Transferring primary generalist's positive classroom pedagogy to the physical education setting: A collaborative PE-CPD process

Kevin Morgan*[1], Anna S. Bryant[1], Lowri C. Edwards[2] and Emma Mitchell-Williams[1]

School of Sport and Health Sciences, Cardiff Metropolitan University, Cyncoed Campus, Cardiff, UK, CF23 6XD

[2] School of Sport and Exercise Sciences, Swansea University, Fabian Way, Swansea, UK, SA1 8EN

* = Corresponding Author: Contact – Kmorgan@cardiffmet.ac.uk

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Abstract

Background: The primary school age group (aged 5-11 years) is acknowledged as a critical period in the development of physical activity patterns and healthy lifestyle behaviours. Furthermore, high quality physical education (PE) is crucial for the development of lifelong physical activity behaviours and is highly dependent on the interaction between the teacher and the pupil. Despite this, there is a lack of training and confidence of many primary generalist teachers to teach PE in the UK. It is argued that effective continuing professional development (CPD) to address this issue should be supportive, job embedded, instructionally focused, collaborative and ongoing.

Purpose: This study was funded by a national government funded organisation and led by a university in collaboration with a secondary PE specialist and two primary teachers. The purpose was to develop a replicable PE-CPD process to improve primary generalist teachers' PE pedagogy by transferring their positive pedagogy from the classroom to the PE setting.

Participants: The participants were two Year 3 (age 7-8 years) primary classroom teachers from the same school and one secondary PE specialist teacher who acted as a mentor.

Research Approach: A Collaborative professional learning (CPL) approach was utilised to develop the PE-CPD intervention process. CPL involves teachers and other members of a profession working together to improve their own and others' learning on pedagogic issues. A six-week needs assessment phase was completed through classroom and PE lesson observations to identify key areas for development in the PE-CPD over the duration of a 23 week intervention.

Data Collection and Analysis: Reflective logs, structured lesson observations and teacher interviews were used to collect the data during the PE-CPD intervention. Inductive and deductive qualitative thematic analysis was used to analyse and interpret the data.

Findings: A number of key themes were generated during the data analysis including the transfer of positive pedagogy from the classroom to the PE setting and the implementation of effective pedagogic principles including the setting of clear learning outcomes, differentiation and inclusion to enhance the PE pedagogy. A key element to the success of the intervention was the trusting relationships built by the secondary PE specialist with the primary teachers. Further, the results also revealed the importance of CPL in ensuring rigorous, evidence-based PE-CPD and providing the time and support required for fundamental sustainable changes in practice, which can endure beyond the life of the research project.

Conclusion: The major contribution of this paper is in demonstrating the potential of CPL between national organisations, universities, secondary and primary schools to improve the PE pedagogy of primary generalist teachers. Future research should build upon the findings in this study and replicate this PE-CPD approach with other classes and schools.

Key Words: Primary PE-CPD, collaborative professional learning (CPL), mentoring.

Introduction

Research evidence has consistently demonstrated the considerable health benefits of physical activity (Department of Health, 2011; Warburton, Nicol & Bredin, 2006). Developing a disposition towards lifelong physical activity is the main outcome of high quality physical education (PE) provision (Mandigo *et al.* 2009; McLennan & Thompson, 2015) and the primary school age group (aged 5-11 years) is considered a critical period in the development of such healthy lifestyle behaviours (Faulkner & Reeve, 2000). Despite this, it is acknowledged that there is a shortage of Primary PE specialists in Wales (Estyn, 2007), which is problematic as children's experiences at this stage are heavily influenced by the teachers delivering the PE lessons (Humphries & Ashy, 2006; Maude, 2010).

Keay and Spence (2012) identified the lack of training and the low levels of confidence and competence of primary generalist teachers to teach PE in the UK. Further, they argued that improving the quality of primary PE is dependent upon the professional development of the teachers to improve their knowledge, experience, confidence, enthusiasm and pedagogical skills in the PE environment. Consistent with this, Sloan (2010) identified that the limited content knowledge of primary generalist teachers in PE impairs their ability to plan lessons effectively, with many omitting to plan PE lessons altogether. This is not surprising given that 40 percent of primary school teachers in the UK were found to receive less than six hours of PE training during their Initial Teacher Education and Training (ITET), resulting in a lack of skills, knowledge and confidence to effectively deliver high quality PE lessons (Blair & Capel, 2008). Moreover, research has identified that the 'core' subjects (mathematics, English, Welsh and science) take priority over all other subjects in primary schools, limiting teachers' preparation time to plan for PE (Sloan, 2010; Rainer *et al.,* 2012) which can often lead to teachers providing pupils with 'physical opportunities rather than focusing on physical

education learning opportunities' (Keay & Spence, 2012, 179-180). It is also known that PE lessons are cancelled more frequently than any other subject on the primary school curriculum (Hardman, 2010). Moreover, those primary teachers who are less confident in their teaching of PE are less likely to deliver high quality PE lessons (Taplin, 2013).

