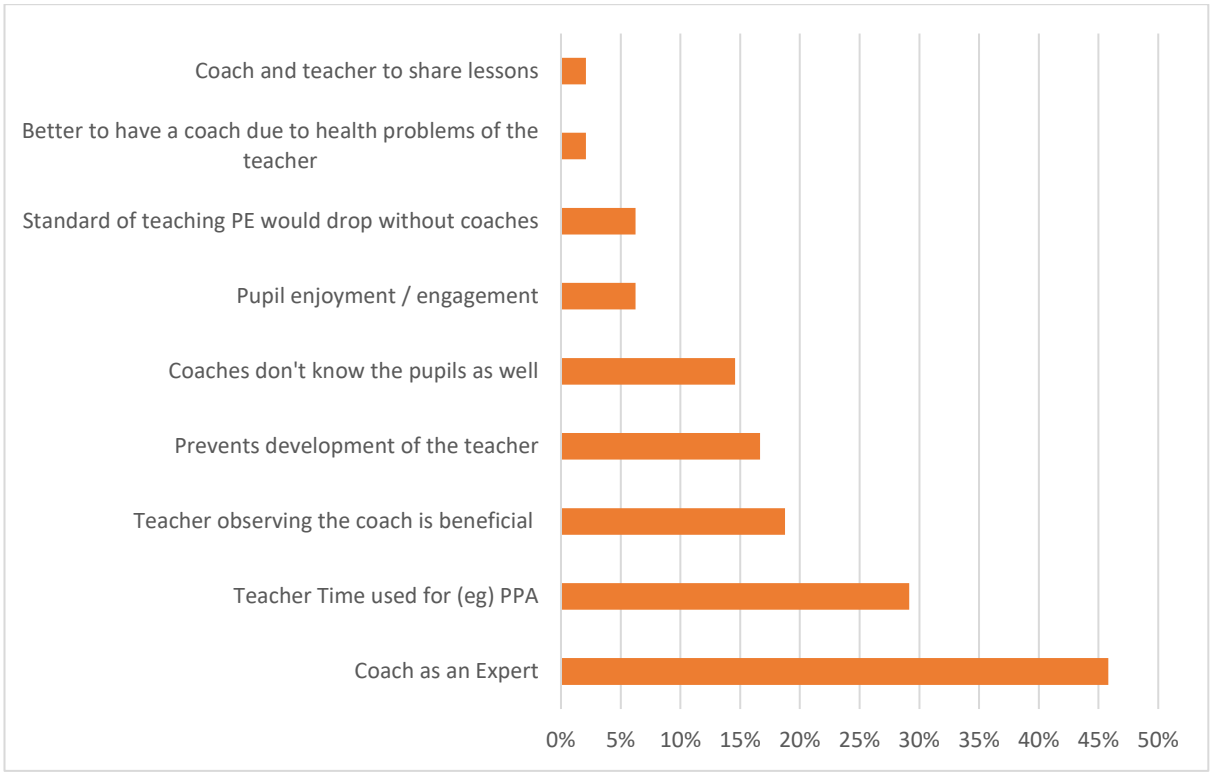

Figure 9 – Graph representing the grouped qualitative responses to the opinion of outsourcing coaches in PE curriculum time

3. 'Preparedness' (questions 5 – definition, 4 and 10 - PGCE, 6 and 7 PE specific);

Question 5 explored the PPST's perception of being 'prepared'. Responses were analysed, with key terms highlighted and grouped as a theme. Overall, there were 26 themed responses relating to how they perceived being prepared (See Appendix 1: Figure 11 for the full list). Due to the number of different key words used to describe these themes, I have grouped them as best as possible. Any response of 'excellent', 'good', 'outstanding' for example have been grouped and defined as 'strong' in this literature.

The most common theme (Figure 10) to appear from this question was somebody who has 'strong' knowledge and understanding of the subject (44%). Responses after this were much lower, with four themes appearing between 20-30% of the responses. These were based around knowledge of differentiation or inclusion (29%), being organised/prepared (29%), having 'strong' lesson planning (27%) and using resources/tools/equipment (21%).

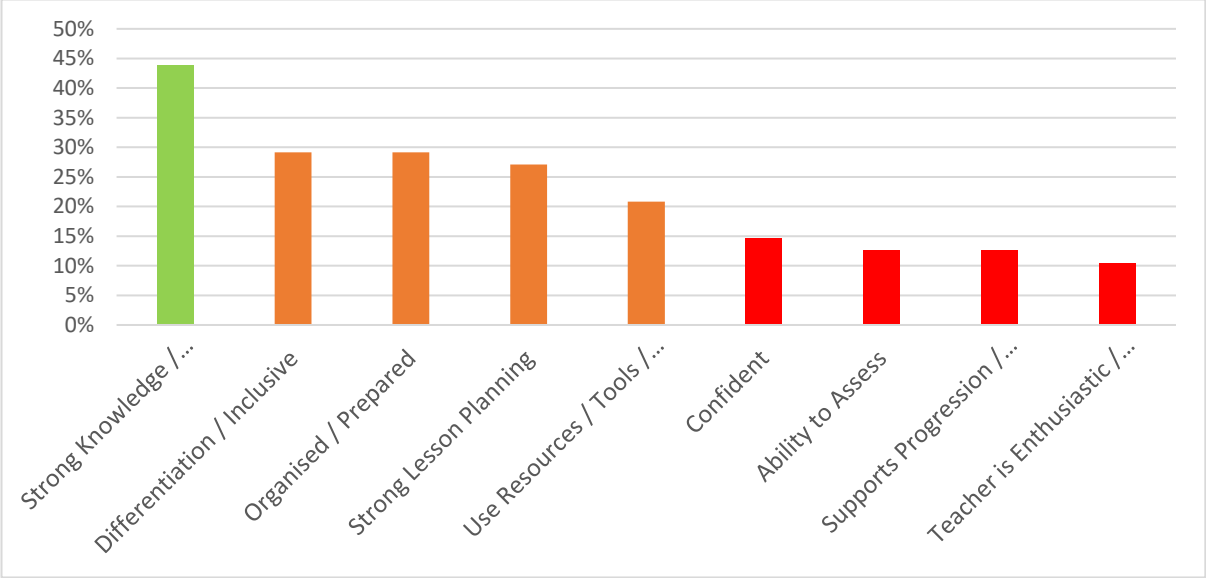

Figure 10 – Graph representing the themed qualitative responses to: how would you define a person that is prepared to teach a lesson? (Graph shows responses that have scored 10% or more only) (Nb. Green – over 30%, Orange 20-30%, Red 10-20%)

In regards to how much PE contact time trainees had in their university ITE, responses differed between non-PE and PE PPSTs (Figure 12). The majority of both routes felt their contact time was 'about right'; however, this was much more prevalent with the PE PPSTs (68%) versus the non-PE PPSTs (46%). PPSTs who felt they required more time was much lower for PE PPSTs, with 27% feeling they still required more contact time on PE, whereas 42% of non-PE PPSTs felt they needed more time. Paradoxically, both routes recorded responses of 'too much time spent on PE', with 5% of PE PPSTs and 12% of non-PE PPSTs responding in this manner. It is unclear why this is believed, however could it be attributed to a dislike of PE or physical activity?

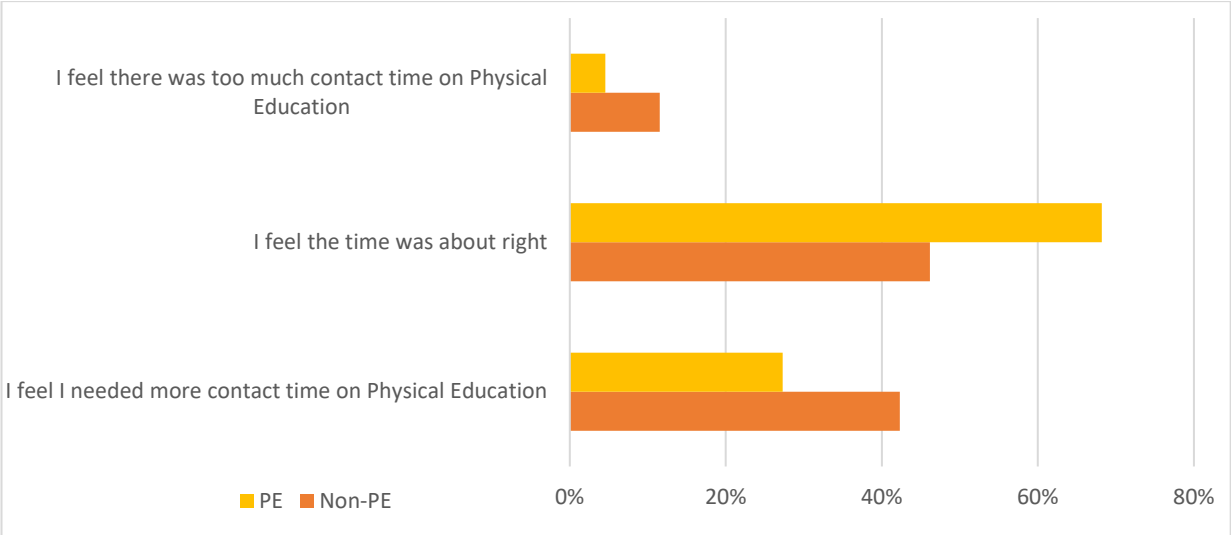

Figure 12 – Graph representing how PPSTs feel about the length of PE contact training time given to them on their PGCE course

When analysing a PPSTs feelings of being prepared against different themed areas within education (Figure 14), the majority of trainees felt they were at an excellent or good standard in all but one of the themed areas, the 'ability to use technology within PE', with the average response of excellent or good being much lower, at 41%. From this question, it is clear that areas that could be looked at for development would be the use of technology, but also assessment in PE and the use of pedagogies in PE. Interestingly, when analysing the responses between the PE and non-PE PPSTs, most responses were very similar (Appendix 2: Figure 13), however the ability to plan was much higher for the non-PE PPST (85% versus 68%), along with the understanding of PE pedagogies being much higher for the non-PE PPST than the PE PPST (70% versus 55%). Overall, responses across all six themed areas had higher positive responses for the non-PE PPST than the PE PPST. This is an interesting finding, as the evidence has shown that they have less ITE contact time, are less satisfied with that time, and during placement, have less observation and teaching time. One possible explanation to this phenomenon is the Dunning-Kruger effect (Kruger and Dunning, 1999). This theory is based on a cognitive bias, where the less competent paradoxically feel more confident, mainly due to them not knowing the 'full picture'. It is very possible that non-PE PPSTs, who have received less contact time on PE (both at university level and in school), could feel like they know a considerable amount, although they will not have seen or understood the full picture, which the PE PPSTs will have experienced. This is seen clearly in the Dunning-Kruger Effect Curve (Appendix 10 - Figure 29), where increased knowledge to the PPST will considerably alter their level of confidence and therefore affect the level of response from the PPSTs for that question.

