

OXFORD BROOKES UNIVERSITY

The Importance of Primary Physical Education in
England: Assessing the Acceptability and Feasibility of
a Non-linear Approach for Parents and Teachers.

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Abstract

Currently, only about half of children aged 5-7 in the UK meet the recommended World Health Organisation guidelines for physical activity (PA). Given the influence experiences in primary school Physical Education (PE) can have on children's attitude towards PA, ensuring that PE fosters an inclusive and fun environment is important. Play-based PE, an alternative approach to teaching PE, could achieve this. However, little is known about parents' and teachers' perceptions of and receptiveness to play-based PE in England.

This thesis's first aim was to better understand the factors that influence parents to support their child's PA and PE at home. A mixed-methods study design was used; 103 participants completed the questionnaire, and eight were interviewed. The results showed that parents viewed PE and PA positively and were receptive to play-based PE. However, they faced several barriers when supporting their child's PE and PA at home, including time, money, and a lack of communication from the child's school.

The second aim of this thesis was to understand what influences teachers' and teaching assistants' confidence in teaching/supporting PE. Twenty-three teachers and seven teaching assistants completed a questionnaire. The results showed that just over half did not feel equipped to teach/support inclusive PE, but many felt PE was an important subject and were receptive to play-based PE.

The final aim of this thesis was to assess the acceptability and feasibility of a play-based PE programme in Key Stage One lessons (ages 5-7), using a mixed methods study design. Questionnaires were created using the Capability, Opportunity, Motivation-Behaviour (COM-B) framework; fourteen parents and fifteen teachers completed the pre-intervention questionnaires. Three parents and one teacher completed the post-intervention questionnaires; this data was not used. Four parents and the CPD instructor participated in follow-up interviews. The results showed that parents and teachers needed more physical and social opportunities. The instructor highlighted broader systemic issues with implementing interventions and supporting PE in schools.

The results from these studies provide novel insight into parents' and teachers' receptiveness to play-based PE. Another novel aspect is the ethnically diverse group of parents who highlighted the barriers they currently face when supporting PE at home, making the results more ethnically representative of England's population.

Statement of Aims and Objectives

The research studies in this thesis had three main aims. The first aim was to better understand the factors that influence parents to support their child's physical activity and PE at home. To achieve this aim, the following objectives were set:

- Objective 1: To explore parental perception of physical activity and potential facilitators and barriers to supporting children's physical activity at home. (Chapter 4)
- Objective 2: To explore parental perception of the importance of PE and potential facilitators and barriers to supporting PE at home. (Chapter 5)

The second aim of this thesis was to understand what influences teachers' and teaching assistants' confidence in teaching/supporting PE. To achieve this aim, the following objective was set:

- Objective 1: To explore teachers' and teaching assistants' perceptions of PE and factors that affect their confidence in teaching/supporting PE. (Chapter 6)

The final aim of this thesis was to assess the acceptability and feasibility of a play-based PE programme in Key Stage One lessons (ages 5-7). To achieve this aim, the following objectives were set:

- Objective 1: To explore parents' and teachers' attitudes towards play-based PE pre-intervention using the COM-B framework. (Chapter 7)
- Objective 2: To explore parents' and teachers' attitudes towards play-based PE post-intervention using the COM-B framework. (Chapter 8)

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Chapter One: Introduction

1.1 Thesis Aims and Purpose

Globally, it is widely accepted that physical activity greatly benefits physical and mental health (Biddle et al., 2019; Dale et al., 2019; Janssen & LeBlanc, 2010; Powell et al., 2019; Rhodes et al., 2017; Warburton et al., 2006, 2007, 2010; Warburton & Bredin, 2016). However, during the academic years 2019/2020 to 2023/2024, only about half of children aged 5-11 in England met the World Health Organisation (WHO) guidelines for physical activity (Sport England, 2021b, 2022, 2023a, 2024). Although it was previously believed that physical activity levels decline during adolescence, recent research indicates this decline starts earlier in childhood (Cooper et al., 2015; Farooq et al., 2018; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008). With the rising rates of obesity and mental health disorders in children, there is an urgent need to understand better how to support children in engaging with physical activity. One potential strategy is primary Physical Education (PE); increasing enjoyment in PE and encouraging parental support for PE at home could promote sustained physical activity and the development of physical literacy.