Previous research has suggested that one method to address some of these issues is for PE specialists and researchers to work collaboratively with primary school teachers to enhance the quality of the learning environment they create (Morgan, Bryant & Diffey, 2013). Indeed, physical education continuing professional development (PE-CPD) can play a considerable role in upskilling primary school teachers' in areas such as inclusion and differentiation, and improving their confidence and insecurities with assessment (Harris, Cale & Musson, 2012). However, many PE-CPD programmes for primary teachers have a tendency to be brief, one-day workshops that occur off the school site (Jess, McEvilly & Carse, 2016). According to Hunzicker (2011, 177), these 'one shot', 'sit and get' CPD workshops lack effectiveness and impact, as much of the information is not likely to be remembered and even less is likely to be applied when teachers return to their daily routine. Hunzicker (2011, 177), suggests that effective CPD should engage teachers in 'learning activities that are supportive, job embedded, instructionally focused, collaborative and ongoing.' Consistent with this, Duncombe, Cale and Harris (2016) identified primary school teachers' low confidence and knowledge of teaching PE and proposed informal collaborative professional development and communities of learning to address these issues. Further, Armour et al. (2015) argued that effective CPD in PE is that which focuses on the 'growth' of the teachers and nurtures them as learners, so that they in turn are able to nurture the growth of their pupils.

According to Duncombe and Armour (2004), collaborative professional learning (CPL) involves a teacher working with or talking to another teacher to improve their own learning or others' understanding of any pedagogical issue. Further, this collaboration can include members of the profession from other schools and institutions to enhance the impact on teacher learning (King & Newman, 2001). In 2004, Duncombe and Armour proposed CPL within a community of practice as a way forward for improving primary generalist's teaching of PE. To date however, there is still a dearth of research that has adopted this approach. Collaborative professional learning encompasses a wide range of processes including mentoring, peer coaching, critical friends, collegiality, sharing of ideas and working collectively on tasks (Duncombe & Armour, 2004).

Mentoring is a key process of CPL and one that has long been recognised in education as a means of improving practice (Jones, Harris & Miles, 2009). Awaya, *et al.* (2003) describe interactive mentoring as the building of an equal relationship characterised by the sharing of expertise and moral support. This type of mentoring seeks a relational parity with the mentee (Awaya *et al*., 2003), characterised by open conversation on issues of mutual concern with the mentor acting as a friend, colleague and trusted advisor. Mead, Campbell and Milan (1999) recognise this sort of association as co-operative and see it as most appropriate for the more experienced practitioner.

The aim of this study was to develop a replicable PE-CPD process for improved and sustainable pedagogic practice for primary generalist teachers**.** In order to achieve this the specific objectives were to:

- Build positive, trusting relationships with primary PE generalist teachers to develop collaborative professional learning

- Enable the primary generalist teachers to transfer their positive pedagogic practice from the classroom to the PE setting to enhance their PE pedagogy

Method

Collaborative professional learning

This study involved a secondary specialist PE teacher mentoring two primary generalist teachers to improve their PE pedagogy. In addition to the collaboration between the secondary PE specialist and the two primary teachers, there was another layer of collaboration in this project, with the University research team who were 'expert advisors' in the area of PE pedagogy. The group of three university based 'advisors', including the school-based researcher, met the secondary PE specialist on a weekly basis to ensure rigour and robustness and to feed further pedagogical information into the collaborative process. This is consistent with Nicholls' (1997) definition of collaborative partnerships where institutions agree to work together on a joint project. According to Lieberman and Miller (1999), this arrangement can be described as a 'growth in practice' model of professional development where teachers learn together. It is a social constructivist process, where individuals learn from their experiences and from the interaction with more knowledgeable others (Vygotski, 1978), within a community of practice (Lave & Wenger, 1991). This approach is also consistent with the recommendations of the Furlong report (2015) in Wales, which recommended a closer working relationship between Higher Education Institutions (HEIs) and schools.

Context and participants

The context for this Sport Wales funded project was the existing Welsh National Curriculum for PE (NCPE). This recommends all pupils aged 5 – 16 to spend at least two hours

151 a week of timetabled engagement in PE lessons (NCPE, 2008). Though the curriculum
152 structure in Wales is set to change as a consequence of the Donaldson (2015) review, the
153 existing primary PE curriculum in Wales at the time of this study is outlined in Table 1. which
154 highlights aspects of the foundation phase curriculum (3 – 7 year olds) that relate to PE,
155 namely, physical and creative development, as well as the programme of study within the
156 NCPE for Key Stage 2 (7 – 11 year olds). This curriculum allows the primary teachers the
157 flexibility to select activities under each programme of study tailored to the pupils' needs and
158 acts as a framework for teachers to plan their PE lessons within.

159 Insert Table 1 here

160 The participants were two Year 3 (aged 7 - 8 years) primary generalist teachers from the same
161 school and one secondary PE specialist teacher. Both primary generalist teachers did a three
162 year Bachelor of Education (BEd.) Initial Teacher Education and Training (ITET) course, during
163 which they had four 'face-to-face' hours of PE each year. One of the teachers, Michelle (all
164 names are psuedonyms, see Table 2) led the extra-curricular dance club at the school once a
165 week and was a keen cricketer and ex-competitive swimmer, whilst the other, Kirsty, had no
166 competitive sporting background.