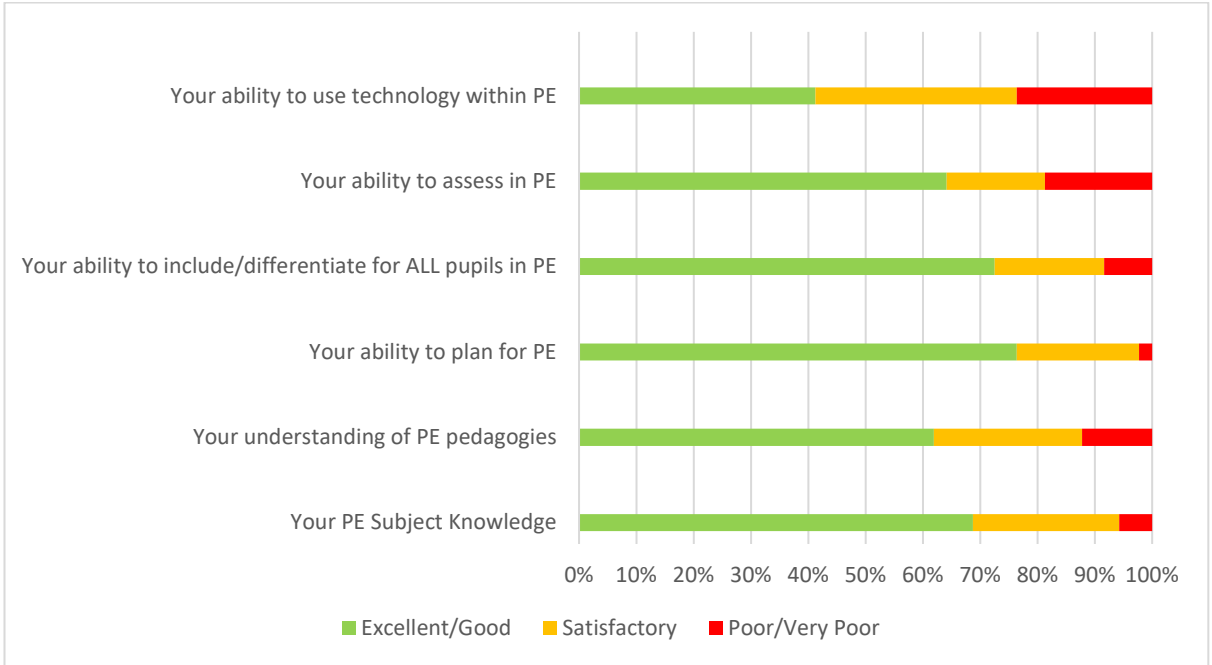

Figure 14 – Graph representing the overall participants' feelings towards being prepared, based on their PGCE year

Feelings towards preparation around the areas of the PE NC were varied by activity, but also by PGCE route (Figure 16). Overall, swimming* (* not specifically a NC PE activity, but a mandatory activity on the primary NC) was deemed the least prepared for activity, with an average of 40% of PPSTs responding that they felt like they had excellent or good confidence towards teaching this area and 47% feeling they had poor or very poor confidence teaching this. Five areas (fundamental movement skills, 69%; outdoor adventurous activities, 71%; gymnastics, 59%; athletics, 71%; and dance, 66%) fell within a 12% difference for excellent or good confidence; however, dance and gymnastics recorded much higher rates of poor/very poor confidence, both at 16%. Games was the most confident area to teach, with an average of 90% of PPSTs stating that they had excellent or good confidence to teach this activity. Whilst this could help explain why some school's curriculum design and activities on offer are rather 'games heavy', it also explains why those coming to a PGCE are more confident in games in the first place. An important point to acknowledge are the comments made earlier (Figure 9) where PPSTs have stated that coaches take the 'more technical' aspect of PE, whilst the teacher then takes the 'easier' aspect. This can be seen in Appendix 3 – Figure 15, where the PPSTs on a PE pathway have larger amounts of confidence in these three areas, as well as promoting fundamental movement skills.

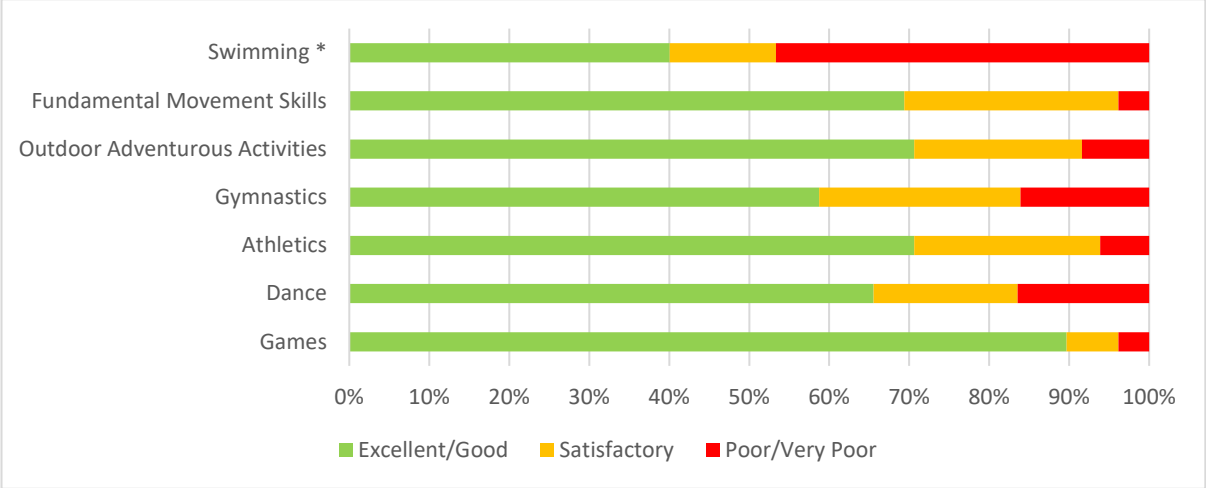

Figure 16 – Graph representing overall PPST feelings towards teaching areas of PE. Nb. * Swimming acknowledged as not part of the PE national curriculum

Understanding why there are differing levels of confidence towards teaching these different areas is important in order to promote effective change for future PPSTs. Question 7 sought to explore reasons why any PPSTs felt their subject knowledge was deemed poor or very poor, with 75% of the PPSTs responding. Following the same open coding analysis to question 12,

five grouped themes appeared (Figure 17). 'Lack of experience or application' was the largest reason for poor/very poor confidence to teach areas of PE with 48% of respondents stating that this as the reason. This is of no surprise considering the responses to prior questions where trainees have received relatively few hours of teaching PE whilst on placement (Figures 3 and 5), how their experiences have occurred (Figure 7) and their thoughts towards the benefit of coaches (Figure 8), with between 35-41% of PPSTs (dependant on PGCE pathway) seeing coaches as not beneficial.

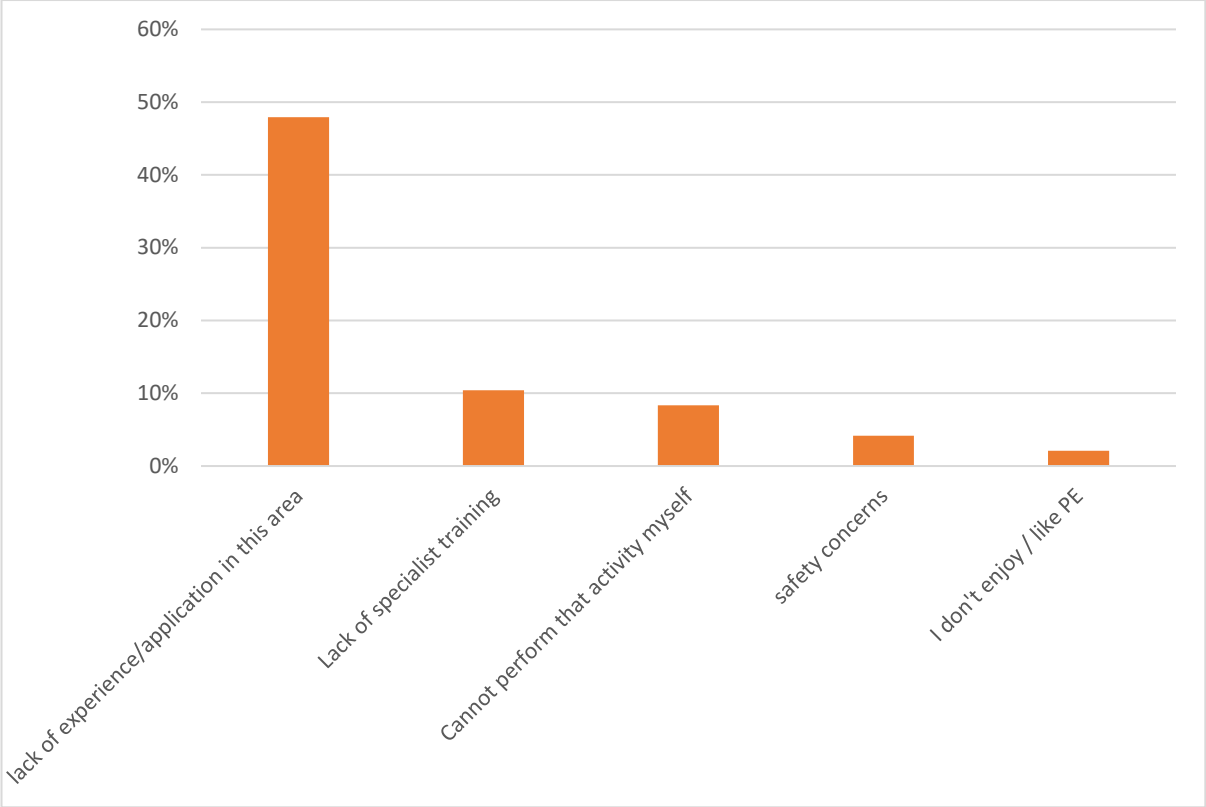

Figure 17 – Graph representing grouped qualitative responses explaining feelings towards preparedness to teach areas of PE preparedness

From the responses grouped into the theme 'lack of experience/application in this area' and considering activity areas, six were mentioned (Figure 18). This data supports the responses to Figure 16, where swimming, gymnastics and dance have been the least experienced areas.