Therefore, this thesis explores parents' and teachers' perceptions of PE and physical activity in England and assesses the acceptability and feasibility of an alternative approach to PE through three separate studies: 1) parents' perception of PE and physical activity, 2) teachers' perception of PE and physical activity and 3) acceptability and feasibility of play-based PE. This alternative approach focuses on non-linear pedagogy through play, specifically play-based PE. It moves away from traditional models that emphasise linear learning, where it is believed there is only one successful way to learn a skill, leading children to perform perfect movement skills in a prescribed and "correct" way (Chow & Atencio, 2014; Crotti et al., 2021; Lee et al., 2017). Instead, a non-linear pedagogical approach encourages children to become more flexible learners, equipping them with skills such as adaptability that can be applied in 'real life' (Chow & Atencio, 2014; Valeh et al., 2020). This method also promotes exploration and individual creation of movement solutions (Rudd et al., 2021a). Through the constraints-led approach, non-linear pedagogy in play can improve PE by shifting focus away from children's performance, which has traditionally been central to a more self-directed learning environment (Jefferson-Buchanan, 2022).

Non-linear pedagogy has been developed based on the 'ecological dynamics' approach (discussed in Chapter 2) as its theoretical framework and implemented through the constraints-led approach (Crotti et al., 2021; Renshaw & Chow, 2019; Roberts et al., 2019).

This approach examines the interaction between an individual, their environment, and the task, which can influence movement. This will be further elaborated in Chapter 2, where Newell's model of constraints for motor development will be discussed. A constraint-led approach to non-linear pedagogy considers individual differences and highlights the importance of adapting to momentary changes (Valeh et al., 2020). Focusing on child-centred PE, in which teachers guide children's learning by adjusting task constraints, could simultaneously support the development of diverse skills to meet task demands (Crotti et al., 2021).

This thesis was developed through collaboration with BOING, an organisation dedicated to enhancing children's physical literacy, "*the motivation, confidence, physical competence, knowledge, and understanding to maintain physical activity throughout the life course*" through active and inclusive play (BOING, n.d.; Whitehead, 2010). BOING's efforts are guided by research and theory, with various publications from its research team emphasising non-linear pedagogy and the application of the constraints-led approach to teaching in schools (Roberts et al., 2019; Rudd et al., 2021a). Therefore, BOING is presented as an example of play-based PE, emphasising inclusiveness and the development of physical literacy.

The purpose of the studies in this thesis is to gain a deeper understanding of parental and teacher perceptions of primary school PE (specifically in England), the facilitators and barriers parents and teachers face when supporting PE and physical activity, and, most importantly, parents' and teachers' acceptance of an approach to PE that is considered more inclusive and enjoyable. Expanding knowledge in this area could positively impact children's experiences in PE, parental understanding of the importance of PE, and teachers' confidence in teaching PE. In turn, children's physical literacy can be developed at home and in school through PE, supporting the continuation of physical activity into adulthood and throughout life, thus underpinning the rationale for this thesis. Therefore, before exploring issues related to physical activity and PE, such as declining physical activity levels and a lack of inclusivity in PE, it is essential to understand how primary school PE in England is delivered and what the curriculum includes.