167 The secondary teacher, Rebecca, was Head of PE at the local secondary school. As part
168 of the funded project, Rebecca was seconded two days a week to work in the primary school
169 for one day and to use the other day to collaborate with the research team at the University.
170 She had not previously met Kirsty, Michelle or their pupils. The following profiles in Table 2
171 provide some background information about the participating teachers.

172 Insert Table 2 here

The research assistant from the University was based at the school one day a week with the secondary specialist and was involved in advising the secondary PE specialist on how to collect the data and facilitate the PE-CPD process with the primary teachers. The research assistant was experienced in these methods and procedures as a direct consequence of her own PhD through conducting research in a similar school context (Edwards, 2017). This previous knowledge and experience of the research assistant was an important contributing factor to the rigour and robustness of the project. Additionally, the secondary specialist and research assistant met with the other two experienced members of the University research team on a weekly basis, as identified in the earlier CPL section, to futher ensure the rigour and robustness of the study.

The school had good facilities, including a full size (four badminton courts) sports hall. They also had a large school canteen that they used for gymnastics and a very large playground with a good range of sports equipment. At the time of this study, all teachers taught PE to their own class for one hour a week indoors. They also had a thirty minute timetabled outdoor PE lesson (weather depending). There were no outside providers delivering PE in the school. The school valued the teachers delivering their own PE lessons so that they could develop professionally, as they did in any other subject. At the beginning of the study, the primary teachers had no structured schemes of work for PE; they taught what they wanted according to their areas of interests and/or knowledge. Further, they had no structured planning time for PE during their designated planning, performance and assessment time (PPA).

Research design and ethics

195 The research design and overall timeline of the project was adapted from a previously
196 validated design as part of a PhD study (Edwards, 2017) and is illustrated in Fig 1. This involved
197 initial planning meetings between the University research team and the secondary PE
198 specialist to decide on the aims and objectives of the study and the research design. Meetings
199 between the secondary specialist, the research assistant and the primary school PE
200 coordinator and Headteacher then ensued to discuss the study and decide upon the most
201 appropriate age group and classroom teachers to work with during the intervention. Initially,
202 the research team had intended to work with Year 6 (aged 10 - 11 years) teachers, but
203 following these discussions it was agreed to conduct the study with Year 3 classes (aged 7 – 8
204 years) instead, in order to impact on physical activity behaviours earlier and to allow more
205 opportunity for the prospect of longitudinal research in future years. Following the initial
206 meetings, a 'needs assessment' observation phase took place, followed by an intervention
207 phase which are both described in more detail in the following sections. The ethics committee
208 of the participating University approved all procedure in the study.

209 Insert Fig 1 here

210 ***Needs assessment phase****:* Observations were conducted over a period of six weeks
211 from September 27th to November 15th 2016. The primary focus of the observations was to
212 gather baseline data about the primary teachers' pedagogic practice in both their PE and
213 classroom lessons to provide information about the situation that was being investigated
214 prior to the intervention. The reason for the classroom observations in addition to the PE
215 lessons was to identify pedagogic strengths in the classroom environment that could
216 potentially be transferred to the PE setting. The rationale for utilizing this method of
217 observation in both PE and the classroom was based on an identified gap in the previous

research around transferring effective classroom pedagogy to the PE setting. Further, this method had recently been successfully applied in a PhD study (Edwards, 2017). Informal discussions with the teachers were also used in this 'needs assessment' phase to ascertain their pedagogical strengths and areas for development.

PE-CPD Intervention: This was conducted one day a week (both Year 3 PE classes were scheduled on the same day each week) over three separate half-term teaching blocks of 6 - 7 weeks each. A different PE content area was taught for each half term block and included multi-skills, dance, and striking and fielding. The specific focus of the intervention was led primarily by the 'needs assessment' phase and by the ongoing collaborative discussions with the primary teachers about the practical issues they were encountering in their practice (O'Sullivan, 2002). The initial focus was on transferring their positive pedagogy from the classroom to the PE setting. This was an important aspect of the intervention emphasising a strengths based, appreciative focus (Cooperider, Whitney & Stavros, 2003). The aim of this appreciative approach was to help the primary generalist teachers to realise that what they were doing well pedagogically in the classroom could also be effective in the PE setting, thereby developing their confidence in the PE environment. In doing this, the secondary specialist helped them to plan effectively for their PE lessons to include pedagogical principles such as setting clear learning outcomes, multi-activity tasks, collaborative grouping and planning for differentiation and inclusion. These principles were introduced when needed over the duration of the intervention phase. All lessons were taught by the primary generalist teachers and observed by the secondary specialist who acted in the role of 'mentor' throughout the intervention phase.

Finally, follow up structured observations were conducted to evaluate the sustainability of the changes in the primary teachers' pedagogic practice in PE in the summer term following the intervention, twelve weeks after the end of the intervention phase.