Area that is specifically stated (lack of experience)	Occurrences
Swimming	26%
Gymnastics	22%
Dance	17%
OAA	13%
Games	4%
Athletics	4%

Figure 18 – Table of specific areas stated in response to Q7 (Figure 17) for "lack of experience/application in this area"

Some responses however did not mention the specific activity area, for example NPE8 logged:

"Simply lack of experience"

and PE2:

"Not enough experience in placements"

PE18 described in detail why this was so (placement one and two have been added to align with the same terminology of this paper):

"In [placement one], PE was taught by a TA one day a week. In [placement two], PE was taught by a HLTA, and I observed several lessons... …timing/scheduling meant I didn't have opportunity to actually prepare or teach a lesson of my own."

Responses that were more specific to the activity area and placement included PE12's comment:

"I feel less ready to teach athletics, gymnastics and swimming due to a lack of experience"

and comments by PE1:

"I don't feel like I've been exposed to dance, games, OAA, or swimming thoroughly enough to know the progression steps.."

Interestingly, some attributed their ability to teach the area against their ability to teach it, such as NPE16:

"My response to swimming is poor because I do not know how to swim so I do not feel confident to teach swimming"

and from NPE15 who links their training to their confidence to teach it:

"Because we have not been trained to teach swimming."

4. Continual Professional Development (questions 8 and 9).

After understanding the PPSTs experiences and self-ratings towards how prepared they feel, it is important to understand what and how they see themselves developing during their NQT year. Responses were varied between routes in most cases for this question. Whilst the non-PE PPSTs averaged higher scores regarding feeling prepared to teach PE than the PE PPSTs, when it came to CPD needs, the non-PE PPSTs scored highest for needing CPD. Learning technology was found to be the largest CPD need that PPSTs wanted to develop once in their NQT year, with averages of 64% (PE and largest need) and 65% (non-PE and third highest need). Based on pathways, the non-PE PPSTs stated that CPD in assessment (81%) and

inclusion (69%) were the two biggest requirements, whereas the PE PPSTs recorded much lower scores for these areas (59% and 45%). Overall, the PPSTs stated they needed less CPD in planning (36% and 35%), whilst PE PPSTs responded that pedagogy (41%) and subject knowledge (45%) were also of less need.

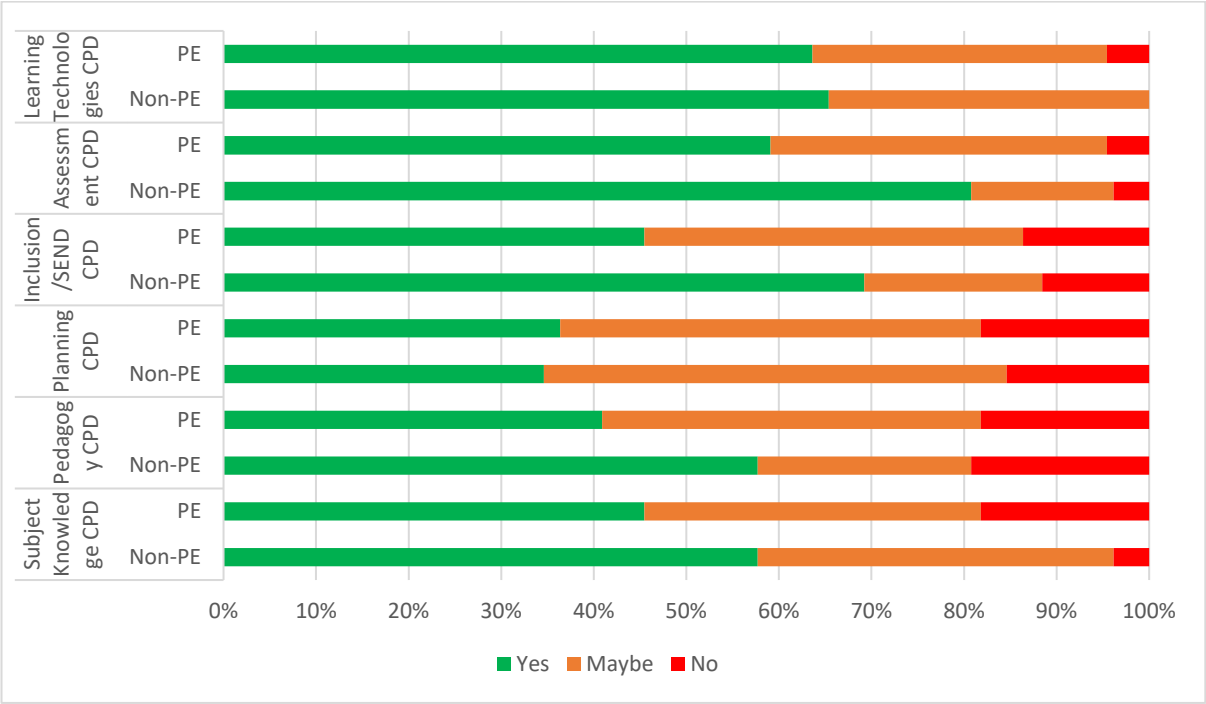

Figure 19 – Graph representing what Continual Professional Development PPSTs feel they will need in PE

The responses to this question (what CPD PPSTs feel they will need in PE) aligns directly to the prior question of how prepared they feel teaching PE (Appendix 2: Figure 13). Generally, how prepared the PPST felt in teaching PE versus the need for CPD in that aligned area had greater differences for the PE PPST than the non-PE PPST. The PE PPST rated their need for CPD significantly lower against how prepared they felt in subject knowledge (23% difference), planning (32% difference) and inclusion (23% difference), whereas the non-PE PPST was somewhat more aligned, having a difference of 20% or less in all areas except for planning, where the difference was 50% (Figure 20).

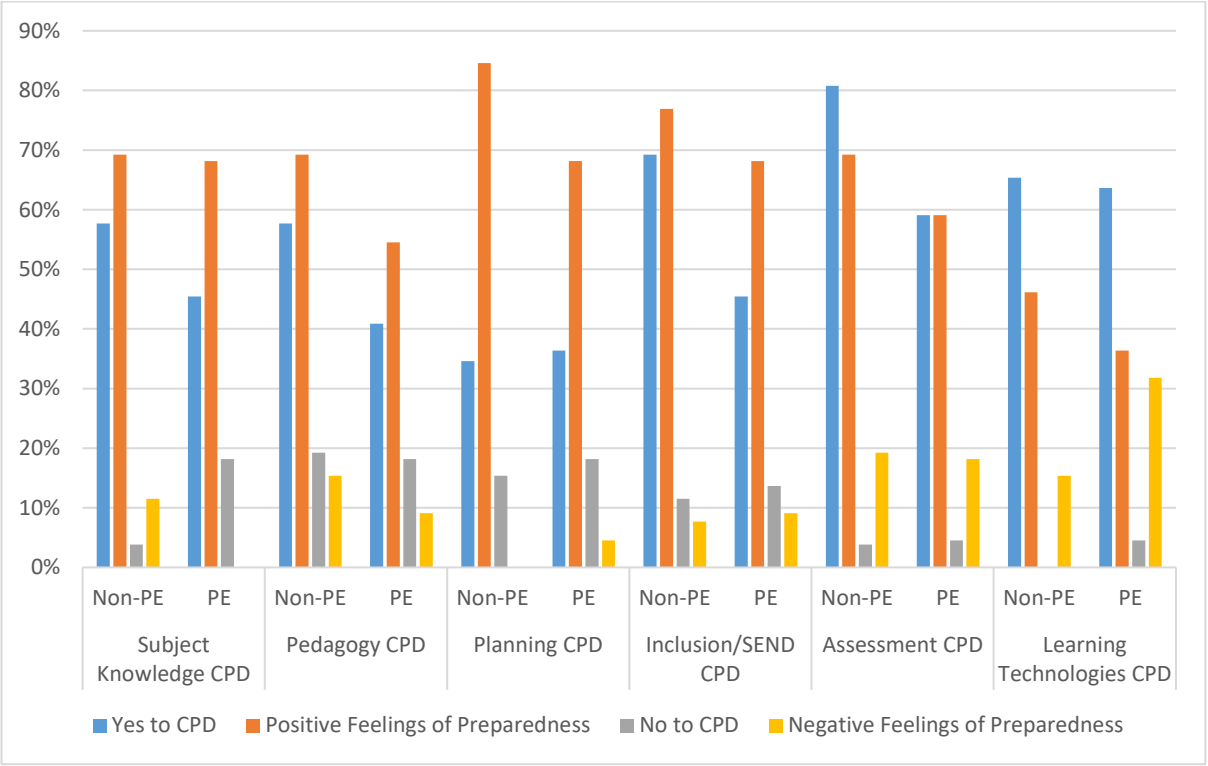

Figure 20 – Graph representing PPSTs needs towards CPD against how prepared they feel in that area. Middling responses ('Maybe' and 'Satisfactory' have been removed)

Final analysis of the questionnaire looked at how PPSTs felt they would undertake CPD once commencing their NQT year. Results between those on a PE pathway and those on a non-PE generalist pathway had slightly differing responses across the five methods of CPD listed. Seen in Figure 22 below, PE PPSTs would prefer the method of online videos or by observing other teachers/coaches (100% very likely / likely), whereas the non-PE PPST would prefer to observe other teachers/coaches (91% very likely / likely), followed by the attendance of courses and wider reading, both at 83% (very likely / likely). Overall, the PE PPSTs voted more positively (very likely / likely) towards carrying out PE CPD than the non-PE PPST group (89% versus 79%). Whilst wider reading was the second most favourable form of CPD for the non-PE PPST, for the PE PPST it was the least favourable. For the non-PE PPST, engaging in social media, such as Twitter would be the least likely method of CPD, with 61% using this method.