1.2 Primary Physical Education in England

The Department for Education (DfE) in England defines the purpose of PE as follows: *"A high-quality Physical Education curriculum inspires all pupils to succeed and excel in competitive sport and other physically demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect."* (Department for Education, 2013f)

Primary school education in England is for children aged 4-11 years, with the curriculum guidelines divided into three key stages. The first year of school-based education is Reception (ages 4-5 years) and is guided by the Early Years Foundation Stage, which begins at the age of 3 years, before children enter school. Emphasis is placed on exploring areas of learning and development, with physical development considered essential for foundational growth and encouraging children's development (Department for Education, 2023a). However, this thesis will not focus on the Early Years Foundation Stage. The remaining years follow the National Curriculum, divided into 'Key Stage' One (covering ages 5-7 years; Years 1 and 2) and 'Key Stage' Two (covering ages 7-11 years; Years 3 to 6). In Key Stage One, the development of fundamental movement skills, competence, confidence, and competition is highlighted. Key Stage Two focuses on developing a broader range of skills, enjoyment of communication, collaboration, and competition among peers (Department for Education, 2013d).

The National Curriculum from the DfE was last revised in 2013, providing statutory guidance that schools must legally comply with (Department for Education, 2013f). The National Curriculum in England for primary education (age 4-11 years) divides subjects into 'core' and 'foundation' subjects. 'Core' includes mathematics, English, and science, while foundation subjects encompass PE, art and design, history, music, languages, computing, geography, design, and technology (Department for Education, 2013f). Despite no curriculum changes in the last decade, in 2024, non-statutory guidance was issued by the DfE titled "Enhancing physical education provision and improving access to sport and physical activity in school" (Department for Education, 2024). This document aims to support schools in fulfilling the National Curriculum by offering various approaches to integrating PE, physical activity, and sport into the school's ethos and values (Department for Education, 2024). It follows the School Sport and Activity Action Plan, created in 2019 and updated in 2023,

which aims to support children and young people in being more physically active through providing opportunities and designing physical activities based on the principles of physical literacy (Department for Culture, Media and Sport et al., 2023; Department for Education et al., 2019).

It is important to recognise that for many students, PE may be the first place where they are safely taught effective movement (Ofsted, 2023). Moreover, for some children, particularly those least active, such as girls and children from low socio-economic backgrounds, PE, sport, and physical activity in school might be the only regular access they have to structured physical activity and sport (Department for Education, 2024; Sport England, 2023a). Therefore, the DfE believes PE should empower all children to lead active and healthy lives, a key goal of the National Curriculum (Department for Education, 2024). Children can also learn vital health-related knowledge in PE, supporting them to make informed decisions about maintaining a healthy and active lifestyle (Ofsted, 2023). When taught well, high-quality PE can challenge misconceptions and reduce entrenched inequalities that limit participation among some students (Ofsted, 2023). However, there is concern about whether current PE effectively nurtures students' physical development and imparts the essential knowledge needed for children and young people to make healthy living choices (Ofsted, 2023). These discussions are crucial because the decline in physical activity levels among children and young people, and the role PE can play in encouraging participation, has been a prominent issue for many years (Cooper et al., 2015; Hortigüela-Alcalá et al., 2021; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008; Nancy & Jannine, 2015).

1.3 Decline in Children's Physical Activity Levels

Despite extensive research highlighting the physical, psychological, and cognitive benefits of physical activity, levels of activity decrease as children get older in England (Farooq et al., 2018; Sport England, 2023). Given that the average age of onset for many mental health conditions globally occurs before age 14 in one-third of cases (Solmi et al., 2022), and some develop as early as four years old (Kessler et al., 2007), it is crucial to understand how to encourage children to be more physically active. Historically, research has concentrated on adolescents, with consensus indicating that physical activity declines during adolescence or the transition into it (Corder et al., 2015; Harding et al., 2015; Staiano et al., 2017). This period also coincides with the move from primary to secondary school, often during puberty (Spernes, 2022). During this transition, children become less active and more sedentary

(Coombes et al., 2014; Marks et al., 2015; Ridgers et al., 2012). Research further indicates that females are particularly at risk of experiencing a sharp decline in activity levels (Ridley & Dollman, 2019). In the UK, a longitudinal study found that sedentary time increased between ages 12 and 15 while light physical activity decreased (Harding et al., 2015). Consequently, some believe that the primary-secondary school transition is a key stage for intervention to reduce unhealthy behaviours (Marks et al., 2015).