Data collection methods

Observations of the role of the secondary PE specialist: The role of the secondary PE specialist within the whole of the primary school setting was crucial to the success of the project; not only in 'what' she did to mentor and develop the learning of the two primary teachers, but 'how' she approached and facilitated the whole CPL process within the primary school context. This aspect of the intervention was captured by the research assistant as observations in her weekly unstructured 'field notes' and was considered vital to future replication of the process with other classes, or in other schools. The observations focused on the secondary specialist's interactions both inside and outside of the PE lessons, not only with the two primary participants but with other teachers, pupils and senior management within the school. The observations were participatory as the research assistant observed events from inside the group and freely interacted with all group members e.g. secondary PE specialist, primary teachers, pupils and other teachers.

Reflective logs: The reflective log (RL) was carried out after each lesson by the secondary PE specialist and after school on a weekly basis during both the needs analysis and intervention phases. The focus of the RL was to capture her thoughts and feelings as a way of reflecting on what went well and overcoming barriers with working in a complex school environment. This was a free writing exercise of approximately one side of A4 per week.

Structured lesson observations: The observations focused on the content of the curriculum, teaching resources, rapport and relationships between teachers and pupils, and pupils' engagement and behaviour. A mixture of both PE and classroom lessons were observed during the needs assessment phase and only PE during the intervention. This was done on a weekly basis by the research assistant and the secondary specialist, with classroom lessons in the morning and PE in the afternoon.

Teacher interviews: To explore the development of the primary teachers' PE pedagogy, informal reflective discussions were conducted on a weekly basis by the secondary specialist. The focus of these discussions was based on the lesson observations of the weekly PE lessons. Further, an individual semi-structured interview was conducted with both primary teachers by the research assistant at the end of the intervention to explore their learning over the duration of the intervention phase and their perceptions of the impact of this learning on their PE pedagogy.

Follow-up observation: To evaluate the sustainability of the changes in the primary teachers' pedagogic practice in PE, two follow up structured observations and informal interviews were conducted by the secondary specialist with the both primary teachers in the summer term following the intervention, during their teaching of athletics, twelve weeks after the end of the intervention phase.

Data analysis

Qualitative data was transcribed and a combination of inductive and deductive content analysis was performed on all sources of data (Patton, 2002). One member of the University research team, experienced in qualitative analysis procedures, took main responsibility for

the in-depth analysis of the data, whilst the other members of the research team acted as co-analysts for validation purposes. Categories were grouped under higher order themes and organised into sub-themes. The final stage consisted of splitting the themes into core categories consistent with the aim and objectives of the study (Elo & Kyngas, 2007). Trustworthiness and triangulation was achieved through combining observations with the other methodological approaches; reflective logs and interviews to facilitate the validation of data (Thurmond, 2001). Consensus of analysis and interpretation of the data was reached by all members of the University research team.

Results

The results begin with the findings of the needs assessment phase which was used to identify the specific objectives of the intervention.

Needs assessment phase

During the needs assessment phase, the quality of the PE lessons left a lot to be desired, '*they received a poor gymnastics lesson with no challenge and the learning was disrupted by poor behaviour and pupils being 'off task'.* (Reflective log, 12/10/16). This contrasted sharply with the quality of classroom teaching by both primary teachers:

> *The difference in PE and classroom setting is vast…. In the classroom, the children are on task, willing to learn, listen to each other and reinforce good things…. the learning outcomes are clear and they have a structure to their learning.* (Reflective log, 12/10/16).

Furthermore, prior to the intervention, the pupils often lacked motivation and engagement in their PE lessons and the learning environment did not encourage differentiation and inclusion:

> *The teacher struggled with controlling the pupils who were off task, especially the boys. When they got to their station they just played with the equipment…….The teacher didn't use any of the teaching strategies she had displayed in the classroom. Pupils were given very little guidance…….No differentiation according to ability of pupils. It was very hard for the less able to stay on task, they needed more content and clear success criteria they could follow.* (Structured lesson observations, 27/09/17).

In addition to identifying the strengths and needs of the primary generalist teachers, in both the PE and classroom settings, the needs assessment phase was used by the secondary PE specialist to build positive relationships with the two primary teachers and with the other staff in the school. It was important at this stage for the secondary specialist to build mutual trust and relational parity (Awaya *et al*., 2003) with the primary teachers so that she could act as a friend, colleague and trusted mentor in the intervention phase to follow. This was considered to be an important part of developing a replicable PE-CPD process, which is addressed in the next section and was the overall aim of the study.