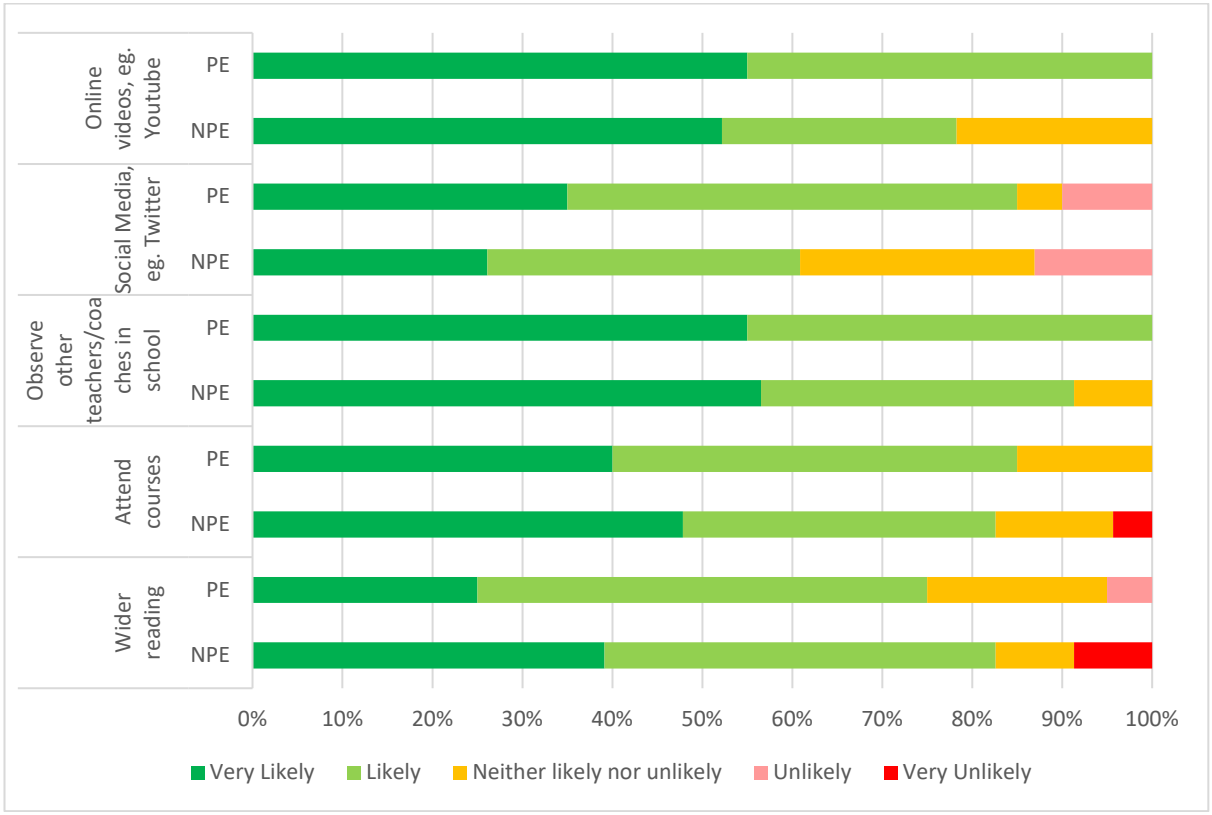

Figure 22 – Graph representing how likely PPSTs are to carry out continual professional development in PE, using the following methods - separated by PGCE route.

Grouping the PGCE pathways, overall, there was a clear relationship between the methods of CPD and the joint take up from the PPSTs (Figure 24). Observing other teachers/coaches was determined as the most likely method of CPD in their NQT year with an average of 96% choosing this method (breakdowns can be seen in Appendix 4 – Figure 21 by PGCE route and Appendix 5 - Figure 23, as an average). Watching online videos was second, followed by the attendance of courses, wider reading and finally, engaging in social media. This perhaps signifies the importance of practical based PE being observed and participated in for the PPST to develop, rather than undertaking wider reading or reading on social media. Ironically, whilst observing teachers is the most likely method for future development, it is this very method of learning that a number of the PPSTs are not receiving when on school placement.

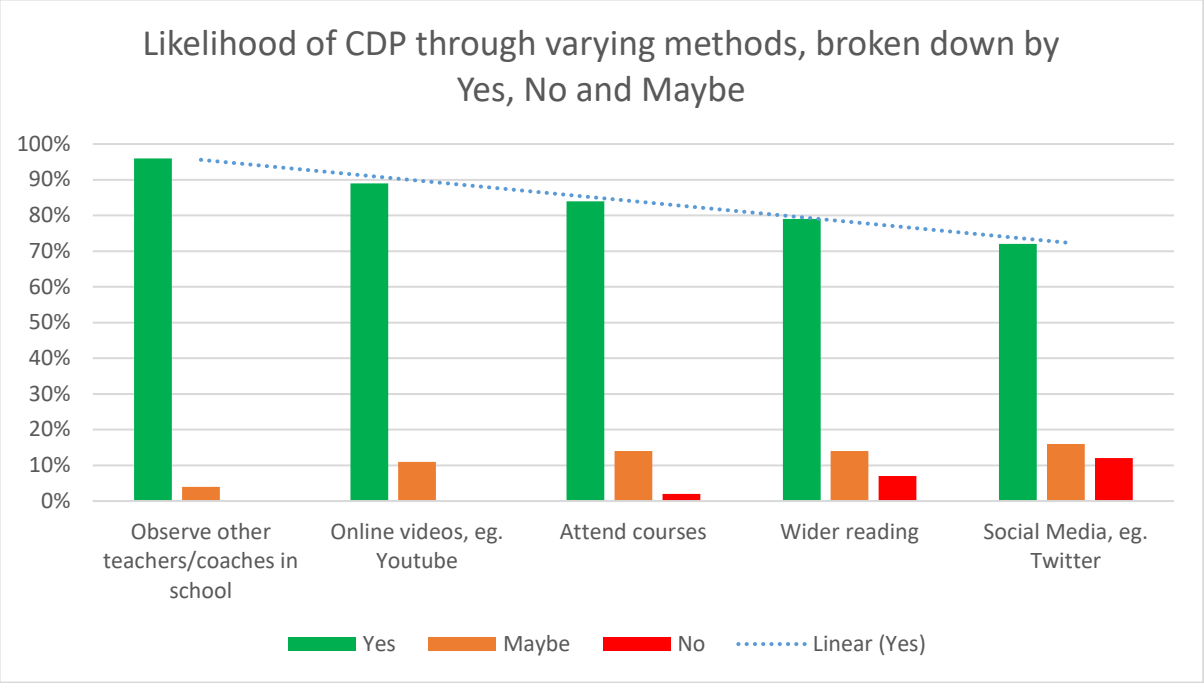

Figure 24 – Graph representing the likelihood of continual professional development through the following methods: Yes (very likely and likely), Maybe (neither likely nor unlikely) and No (unlikely and very unlikely). Graph repositioned in order of preference, with a trendline added.

Summary of Findings:

The following outcomes summarise the findings against each research area.

1. Experiences: Prior to commencing a PGCE, the majority of PPSTs had taught zero hours of PE, but had observed 1-5 hours of PE. On completion of their PGCE, the majority of PPSTs had both taught and observed 1-5 hours of PE.
2. Outsourcing: The majority of PPSTs found the use of outsourced coaches to be a benefit to pupils; however, they had mixed feelings regarding the benefits to teachers. The stated benefits of using outsourced coaches were that they were 'the expert' and created the production of PPA (preparation, planning and assessment) time.
3. 'Preparedness': PPSTs stated that somebody who is prepared has 'strong' knowledge and understanding of the subject. The PPSTs felt that their university contact time on PE was "about right"; however, this was much more prevalent with the PE PPSTs than the generalist PPSTs. The generalist PPSTs recorded higher positive responses than the PE PPST regarding feelings of being prepared. The PPSTs ability to use technology within PE was rated as their lowest area of confidence. Activity areas that PPSTs stated they felt least confident to deliver were swimming, followed by dance and gymnastics, with a lack of experience (on placement or in ITE) being the defining factor. Games was the most confident activity area to teach.
4. Continual Professional Development: The generalist PPSTs scored highest for needing CPD. Learning technology was found to be the largest CPD need that PPSTs wanted to

develop once into their NQT year. There was a clear relationship between the methods of CPD and the take up from the PPSTs; observing other teachers/coaches was determined as the most likely method of CPD in their NQT year, whilst engaging in social media was least likely.

Discussion:

It is clear that experiences of teaching and observing PE prior, during and on completion of a PGCE are important, however the opportunities given to PPSTs seems to be few in comparison to all other activities taking place. Whilst we can see that the national average a PPST receives of PE specific training is between six (YST, 2017) to twelve (Kirk, 2012) hours, it is clear that experiencing, developing and applying this knowledge on school placement is where a PPST hones and perfects their skillset, by trialling techniques and strategies and evaluating the outcomes (Carter, 2015, p21). However, the findings in this study show very few had any experience of teaching PE prior to their PGCE and on completion of their PGCE. The majority response from the data was that on average, 66% of PPSTs had taught five hours or less (Figure 3) of PE, a concern already raised in previous studies (Griggs, 2010; Fletcher, 2012; Randal et al, 2016; Griggs, 2018) and very similar to a recent study where the range equalled 0-12 lessons (Randall and Griggs, 2020). In fact, in the Randall and Griggs (2020) study, less than 6% of PPSTs delivered a series of lessons (5+), with most being discrete or no lessons at all. Herold and Waring (2017) argue the importance that ITE must facilitate pedagogical experiences, based around situational theory. Perhaps observing PE is where training is taking place for the PPST (Huddleston, 2019), however, within these findings, the majority of PPSTs (56%) observed 1-5 hours' worth of PE, whilst the findings from Randall et al (2016, p37) found that 45.1% of PPSTs had observed between 1-4 hours of PE, so it would suggest not. Pre-service teachers are influenced by their 'communities of practice' (Carter, 2015; Herold and Waring, 2018). This includes the learning that takes place from both the school placement and their university ITE. The data currently suggests that the number of contact hours in university is relatively low, but also when out on school placement, the contact hours with PE are also very low. Therefore, is the plight of PPST confidence and competence towards effective delivery of PE a process-product problem, that the whole ITE process is creating this situation? It is important to note that subject knowledge "would not guarantee good lessons it would improve the chances of it happening" (Herold and Waring, 2017, p241). Therefore, an immediate resolution to this could be reflected on the number of hours given to PPSTs during the training phase at university. Whilst the overall majority of PPSTs felt there was just enough time given to PE, it is important to note that 42% of non-PE PPSTs felt they needed more time (Figure12). A sentiment explained in the APPG (2019, p53) report recommending that increased time should

be allocated for PE across all ITE routes with a compulsory requirement for all primary training teachers to teach PE as part of a school-based placement. It is clear from this study however, that this is currently not happening.