Contrary to this focus, recent years have shifted attention towards primary school children, highlighting a worrying lack of physical activity in this group. For example, in England, only 53% of children in Years 1-2 (ages 5-7) met recommended activity guidelines in the 2023-2024 academic year (Sport England, 2024). The percentage decreased further in later years, with just 41% in Years 3-4 (ages 7-9), and slightly rising to 46% in Years 5-6 (ages 9-11) (Sport England, 2024). The data also reveals that demographic and socio-economic factors influence activity levels, with children from low-income families (45%) and from Black (42%), Asian (43%), or other minority ethnic groups (44%) being less active than their White (50%) and higher-income peers (57%) (Sport England, 2024). Similar findings have been reported elsewhere, with studies showing that as children age between 6 and 15, their physical activity levels decline, with girls being less active and more sedentary than boys across all ages (Cooper et al., 2015; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008). A systematic review also confirmed this gender gap: the decline in physical activity begins earlier in girls aged 9-12 compared to boys aged 13-16 (Dumith et al., 2011). Additionally, a UK-based longitudinal study monitored children from ages 7 to 15, with assessments at ages 7, 9, 12, and 15, revealing a general decline in physical activity starting around age 7 (Farooq et al., 2018).

This trend is not confined to the UK. Cooper et al (2015), analysing data from the International Children's Accelerometry Database (ICAD), which included 27,637 children aged 2.8 to 18.4 years from 10 countries, found that total physical activity, as well as time spent in moderate to vigorous and light physical activity, decreased with age. Boys consistently remained more active than girls and less sedentary across age groups. Though the study does not explain why activity levels decline with age, it highlights the universal challenge of maintaining activity into adulthood. Similarly, a UK longitudinal study focusing on primary school children reported increased sedentary time and decreased activity from Year 1 to Year 4 (ages 5-9), aligning with ICAD findings (Jago, Solomon-Moore, et al., 2017). These results underscore the importance of early intervention to curb the age-related

decline in physical activity (Jago, Solomon-Moore, et al., 2017). Addressing this issue early is essential for fostering lifelong healthy habits. Moreover, a 27-year longitudinal study from Finland demonstrated that physical activity levels between ages 9 and 18 significantly predicted levels in adulthood, supporting the idea that developing an active lifestyle begins early in childhood (Telama et al., 2005, 2014).

1.4 The Impact of Negative Experiences and Lack of Inclusivity in PE

Therefore, promoting physical activity in children during their early years is not just important; it is vital (Carson, Lee, et al., 2017). Doing so may reduce the challenges individuals face later in adolescence and adulthood. Since the school environment is crucial for encouraging physical activity, PE in particular can play a key role in fostering and maintaining physical activity, especially for children from less affluent areas and ethnic minority backgrounds who participate less in physical activity than their peers (Crotti et al., 2021; Harrison et al., 2016; Ofsted, 2022; Omojor-Oche et al., 2025). It also has the potential to support children's physical, cognitive, emotional, and social development through PE and physical activity (Morgan & Bourke, 2008).

Consequently, more emphasis should be placed on inclusivity in PE and ensuring children have a positive experience. Children who do not enjoy PE are less likely to lead an active lifestyle or to realise the health benefits of physical activity (Cairney et al., 2012). When discussing enjoyment in PE, significant focus has been placed on girls and their experiences, as they are less likely to be physically active than boys (Sport England, 2022, 2023a, 2024). Adolescent girls aged 13-18 have spoken about their negative experiences in PE during research focused on physical activity (Cowley et al., 2021). Secondary school girls have expressed that their negative experiences in PE led to a lack of social acceptance due to their personal perception of their physical competence (Hortigüela-Alcalá et al., 2021). The girls' families also noted that these negative experiences directly affected their children's daily lives at home and with their friends (Hortigüela-Alcalá et al., 2021).