Developing a replicable PE-CPD process for improved and sustainable pedagogic practice

Fundamental to any successful mentoring relationship is mutual trust (Brinson & Kottler 1993; Johnson-Bailey & Cervero 2004). With this in mind, the key sub-themes identified in relation to the role of the secondary specialist in the PE-CPD process included the first objective of

building positive, trusting relationships and the inductively generated themes of *resisting the urge to intervene* and *facilitating the primary teachers' learning.*

Building positive and trusting interactive mentoring relationships: For the initial needs assessment phase of the project, Rebecca had some concerns and anxieties about first entering the primary school environment: '*Will they be receptive to me, or will they see me as a 'know it all' who wants to make them teach like I do?'* (Reflective log, 27/09/16). However, these concerns were soon dispelled by the positive reaction of the primary teachers: *'The teachers are really receptive and engaging and don't seem to mind us* (Rebecca and the research assistant) *observing them at all'* (Reflective log, 27/09/16). This reaction and acceptance was a consequence of the building of mutual trust by Rebecca and her willingness to get involved in classroom activities '*rather than just sitting there and taking notes'* as illustrated in the research assistant's observation:

> *Rebecca arrived early at school, even before the teachers! She was so eager to help them in any way possible …. she offered to laminate pupils work to put up on the wall display…. this was about building their trust.* (Research assistant field notes, 4/10/17).

In getting involved in these types of classroom tasks, Rebecca was potentially exposing her lack of knowledge and experience of primary classroom teaching, consistent with the advice of Busen and Engebretson (1999) who argue that the trust level must be such that both mentor and mentee can share their professional and personal shortcomings as well as their successes. Further, Klasen and Clutterbuck (2002) believe that over-formalising the mentoring relationship can hinder the formation of rapport, affecting the degree of trust and openness within it, which, in turn, has an effect on the degree of learning and development that is likely

to occur. Rebecca's informality was, therefore, a key strategy in the development of positive, trusting relationships and an effective learning environment with the primary teachers.

Rebecca also considered it vital to build positive relationships with other members of staff in the primary school, particularly the senior teachers, by for example, deciding to '*pop in and say how well the project is going, to break down any barriers with senior teachers and the head teacher*.' (Reflective log, 04/10/16). This resulted in her acceptance within the whole school environment, not just with the two teachers that she was mentoring.

Resisting the initial urge to intervene: A difficult and emotional challenge encountered by Rebecca in her observational role within the PE lessons was to refrain from 'stepping in' and assisting with the delivery of the lessons during the needs assessment phase:

> *It would have been second nature to step in and help the pupils today but the teacher would have gained nothing from me leading the session. This was tough, as I knew the pupils could be challenged more……ultimately, I felt I had let the pupils down.* (Reflective log, 12/10/16).

Depsite the difficulty in not intervening, it was an essential strategy at this early stage of the process and on occasions, it was the research assistant who had to remind Rebecca not to get too involved in the baseline observation phase, thus demonstrating the importance of her experience and role in the process:

> *I reminded Rebecca to step back, even though it was so tempting to intervene. We are still in the needs assessment phase so we can't do anything at this stage….it was clearly frustrating for Rebecca.* (Research assistant field notes, 01/11/16).

The needs assessment phase and initial relationship building was, therefore, crucial to the success of the intervention and in facilitating the primary teacher's learning that followed.

Facilitating the primary teachers' learning: During the collaborative intervention, Rebecca's emphasis was on the use of questioning to facilitate the learning of the primary teachers, to guide them to their own solutions as opposed to telling or showing them what to do. She avoided demonstrating or teaching parts of the lessons herself as her whole approach was one of empowering and collaborating with the primary teachers. Rebecca's reflective log evidences this approach:

> *Enabling these teachers to come to their own solutions through my questioning is key. It would be all too easy for me suggest the tasks, along with the criteria for success. However, for sustainability of behaviours they need to arrive at them on their own.* (Reflective log, 16/02/17).

This individualised questioning took place immediately after the PE lessons, as a form of reflection, and fed into the planning for the next lesson. As the intervention progressed, the need to question and prompt for responses was reduced due to the improving PE pedagogy of the primary teachers, and their enhanced ability to reflect on their own teaching and to identify areas for further development themselves.

Transferring good practice from the classroom to PE

The needs assessment phase established mutual trust and a good rapport with the primary teachers and showed appreciation of their positive classroom pedagogy. The next focus for the secondary specialist, and the second objective of the study, was to mentor the primary generalists to transfer their positive pedagogic practice from the classroom to the PE

environment. Specifically, this entailed the identification of the need for the inductively generated sub-themes of learning outcomes, planning, differentiation for inclusion and pupil engagement.

Learning outcomes: In the first multi-skills lesson during teaching block 1, Michelle asked Rebecca what she should do to introduce the activity, to which Rebecca replied: *'What would you do in the classroom?'* (Reflective log, 09/11/16). This led to a *'light bulb'* moment for Michelle who reflected on the question and responded: *'In a classroom I would write out the learning outcomes' could I also do that in PE?'* Rebecca was elated by this as, in her own words: *'I could see Michelle realised that introducing the learning outcomes in PE would benefit her and the pupils.'* (Reflective log, 09/11/16). The introduction of personalised learning outcomes enabled the teachers and pupils to reflect on their learning and achievements during and at the end of each PE lesson, something that they had never done previously. Rebecca saw this as a key learning moment, as from then on: '*The pupils knew what they needed to do to achieve and what they could do to improve for the next lesson. This is something they had not experienced in PE before.'* (Reflective log, 09/11/16). Following their first explicit use of learning outcomes in PE, both teachers reflected: '*This is brilliant, I can't believe it works in PE!'* (Reflective log, 09/11/16).