One of the issues affecting the hours of contact with PE when on placement is the use of external providers to deliver PE lessons (Randall and Griggs, 2020). Whilst the majority of the PPSTs in this study felt that the use of coaches to deliver PE was beneficial to pupils (over 70%), they had mixed feelings towards whether it was of benefit to teachers. A key message from the findings was that the coach was perceived as ‘an expert’ (46%), however it is not always clear whether this is actually the case and whether it is actually just that, a ‘perception’. Griggs (2010) Ofsted, (2013) and Randall et al (2016) have already raised concerns regarding the suitability and indeed the qualifications of using coaches and whilst they often have more understanding of a specific activity or sport, they do not always have an education background (Cope et al, 2015; Jones and Green, 2015). Responses in this study from some PPSTs highlighted a concern that the coaches being used were not qualified to a high level and in fact had fewer or lower qualifications than the teacher or PPST being replaced. Whilst this study did not analyse semantic patterning of interview data, it is interesting that the word ‘think’ was the highest ranked concept (100%) in a similar study by Freak and Miller (2017).

‘Strong’ knowledge and understanding of the subject (44%) was found to be the most common theme from PPSTs in regards to being prepared to teach PE, acknowledging that insufficient subject knowledge would negatively affect a PPSTs confidence, affecting their ability to teach good lessons (Herold and Waring, 2017). Therefore, it seems PPSTs were generally seeing an expert was necessary to deliver PE and that the coach was the answer to that concern. In a number of responses, this allowed the PPST/teacher to concentrate on the non-PE activities that are involved in a teacher’s profession. This is perhaps why one PPST (PE1) stated that there seems to be a hierarchy of subjects present, where PE has “less importance” than other subjects. This is a concern that could threaten the professional identity and status of PE (Sperka and Enright, 2018). This seems evident by the second most common response in this study, that using coaches to deliver PE creates PPA time for the teacher/PPST. This, however, goes against the PESS premium funding allocation (DfE, 2020c), which could be how a large number of the coaches found in this study are funded.

With subject knowledge being heralded as the one of the most important factors towards being prepared to teach PE, PPSTs value knowledge that is aligned with the curricular activities (Herold and Waring, 2017). It is important to note that within a primary and early years setting,

traditional sports are not always taught, but an emphasis being placed on developing physical experiences, by learning in, through and about movement (Fleet and Huddleston, 2019). From this study, it was clear that swimming was the activity that PPSTs felt least prepared. Whilst swimming is not specifically part of the NCPE, it is mandatory on the NC. In a Swim Group (2017) study, one of the main barriers to effective delivery of swimming was that "teachers do not feel confident teaching swimming and water safety due to a lack of formal training" (p8). With ITE contact time already seemingly being at a minimum, improving on this could be a challenge, however is evident that improvement is warranted and needed.

More confidence was recorded in other physical activities, with games being the highest (90%); a finding supported by the study of Freak and Miller (2017) (93.1%) and Huddleston (2019b) (over 75%). Whereas dance (66%) and gymnastics (59%) were deemed the least confident of NCPE activity areas, with findings of similar studies (Freak and Miller, 2017 and Huddleston, 2019b) also finding these to be much lower, with dance (75.4% and 52% respectively) and gymnastics (61.1% and 40% respectively) being the lowest in confidence. The 'lack of experience or application' was the largest reason for poor/very poor confidence to teach areas of PE (48%). This area was later reinforced by the responses (shown in Figure 18) explaining that the lack of experience when teaching PE was particularly poor in swimming (26% occurrences), gymnastics (22%) and dance (17%). Therefore, not only are PPSTs stating that these three areas are their weakest when it comes to subject knowledge, but they are also having the least number of opportunities to be involved in these areas when on placement.

Perhaps an explanation to this can be drawn from the nature of the English NC and the experiences of the PPSTs that are completing their PGCE course. It has already been stated that a PPSTs beliefs will have been borne out of his or her own experiences (Thomson, 2002, cited in Le Cornu and Ewing, 2008) and that PPSTs bring along 'institutional biographies' (Richardson, 1999, cited in Le Cornu and Ewing, 2008) to the course. If we estimate that the majority of PGCE PPSTs participating in this study were completing their education in the 1990s and 2000s (based on most being in the 21-30 age bracket - 87% in a recent study by Huddleston, 2019), then it is likely that their school PE experience was likely one that was heavily games-based (Smith et al, 2007). Curriculum activity is questionable if this has changed over the past few decades, all the way through to the modern day (Herold, 2020). With PPSTs coming to their PGCE with numerous games-based experiences and potentially undertaking training in schools that continue with a heavy games-based curriculum, it is of no surprise that this is the area of higher confidence.

One interesting concept is the idea that the delivery of PE becomes a joint venture, where a ‘generalist plus one’ model (Jones and Green, 2015) is used. It has been seen (Figure 7) that 52% of the PPSTs experiences have been with another adult (teaching assistant, teacher, coach) and has also been alluded to in responses, where PPSTs have stated that coaches (or specialists) take the ‘more technical’ aspect of PE, whilst the teacher delivers the ‘easier’ aspect (in most stated responses, that being ‘games’). Based on these findings, it could be argued that the teacher delivers games based activities, whilst a coach or specialist delivers other areas, namely swimming, dance and gymnastics.

The PPSTs involved in this study were aware that CPD was an important factor towards developing in PE once in their NQT year. Whilst there is access to the early career framework, it is important to understand how PPSTs envisage how they will access CPD. Dudley et al (2011) surmised that the generalist favours a more experiential learning approach (Piaget/Montessori type approach, Pound, 2006, p30 and p37), rather than through support of an expert (more of a Vygotsky type view of learning; Pound, 2006, p40). This is an important notion, as pedagogically, pupils who receive direct instruction in physical activity develop faster and are more physically active than those that are not (Dudley et al, 2011). Interestingly, those on the PE route would prefer a more experiential learning approach, preferring the method of online videos or observing other teachers/coaches (100% very likely / likely). Whilst the generalist, preferring to observe other teachers/coaches (91% very likely / likely), but would also like input through the attendance of courses (83% very likely / likely). Observing other teachers as models of practice has been seen as significantly helpful (Herold and Waring, 2018) and is the most positively responded form of CPD in this study. The use of wider reading divided opinion. Whilst it was the second most favourable form of CPD for the generalist, for the PE PPST it was the least favourable. Overall, PE PPSTs voted more positively (very likely / likely) towards carrying out PE CPD than the generalist group (89% versus 79%). Whilst this could partially be explained through the Dunning-Kruger effect, it could also be surmised that many of the generalists participating in this study saw PE as the domain for an ‘expert’ and so responded in a manner relating to whether they actually ‘wanted to’ participate in CPD rather than ‘had to’ participate.

Being clear on how they would like to carry out CPD, the ability to use technology in school (41% positive responses) was the area that required much further improvement. This was later reinforced by the PPSTs, stating that developing the use of learning technology was the largest CPD need (65% average). What was not clear in the responses, and would require further research, was how much contact PPSTs are having in using technology whist on placement or

whether it has been learned in university or they were simply expected know it. Perhaps this is specific to each school and what forms of technology they have available. I would therefore propose that those embarking on ITE, look to developing their TPACK (Technological, Pedagogical and Content Knowledge - Koehler, Mishra and Cain, 2013) over their PCK, in order to promote more effective use of technology into their teaching.

Based on the findings of this study, there is the underlying issue of who is an expert when it comes to teaching PE and who is best placed to deliver the subject. There is clear anxiety and a general low level of confidence and competence to teach the subject well (Tsangaridou, 2012; Smith, 2015; Hayes, 2017; Huddleston, 2019b), not helped by the limited numbers of hours at ITE and the limited number of hours experienced in teaching the subject when on placement. This can be argued that it has not been helped by the introduction of the PESS premium, which has seen the increase in the number of external agencies (in most cases, coaches) being used to deliver PE, instead of the teacher. Green (2015) concludes with talk of change or transformation. Whilst the current landscape of primary education remains the remit of the generalist teacher, primary PE seems to be transitioning towards a specialist subject, but instead of being delivered by qualified teachers, it seems to be transitioning towards sports coaches. However, it remains unclear whether these are an expert and what qualifications they hold. Whilst only time will tell whether the employment of coaches has been a positive step or not, there remains the argument for and against the use of a PE 'expert' or 'specialist' to become the sole deliverer of PE. The APPG (2019, p53) report recommends that qualified teachers become core deliverers of primary PE and are supported (but not replaced) by a wider workforce; in this case external providers such as coaches. However, I would suggest the current trajectory is not supporting this recommendation. The minimal hours of PE teaching experience, alongside few hours of PE contact time during ITE is not only having an impact to PPSTs, but also teachers too, especially across activity related areas. Therefore, in order for positive transformative change to take place, it is important to discuss what the purpose of PE is (Quennerstedt, 2019) and who is best suited to deliver it and how.

Nations across the globe see specialisation differently. Whilst Finland teach across many subjects, Shanghai, for example, teach one or a few subjects (Jensen et al, 2016). People teaching with a sport science related degree is not enough to cover the broad range of outcomes wanted from PE (D'Elia, 2018) and that the holistic development of the child is the main educational goal, a strong part of the argument by those siding for generalist teachers to remain in primary PE. In Australia (New South Wales to be specific), Lynch and Soukup (2017) recommend that generalist classroom teachers also become specialists in PE, gaining support

by many schools in their study. However, not all PPSTs have a positive connection with PE and therefore their experiences and 'institutional biography' could affect their motivation to learn, develop and deliver PE in the primary school. Ardzejewska et al (2010) found that the majority of head teachers saw generalist teachers as teachers of English and mathematics who had limited capacity to teach all other subjects to an expert level. The focus of these two subjects is being based on the perceived importance of maths and English over other subjects. Globally, schools are responding to this in different ways. One way that has been utilised across USA, but not so much in the UK, is the use of specialist PE teachers being the sole deliverers of PE. Graber et al (2008, p158) identified the benefits of the specialist as "teachers in effective environments" and that teachers would thrive most when teaching in their most effective teaching space. Whilst the UK generally uses a generalist approach, schools often have a co-ordinator, who is the 'school expert', managing the curriculum and ensuring effective delivery of PESSPA across the school.