Research also suggests that girls experience positive and negative emotions more intensely than boys in competitive sports; however, girls experience more positive emotions than boys in non-competitive games (Alcaraz-Muñoz et al., 2023). This indicates that competitiveness influences whether an experience is perceived as positive or negative for girls. However, it is important to note that, when examining differences in PE, many studies focus on a single aspect, such as gender, without considering other intersecting identity markers, such as race

or ethnicity (Flintoff et al., 2008). Notably, much research on gender and PE mainly concentrates on white girls and women, or ethnicity and race are not mentioned (Alcaraz-Muñoz et al., 2023; Cairney et al., 2012; Cowley et al., 2021; Flintoff et al., 2008; Hortigüela-Alcalá et al., 2021). There remains limited research exploring the experiences of Black or other minority girls in PE; additionally, a focus on disability is largely absent in PE research, with much of the existing work being categorical or based on a medical model of disability (Flintoff et al., 2008). A study involving over four hundred young people from thirty-five schools in the Midlands of England, who experience various disabilities ranging from physical and sensory impairments to learning difficulties, shed some light on the challenges faced (Fitzgerald, 2005). Participants reported feelings of inadequacy compared to others, peer rejection and peer-led exclusion from PE activities, lack of acceptance within the PE class, and name-calling from peers due to their disability (Fitzgerald, 2005).

Furthermore, students with disabilities have shared their preference for having one-to-one PE lessons in comparison to whole class lessons, their frustration with always coming last during PE activities focusing on racing, and have highlighted their difficulty and frustration when attempting to kick a football due to coordination issues (Fitzgerald, 2012). While inclusive PE may seem like a good idea, not all students with a disability agree. A systematic review on inclusion in PE found that those with a disability have expressed having a negative experience with PE and feeling that PE is for “sporty boys”, and often students disliked inclusive PE due to having limited or irrelevant participation, peers having a negative response, or the students themselves having personal negative emotional experiences (Rekaa et al., 2019). Furthermore, this limited participation has the possibility of making students with disabilities feel that they are outsiders (Rekaa et al., 2019). This is understandable, as students without disability have expressed that, despite them wanting their peers with disabilities to be a part of their PE class, they do not necessarily want them to participate as teammates; this could be because the children desire to have capable teammates in order to help them win (Qi & Ha, 2012).

Ultimately, PE can serve as a means to promote the social inclusion of various groups, including minority ethno-cultural groups, asylum seekers, religious groups, refugees, girls, and individuals with disabilities (Nancy & Jannine, 2015). This can be achieved by supporting teachers, who are central to promoting and fostering inclusivity in their classrooms (Penney et al., 2018). Therefore, curriculum development that adopts an inclusive approach should allow for flexibility to adapt to diverse needs, ensuring that all children

benefit from quality education while enabling teachers to tailor their teaching methods for maximum impact (Nancy & Jannine, 2015). However, when designing or developing an inclusive curriculum, it is essential to listen to the voices of marginalised groups to prevent an inclusive approach from leading to further exclusion. In addition to promoting inclusivity, the lesson's content might also influence enjoyment.

Primary school children in England desire more PE activities, as not every child shares the same interests (Domville et al., 2019). Domville et al (2019) conducted focus groups with primary school children. They stated that being asked which activities they would like to do is vital in increasing enjoyment and fostering a sense of autonomy in PE. Conversely, a lack of choice diminished their sense of competence, resulting in lower enjoyment and engagement (Domville et al., 2019). In another study involving interviews with primary school children in England, fun was the most common reason for their positive attitudes towards PE (Dismore & Bailey, 2011). This research also revealed that children compare PE to other subjects, viewing it as a break from work and more enjoyable (Dismore & Bailey, 2011). For many, fun is regarded as an essential aspect of healthy activity; another study conducted in England with children aged 9-11 years (Years 5 and 6) found that, for some children, there is an inherent link between fun and health in the context of active play and sport (Hemming, 2007). Conversely, for other children, fun and enjoyment are motivations to engage in physical activity rather than health benefits (Hemming, 2007). While this is not specific to PE, it explores the connection between fun and children's physical activity.