Planning: The need to plan effectively for PE lessons was illustrated initially in the needs assessment phase, along with the difference in perceptions of the importance of planning in PE in comparison to other subjects.

> *I think the Year 3 teachers will now build PE into their weekly planning, this is something that they both admit they have never done before, which is invaluable if PE*

411 *is to have the same status in school as the other subjects on the National Curriculum.*
412 (Reflective log, 15/11/16).

413 The follow up observations, conducted twelve weeks after the end of the intervention,
414 indicated a sustained change in the perception of the importance of planning for PE with both
415 teachers identifying that: *'Planning has been the key to HQPE being delivered and they will*
416 *both ensure it stays as part of their PPA time.'* (Structured follow up observation and informal
417 discussion, 15 /7/17). The importance of planning in PE was also communicated to the other
418 teachers in the school during the dissemination of this project to colleagues, as identified in
419 the 'unexpected successes' sub-section later in the results.

420 ***Differentiaton for inclusion:*** Throughout the intervention, Rebecca challenged the
421 primary teachers to think about how they might plan for differentiation on each of the
422 stations to promote the inclusion of all pupils:

423 *Differentiation should be a priority for next week because each station has only one*
424 *level of learning. Small changes could be made at first, for example changes to the ball,*
425 *or size of the target etc.* (Reflective log, 15/11/16).

426 Pupils were also given the autonomy to '*assess their own learning in each station'* and
427 '*create their own games using the learning outcomes*' (Reflective log, 06/12/16) therefore
428 allowing for further differentiation of the tasks. This enhanced differentiation was evident
429 from Kirsty's final interview:

430 *There are different activities going on in PE now, so they're never on one activity for*
431 *too long…..Because of the differentiation now it's just as accessible for the children*
432 *that struggle as for the more able and talented children in PE. So they can all take*

part. And they all enjoy it as well, which is really important. (Interview with Kirsty, 28/03/17).

This new focus on differentiation demonstrated an improved pedagogical awareness of both teachers and their growing confidence to 'step back' on occasions and give more autonomy to the pupils.

Pupil engagement: One of the classroom strategies that the primary teachers decided to adopt for greater variety and engagement in their PE lessons involved the use of a 'carousel' of four different learning activities. This approach immediately engaged the pupils to a much higher level than previously:

The class were all engaged and willing to learn, they were attentive when listening to the learning outcomes (something they had not done before), they absolutely loved the idea they could try something different at each station 'wow it is like the classroom' one pupil said. (Reflective log, 15/11/16).

The combination of clear success criteria for the pupils within a carousel of learning activities, similar to what the teachers would do in the classroom setting, proved highly effective for pupils' engagement in a dance lesson:

The pupils had clear success criteria set out. They had four activities in the carousel including the IPADS to observe different HAKA's from different cultures, a creative area to practice the HAKA (on resource cards), a circuit area to keep fit and an 'emotion' area where the pupils had to use different emotions in the dance. (Reflective log, 03/01/17).

This greater level of engagement also reduced the behavioural problems that were evident in the needs assessment phase:

> *Before the project started, it wasn't, you know, awful! But maybe there were behaviour issues in PE. They've got much better because all the children are now fully engaged in PE and in what they're doing.* (Interview with Kirsty, 28/03/17).

Applying such classroom strategies to the PE setting, therefore, proved highly successful in enagaging the pupils more effectively and provided much greater clarity and direction to the teachers in their PE lessons.

Enhanced PE pedagogy

The overall aim of this study was to develop improved and sustainable PE pedagogy. The transfer of positive pedagogy from the classroom to the PE environment, under the mentorship of the secondary PE specialist, proved to be highly successful in achieving this and in developing confidence and enthusiasm in the primary teachers' PE practice. An entry from Rebecca's log illustrated this progress along with the professional satisfaction of the secondary mentor:

> *Today's lesson was wonderful, again. I was greeted by an enthusiastic Kirsty, she was so excited to tell me about her planning of the four tasks…….I felt wonderful that I had enabled her to have a sense of pride and ownership in her teaching of PE – A great start to the day at 8am!* (Reflective log, 06/12/16).

The teachers' own perceptions of the overall improvement in their PE pedagogy was clearly evident from their final interviews:

There is a 'buzz' about PE now. They love it! They love Tuesdays! They love the routine we've got and they know what's expected of them and I feel their behaviour has got a lot better …. and enjoyment, they get so much more enjoyment from it and they're so much more engaged. (Interview with Michelle, 28/03/17).

This demonstrates the positive progress that the teachers made in their PE pedagogy and the overall impact of the PE-CPD process on the pupils' engagement and enjoyment of PE. Further, the sustainability of this improved PE pedagogy was evident in the follow up observations conducted twelve weeks after the intervention, along with a further development in pupils' understanding and application of key concepts and success criteria:

Some pupils had a better understanding of what they did to achieve the success criteria…….This is significant progress since my last observation as previously they had a limited comprehensive as to how they could relate the skill they had performed to the criteria. (Structured follow up observation, 15 /7/17).