The Independent (1997) published an article based on the Ofsted (1997) research who found the one teacher to one class model (generalist model) was an old-fashioned idea and it does not expose teacher's subject expertise properly. Schools that did endorse subject expertise, were employing specialists from year five onwards. Ofsted (1997) reported that, "teachers with specialist expertise almost always taught the given subject better than non-specialists" (p21). However, in the more recent Ofsted (2019) framework, they state that teachers must have good knowledge of the subjects and courses they teach and, where they do not, school leaders support them. The discourse of specialists teaching within the primary school has become vague and now seems to advocate the co-ordinator over the specialist.

Tsangaridou (2016) recommends that PE specialists teach PE in primary schools, but also that ITE institutions should also consider offering a specialisation in PE for teachers (the current model is that PPSTs are still trained to teach all subjects, but have 50% contact time with PE; Carter, 2015, p20). This could be explained by findings that PE lessons by generalist teachers often lacked in quality in comparison to specialist teachers (Graber et al, 2008). A notion supported by the Australian study of Ardzejewska et al (2010), who found that head teachers felt that only a minority of teachers had the expertise to teach PE. It has been common practice in the UK to have specialist PE teachers at secondary level and generalist teachers at primary level, however in Central and Eastern Europe, around two-thirds of countries have specialist PE teachers in primary education (Green and Hardman, 2005). In Western Europe, this figure drops to around one-third. Additionally, many schools in the USA have primary PE specialists, whereas the UK (and Australia) generally do not. From 2003-2008, figures as low of 7-9% of

primary schools in the UK employed a full time PE specialist (Green, 2008). Since the introduction of the PESS premium, it has been difficult to calculate this figure further. PE, therefore, was expected to be taught by a generalist primary school teacher, of whom has often had limited training, with schools adopting a “subject co-ordinator” who then orchestrates and supports staff responsible for delivering their lessons. Therefore the role of the specialist (in the definition of this paper, this would be the co-ordinator) would be to provide professional development to generalist teachers in planning, curriculum design, assessment, teaching styles and feedback, but also to provide a way to keep generalist teachers up to date with current developments in PE (Kaldor and Deutsch, 2013).

The argument for the use of specialist PE teachers is quite extensive. The study by Placek and Randall (1986), whilst limited in participant numbers and now substantially dated, highlighted that pupils taught by specialists generally demonstrated significantly better motor performance than those taught by generalist teachers. Alongside specialists improving pupils’ motor skills, they also further stimulated children to be more physically active in the short term and in the long term (Groot et al, 2014), therefore increasing participation in extra-curricular activities (Faulkner et al, 2008) and leading to improved motivation, game strategy, atmosphere and technique amongst pupils in those activities (Martin, 2017). Pupils being taught by specialists spent more time practicing a skill, whereas the pupils of generalist teachers spent more time in game play; this was often found to be at the detriment of the pupils having not mastered the appropriate fundamental movement skills (Constantinides et al, 2013). This potentially explains the responses from PPSTs in this study, where the coach delivers on the more technical learning, whilst the teacher leads on more fun or easy lessons. This however is a simple view of the lesson structure; with generalist teachers seemingly contributing more “waiting” time in their lessons than specialist teachers (Constantinides et al, 2013), but also planning and delivering less tasks, resulting in less practice opportunities for pupils resulting in lessons that were shorter than that of specialists (Faulkner et al., 2008). Secondly, based on the effectiveness of lessons with generalist teachers, it seems that highly skilled pupils participated and enjoyed their lessons, whereas lower-skilled pupils struggled to be successful (Constantinides et al, 2013).

It is important to acknowledge that there are also drawbacks to a specialist model, if employed on the basis that they teach all and only PE. Outside of the actual delivery of PE is the drawback for the potential of isolation, both for the teacher and pupils. Opportunities to share practice can be limited and observation can seldom take place for the PE specialist, creating a feeling of exclusion from the school community (Brooks and Dinan Thompson, 2015). There is

also the chance of reduced pupil-teacher relationships that the generalist would otherwise achieve (Jensen et al, 2016), resulting in specialists necessarily knowing their pupils as well as a generalist would. In the USA, primary schools often use an itinerant PE specialist who would visit several schools in the area, in some cases teaching “several hundred” (Graber et al, 2008, p152) pupils throughout the week. The ramifications of using this approach could reduce the focus on the child as a whole. To counter this drawback, “looping” is a strategy that has been utilised in some American elementary schools, where specialist teachers remain with a class from one year to the next (Jensen et al, 2016), allowing them to form a better relationship with those pupils.

Whilst further research is required to see what the benefit of PE specialists are in the UK, it stands to reason, based on the evidence, that a specialist could play a crucial role in the development of motor skills, increased physical activity and the increased promotion of learning outside of curriculum time. Additional benefits also include the notion that stress levels amongst generalist teachers could decrease due to having a PE specialist (Kaldor and Deutsch, 2013) and for generalist teachers to concentrate on classroom activities, which many have mentioned and alluded to in this study. Whilst Kirk (2012) argues that the use of a PE specialist would offer the best ‘learning experience’, Carney and Howells (2008) argue that PE should remain within the remit of a primary school teacher’s job, as this reflects the holistic nature of what primary education is all about. Specialists should not teach all school PE, but be the basis towards a model of good practice (Carney and Howells, 2008; Price, 2008), who can then support others; referring to the co-ordinator role often used in UK schools. It is maintained that the value of primary education is in the teaching of the curriculum as a whole and making those cross-curricular links, as well as knowing the children’s individual needs (Sloan, 2010). Therefore, whilst it could be argued that specialists (either teachers or coaches) delivering PE tend to have good subject knowledge and could be highly skilled in their subject, generalist teachers will excel in the education element of PE, becoming “highly skilled in their work” (Pickup and Price, 2015, p160).

Conclusion

ITE must be viewed on the basis that it is exactly that; it is the ‘initial’ training that an adult receives on their way to becoming a qualified teacher and it is expected that the teacher then continues to develop in their profession and hone their skills. Not unlike a person having driving lessons and passing their driving test. An adult, once in possession of a license, is expected to improve as a driver. It is also a benchmark. A benchmark that all on the road have met the

standards suitable for them to drive a vehicle in a safe and effective manner. This is comparable to a PPST having to meet the teacher standards (DfE, 2013) in order to be recommended for QTS. However, QTS not only concerns satisfying the teacher standards, it also demonstrates where educational theory underpins their actions, something that will not always be the case with non-degree certificated courses. When it comes to the delivery of primary PE, it is a mixture of different people (Jones and Green, 2015), some having QTS and some not, yet all in the role of 'teacher' and being perceived as an expert. Whilst primary education in England generally delivers through a generalist teacher model, since the introduction of the PESS premium, outsourcing PE to (what schools see as) 'experts' has grown. Whilst it is not the role of this paper to discuss how expert these external deliverers are, it is clear that many do not hold QTS and/or have few education qualifications (Griggs, 2010; Green, 2015; Randall et al, 2016).

For those PPSTs being trained and becoming prepared to enter the world of teaching, whether as a generalist or on an additional module/s PE route, the PE experiences accrued in school are slim, be it teaching or observing. This is matched by the various, but generally low number of contact hours in university. Whilst PPST participants in this study have some feelings of preparedness across a number of general educational areas (Figure 14) and subject activity areas (Figure 16), it is very clear that their opportunities to apply this knowledge has been sporadic, with the majority having taught and observed up to 5 hours of PE across the year (Figures 3 and 4). We are therefore in a cycle of limited hours of contact time in university, limited hours teaching and observing on placement and then the main means of CPD, once in the workplace, to be to observe others, who could also be holding little experience or qualifications of PE themselves. Additionally, regardless of the ITE pathway (generalist or additional modules on PE), it is clear that technology requires development.

I believe for substantial improvement, we look for some level of transformation, to change the order of this cycle. What level of change is necessary is open to debate. Quennerstedt (2019) talks of transformation being required, however it does not transpire what transformations should take place, however he does recommend the need to examine the purpose of PE first and then calculate what we are trying to achieve and how we should deliver it effectively. For effective transformation, we need to consider who delivers PE and the role of ITE in supporting that. Does PE continue to be on the fringes of a generalist model, where the teacher teaches all subject areas (even though PE seems largely outsourced to others) or do we move towards a specialist model of delivery? This is a concept that requires further debate and research, but one that should not be ignored. We need a model where the educational outcomes of PE are

achieved (arguably a teacher's sphere of knowledge), but at the same time, the physical element is more effective (a PE 'expert's' territory).

Therefore, I would like to finish with four recommendations for immediate attention, alongside two conceptual delivery models (Figures 30 and 31) for schools to consider to ultimately develop and transform the delivery of PE in their school over time. This includes certain considerations and caveats (Appendix 11: Figure 32) that would require reflection and investigation before choosing which model would be most suitable.

Recommendations for immediate transformative practice:

1. The delivery of PE to become the sole domain of the teacher with QTS, a recommendation specified in the APPG (2019) report, but not transpiring into the current day.
2. Schools to provide as many experiences in PE for the PPST whilst on placement. With the majority of PPSTs receiving between 1-5 hours, it is no wonder that not all feel very prepared for their NQT year.
3. A call for ITE to address their use of technology and improve a PPST's TPACK.
4. Provide additional experiences during ITE around PE, including activity areas outside of games, namely swimming, gymnastics and dance.