Ultimately, it is was the impact of the teachers' learning on their actions and the broader social impact on the pupils' learning that was considered to be of greatest importance in the PE-CPD process.

Problems encountered: Despite the overall improvements in the PE pedagogy of the primary teachers, it is important to note that this was not a simplistic, linear process. Indeed, there were some significant points of regression in pedagogic performance along the way, often linked to the confidence and lack of specific PE content knowledge of the primary teachers. This was best exemplified during block 3, the striking and fielding activities. Michelle had played competitive cricket to a good level and had taken on the task of planning the unit of work for both teachers. Interestingly, her high level of content knowledge in one area of

striking and fielding resulted in a number of difficulties for both herself and Kirsty. Michelle's problem was that she had set the technical difficulty of the tasks too high for the pupils. When it was Kirsty's turn to deliver the 'forward drive' Rebecca's reflective log revealed that:

> '*She neither knew what it was nor had the skills to deliver it in front of the group…… I asked her after the lesson if she was ok, to which she replied "out of my depth", I was so saddened by this as I felt her confidence as a PE practitioner had gone backwards.* (Reflective log, 07/03/17).

The two primary teachers had different pedagogic strengths and needs in the PE setting, requiring different mentoring approaches, as evidenced by Rebecca's reflective log entry on the 23/01/17: '*Kirsty's confidence at delivering dance skills is not as evident as Michelle's. She has alluded to the fact that she lacks the dance content knowledge, however, is working to improve the demonstration aspect.'* This highlights that it is the 'what' as well as the 'how' that needs to be addressed in primary PE-CPD.

These issues and others like them were resolved through ongoing discussions and interactive mentoring with Rebecca, requiring a trusting and open professional relationship, as identified in the introduction and the first section of these results.

Unexpected success: An unexpected success of the intervention was that the primary teachers took it upon themselves to plan and deliver a whole-school in service training education and training (INSET) workshop on PE pedagogy because they wanted to share what they had learned over the duration of the project. Their primary motivation for this was to enable '*all of the pupils in the school to experience PE the way Year 3 do*'. (Reflective notes, 16/02/17). The INSET was very well received by the other staff and delivered in such an

inclusive way that it resulted in highly positive reactions and feedback from the other teachers. According to Michelle's final interview:

> *They were saying 'Why aren't we doing it like this? Why haven't we done this before?' and 'We're doing carousels in class; why aren't we doing it in the sports hall?' ….. and they were saying that now they'd have to do PE lessons like that, so it was great to hear……and there was nobody going 'Oh my gosh! This is so different!' or 'No way can we do this!' It was all 'we'll try this next week.' It was really positive and achievable.* (Interview with Michelle, 28/03/17).

This fits well with Hunzicker's (2011, 177) vision of effective CPD as that which engages teachers in 'learning activities that are supportive, job embedded, instructionally focused, collaborative and ongoing.' Furthermore, following the positive response from the whole school INSET, the participating teachers successfully delivered a conference workshop at the host University's annual PE conference for primary and secondary teachers, and repeated the school INSET in September 2017 for new staff, thus successfully disseminating the findings and sharing their practice with fellow practitioners and the project funders.

Discussion

The major contribution of this paper is in demonstrating the potential of collaborative professional learning (CPL) between national government organisations, universities, secondary and primary schools (King & Newman, 2001) to improve the PE-CPD of primary generalist teachers. Consistent with Oja and Smulyan's (1989) recommendations, the results revealed the importance of this collaboration in ensuring rigorous, evidence based practice and providing the time and support required for fundamental sustainable changes in PE pedagogic practice, which can endure beyond the life of the research project. Such change

543 was clearly evident in the primary teachers' improved and sustained PE pedagogy as
544 evidenced in the findings. Furthermore, this CPL approach with a secondary PE specialist and
545 university based researchers, aligns with Hunzicker's (2011), vision of effective CPD criteria as
546 job embedded, supportive, collaborative and ongoing.

547 The findings clearly reveal the crucial mentoring role of the secondary school PE
548 specialist in the PE-CPD process and the importance of embedding herself into the primary
549 school to build trust, rapport and effective relationships with the class teachers and senior
550 staff. This is consistent with Duncombe and Armour's (2004) identification of the processes
551 required for effective CPL which included mentoring, peer coaching, being a critical friend,
552 collegiality, sharing of ideas and working collectively on tasks. These skills were evident in the
553 findings of this study and an important recommendation, therefore, is to carefully consider
554 the skills, values and interpersonal qualities of the PE specialist to be effective in the CPL role.
555 This is consistent with Jones, Harris and Miles's (2009) assertion that mentoring appears to
556 have as much to do with the person mentoring as it has with the role occupied. Although
557 mentoring has been largely presented in a positive light within education there is also
558 evidence to the contrary, with a mentor's influence on a mentee being potentially very
559 conservative (Beck & Kosnik 2002) or sometimes even harmful (Maguire 2001). Indeed,
560 according to Klasen and Clutterbuck (2002, 118), 'each and every mentor–mentee pairing is
561 unique'. When this pairing is successful, in addition to enhancing the educational practice of
562 the mentee, the mentors express both personal and professional satisfaction for making a
563 significant contribution to the profession (Wright & Smith 2000), which was clearly evident in
564 the results of this study.