Delivery Models to consider, based on preference/circumstances:

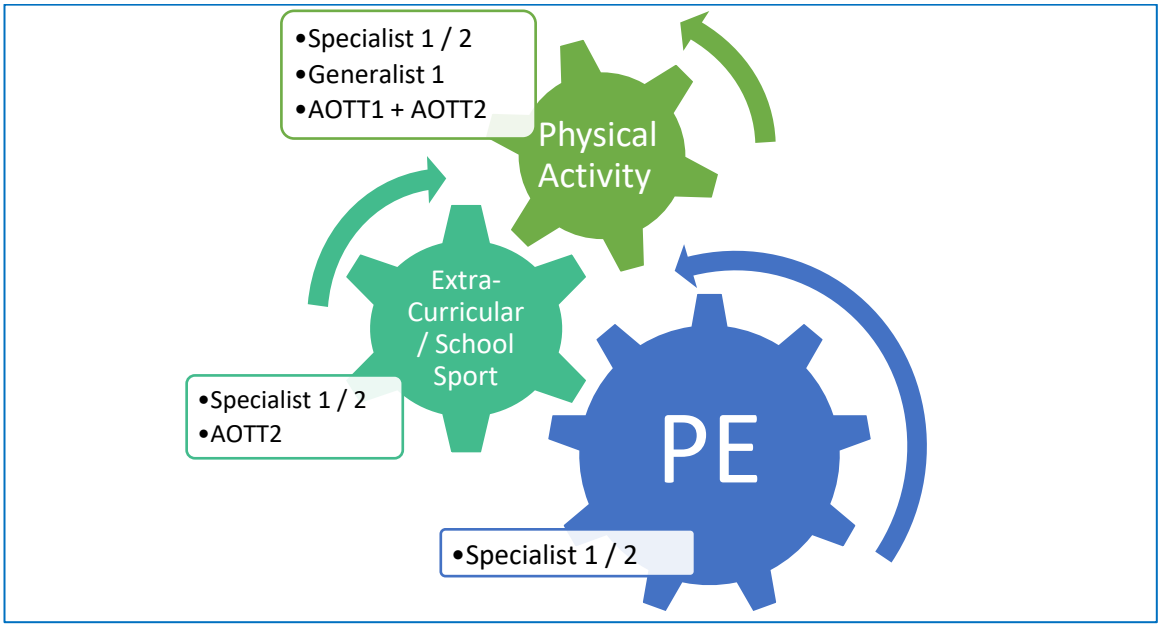

Figure 28: Delivery Model A – The Specialist Model

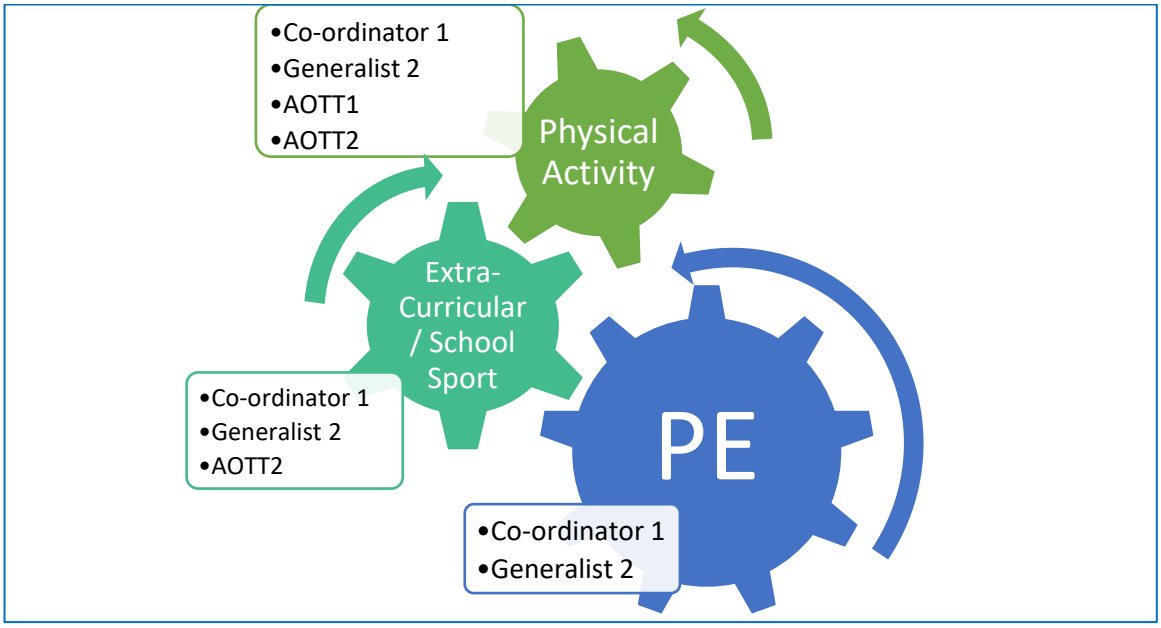

Figure 29: Delivery Model B – The Co-ordinator Model

Position		Delivery	Considerations, drawbacks, caveats
Specialist PE Teacher			
Specialist 1	Qualified Teacher	• Teaches **All** Primary PE only • Has had Primary specific PE training	• Understanding of pupils – Possibility of losing the personal touch with pupils? • Could 'looping' help against this?
Specialist 2	Qualified Teacher	• Teaching **All** Primary PE only • Trained Secondary PE teacher	• Understanding of pupils – Possibility of losing the personal touch with pupils? • Could 'looping' help against this? • CPD required for primary education teaching and learning
PE Co-Ordinator			
Co-Ordinator 1	Qualified Teacher	• Teaches all subjects (generalist) • Has had additional PE specific ITE/School CPD training • Co-ordinates and responsible for up-skilling all staff delivering PESSPA	• Teaching full time, across all subjects – what level of specialisation is possible?
Generalist Teachers			
Generalist 1	Qualified Teacher	• Teaches all subjects • **Does not** teach PE	• Takes PPA during PE • De-Skilling in PE. Does this cut chances of employment in schools adopting a different model of PE delivery?
Generalist 2	Qualified Teacher	• Teaches all subjects • Teaches PE	• Teaches PE with support from Specialist & AOTT2 • CPD likely required
Adult Other Than the Teacher			
AOTT 1	Does not hold QTS	• Has no / minimal PE training/experience.	• Used to promote PA initiatives in and the rough the school
AOTT 2	Does not hold QTS	• Holds some level of PE/Sport/coaching qualifications. • Has experience of delivering PE / physical activity.	• Used to promote PA initiatives • Helps promote/deliver extra-curricular / school sport • Can help upskill (through CPD/lesson delivery) any staff member in specific areas they have higher levels of qualifications/experience.

Figure 27 – Table supporting the explanation behind two delivery models. Training denotes substantial experience and/or qualifications/modules in PE.

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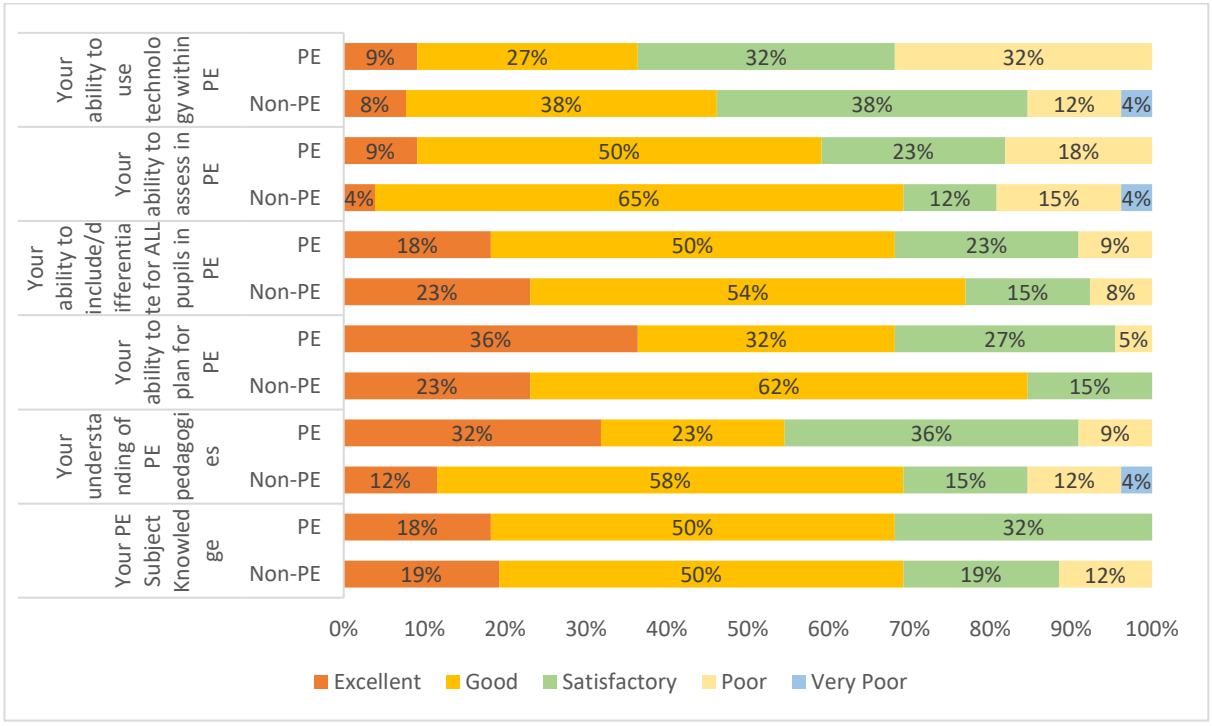
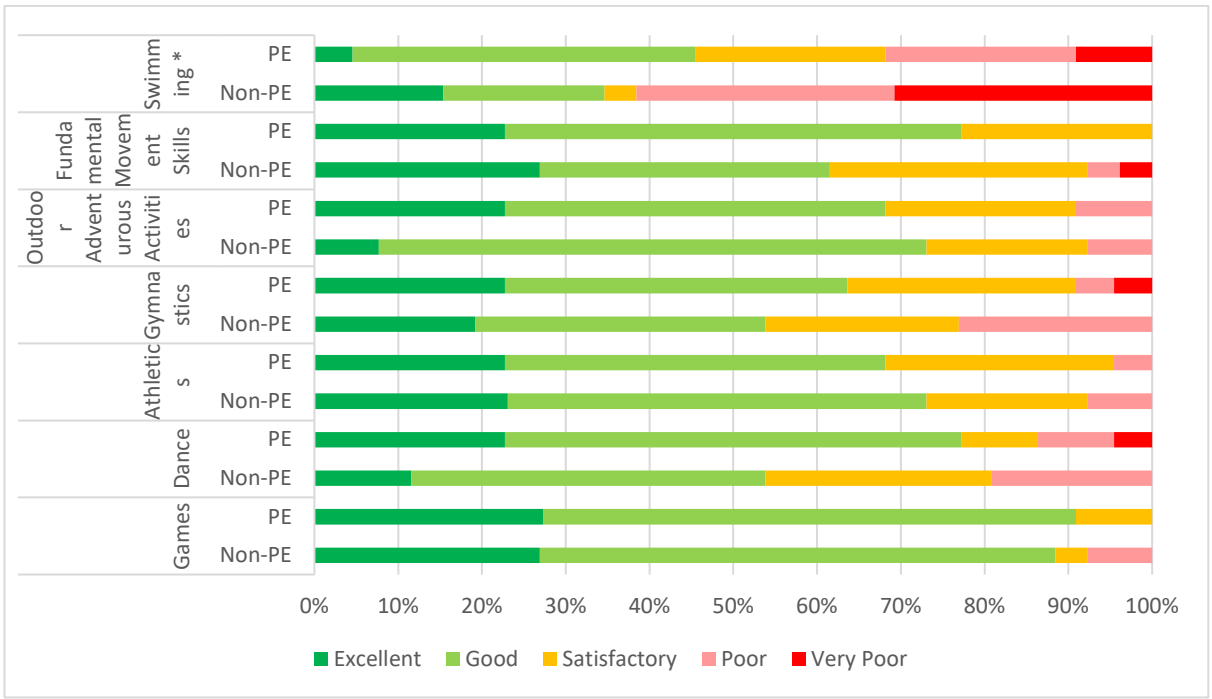
Appendices