The use of questioning by the secondary PE mentor to facilitate the primary teachers' learning , as opposed to simply showing them 'what to do', or 'how to do it' was found to be crucial to the success of the intervention. As the results reveal, at times, particularly in the needs assessment phase and the early part of the intervention, it was difficult for Rebecca not to step in and provide an optimum model for imitation, which Geen (2002) identifies as the 'Apprenticeship Model' of mentoring. This model, however, pre-supposes that the PE specialist is infallible and that the mentees should become clones of the mentor, consequently limiting creative thought (Geen, 2002). Further, Rebecca was relatively inexperienced in the primary school setting and therefore had to collaborate with the primary teachers to get the most out of the learning environment for the pupils, thereby demonstrating relational parity and the sharing of expertise and moral support (Awaya, *et al.*, 2003).

In addition to considering the skills of the mentor, it is also important to consider the 'mind-set', motivation and reflective abilities of the primary generalists. In this study, both primary teachers were committed professionals with inclusive educational values and a strong desire to learn and improve their PE pedagogy. Weekly reflective discussions with Rebecca, in which she asked critical questions to facilitate their learning, encouraged and further developed their reflective skills. This was a crucial aspect in the success of the PE-CPD and in its transformational and sustainable impact. Such an approach is compatible with the 'Reflective Practitioner Model' of mentoring which is founded on self-analysis and reflection; practices that encourage professionals to question their own actions and reasons for doing things (Geen, 2002). In practice, however, things are not so straightforward, as mentees more-than-often want mentors to offer opinions on their teaching and solutions to their

pedagogic problems rather than to ask them questions that encourage self-reflection on it (Tann 1994).

The needs assessment period undertaken at the start of the project was also key to its success, enabling the observers (the secondary PE specialist and the research assistant) to identify the individual primary teachers' pedagogic strengths and needs in both the PE and classroom settings. Indeed, a key recommendation from this project is that PE specialists should aim to observe primary teachers in their classroom as well as in the PE environment to celebrate and transfer primary teachers' good practice from the classroom to the PE setting. Such an initial appreciation of strengths rather than problems, has a close connection with an 'appreciative inquiry' approach to interventions (Cooperider, Whitney & Stavros, 2003). Such an appreciative approach is more likely to gain the 'buy in' of participants rather than developing initial resistance to 'outsider' practitioners and researchers by beginning with the problems, and is worthy of further consideration and application in future research of this nature.

Although it is acknowledged that content knowledge is important for the confident delivery of PE across a range of different activities (Keay & Spence, 2012; Sloan, 2010; Blair & Capel, 2008), the findings of this study suggest that there should be a strong focus on the 'how' (PE pedagogy) rather than just the 'what' (PE content) in PE-CPD programmes of this nature. By focusing on the pedagogic principles of clear learning outcomes, success criteria and differentiation in the primary PE lessons, there was evidence of improved quality in the delivery of PE. Such principles were evident in the classroom but not initially in PE lessons, which the teachers saw as an opportunity for 'physical activities' but not for 'physical learning opportunities' (Keay & Spence, 2012).

There was also evidence of sustained improvement in the primary teachers PE pedagogy in the follow-up observations, and effective dissemination of this through the delivery of two whole school practical INSETs and a practical workshop at the host University's annual PE conference by the two primary teachers. This clearly demonstrated their improved confidence to share their learning and a newly developed advocacy role for the promotion of PE pedagogy. Both the INSET and the conference workshop were designed entirely by the primary teachers based on the practical ideas and activities they had developed with their pupils over the duration of the intervention, thereby demonstrating the sustainability of their learning.

One issue of interest and some concern in relation to the delivery of high quality PE in primary schools is the implied lack of status of PE in comparison to other areas of the curriculum. This was implied in the data which revealed that the primary teachers had not previously considered the importance of learning outcomes and success criteria in PE lessons, despite having to do this in the classroom. Their initial level of planning for PE lessons was also, by their own admission, inferior to their other classroom lessons. Furthermore, consistent with previous research (Hardman, 2010), a number of PE lessons were cancelled over the duration of the study due to other 'more important' school commitments such as school productions or science, technology, engineering and mathematics (STEM) activities. If the new Welsh curriculum is going to achieve its aim of developing healthy, confident individuals and improve the health and wellbeing of the nation (Donaldson, 2015), then the status of healthy lifestyle behaviours, particularly at the primary age (Faulkner & Reeve, 2000), must be significantly raised to the same level of importance as literacy, numeracy and digital competence

This study has developed a replicable CPD process for improved and sustainable PE pedagogy with generalist primary teachers in collaboration with a secondary PE specialist and university based researchers. The logical next step in this line of research is to disseminate the PE-CPD programme to other teachers in the same school to establish whether it has similar outcomes. Further, this form of personalised CPD should be explored in other primary schools to explore it's transferability and generalisability.

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