How would YOU define a person that is prepared to teach a lesson?	% of responses
Strong Knowledge / Understanding	44%
Differentiation / Inclusive	29%
Organised / Prepared	29%
Strong Lesson Planning	27%
Use Resources / Tools / Equipment	21%
Confident	15%
Ability to Assess	13%
Supports Progression / Learning Outcomes	13%
Teacher is Enthusiastic / Motivated / Passionate	10%
Fun / Enjoyment in Lesson	8%
Pedagogy	8%
Flexible	6%
Health / Safety	6%
Teacher has Ability to Perform Techniques / Sport / is Fit	6%
Teacher Knows their Pupils	6%
Strong Behaviour Management	6%
Encourages Pupils	4%
Teacher is Responsible / Professional	4%
Teacher Knows the Rules	2%
The Teacher is Creative	2%
An Outstanding Teacher	2%
Questioning of Pupils	2%
Teacher has Charisma	2%
Strong Experience	2%
Teacher is Dressed Appropriately	2%
Teacher is Calm	2%

Appendix 1: Figure 11 – Table of the full list of themed qualitative responses to: how would you define a person that is prepared to teach a lesson?



Appendix 2: Figure 13 – Graph representing how PPSTs rate their perception of being 'prepared'



Appendix 3 - Figure 15 – Graph representing PPST feelings towards teaching areas of PE, by PGCE route. Nb. * Swimming acknowledged as not part of the PE national curriculum.

Wider reading	Attend courses	Observe other	Social Media	Online videos

					teachers / coaches in school		eg. Twitter		eg. YouTube	
	NPE	**PE**	**NPE**	**PE**	**NPE**	**PE**	**NPE**	**PE**	**NPE**	**PE**
Very Likely	39%	**25%**	48%	**40%**	57%	**55%**	26%	**35%**	52%	**55%**
Likely	43%	**50%**	35%	**45%**	35%	**45%**	35%	**50%**	26%	**45%**
Neither likely nor unlikely	9%	**20%**	13%	**15%**	9%	**0%**	26%	**5%**	22%	**0%**
Unlikely	0%	**5%**	0%	**0%**	0%	**0%**	13%	**10%**	0%	**0%**
Very Unlikely	9%	**0%**	4%	**0%**	0%	**0%**	0%	**0%**	0%	**0%**

Appendix 4 - Figure 21 – Table of how likely PPSTs are to carry out continual professional development in PE using the following methods – separated by PGCE route.

	Wider reading	**Attend courses**	**Observe other teachers / coaches in school**	**Social Media** eg. Twitter	**Online videos** eg. YouTube
Very Likely	32%	44%	56%	30%	53%
Likely	47%	40%	40%	42%	36%
Neither likely nor unlikely	14%	14%	4%	16%	11%
Unlikely	3%	0%	0%	12%	0%
Very Unlikely	4%	2%	0%	0%	0%

Appendix 5 - Figure 23 – Table showing the average responses for carrying out continual professional development in PE all participants.

1. Before commencing your PGCE Primary QTS course, how much experience (hours) did you have in: *

	0 hours	1-5hrs	6-10hrs	11-15hrs	16hrs+
a. Teaching PE	○	○	○	○	○
b. Observing PE	○	○	○	○	○

2. On placement during your PGCE year, how many hours have you spent: *

	0 hours	1-5hrs	6-10hrs	11-15hrs	16hrs+
a. Teaching PE	○	○	○	○	○
b. Observing PE	○	○	○	○	○

3. How would you describe the majority of your experiences of teaching PE whilst on placement?

(Choose ONE response - your most common experience) *

- ○ Teaching the class independently
- ○ Teaching the class alongside a teaching assistant
- ○ Teaching the class alongside the class teacher
- ○ Teaching the class alongside a coach / specialist PE teacher
- ○ I am yet to teach PE

4. How would you currently rate the following: *

	Excellent	Good	Satisfactory	Poor	Very Poor
Your PE Subject Knowledge	○	○	○	○	○
Your understanding of PE pedagogies	○	○	○	○	○
Your ability to plan for PE	○	○	○	○	○
Your ability to include/differentiate for ALL pupils in PE	○	○	○	○	○
Your ability to assess in PE	○	○	○	○	○
Your ability to use technology within PE	○	○	○	○	○

5. How would YOU define a person that is prepared to teach a lesson? *

Enter your answer

6. Based on your definition.
How "prepared" do you feel to teach: *

	Excellent	Good	Satisfactory	Poor	Very Poor
Games	○	○	○	○	○
Dance	○	○	○	○	○
Athletics	○	○	○	○	○
Gymnastics	○	○	○	○	○
Outdoor Adventurous Activities	○	○	○	○	○
Fundamental Movement Skills	○	○	○	○	○
Swimming	○	○	○	○	○

7. If any of your responses were less than good in Q6, can you explain why you feel this is the case?

Enter your answer

8. Once you begin your first year as qualified teacher, what Continual Professional Development (CPD) do you feel you will need in PE? *

	Yes	Maybe	No
Subject Knowledge CPD	○	○	○
Pedagogy CPD	○	○	○
Planning CPD	○	○	○
Inclusion/SEND CPD	○	○	○
Assessment CPD	○	○	○
Learning Technologies CPD	○	○	○

9. How likely are you to carry out Continual Professional Development in PE, using the following methods: *

	Very Likely	Likely	Neither likely nor unlikely	Unlikely	Very unlikely
Wider reading	○	○	○	○	○
Attend courses	○	○	○	○	○
Observe other teachers/coaches in school	○	○	○	○	○
Social Media, eg. Twitter	○	○	○	○	○
Online videos, eg. Youtube	○	○	○	○	○

10. How do you feel about the length of contact time given to the training of PE on your PGCE course?

(Choose ONE response) *

- ○ I feel I needed more contact time on Physical Education
- ○ I feel the time was about right
- ○ I feel there was too much contact time on Physical Education

11. In your opinion, primary schools employing externally sourced coaches within primary PE during curriculum time is:

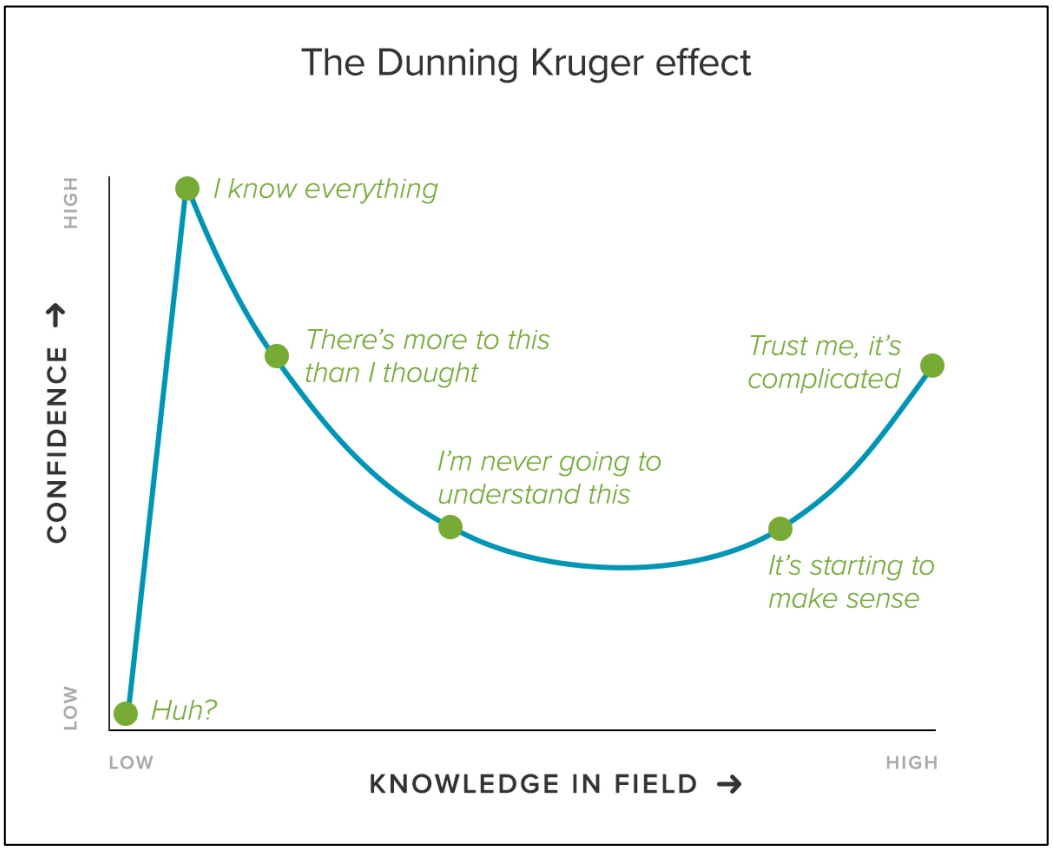
(Choose up to TWO Responses) *

- ☐ Beneficial to teachers
- ☐ Beneficial to pupils
- ☐ I don't have an opinion on this matter
- ☐ Not beneficial to teachers
- ☐ Not beneficial to pupils

12. Please explain your response to Q11. *

Enter your answer

Appendix 6: Figure 25 – Participant Questionnaire (Nb. The non-PE generalist route and PE specialist route questionnaires were identical).



Appendix 7 - Figure 26 – The Dunning-Kruger Effect Curve. Image from Brycki (2018)