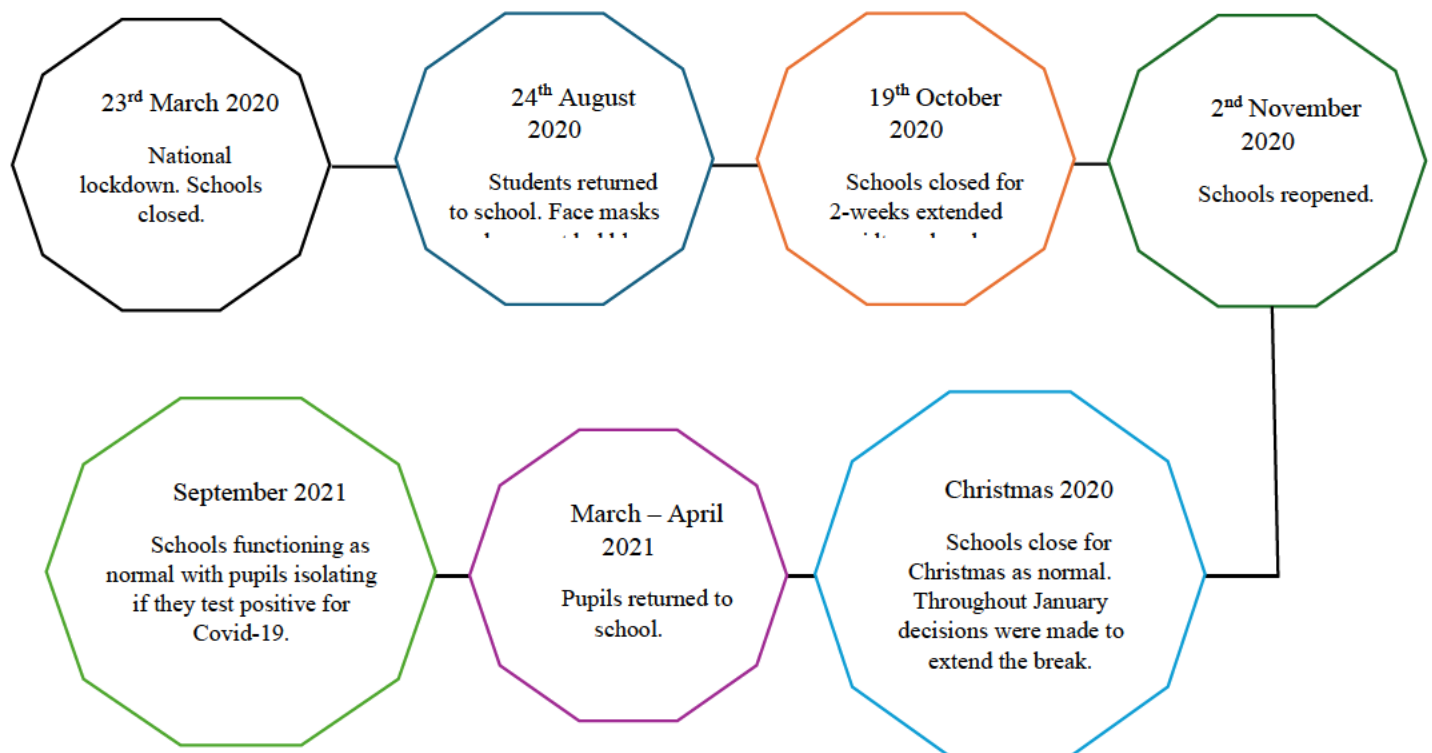
1.5 The Impact of COVID-19

In recent years, additional strains and restrictions have been placed on children's physical activity levels and PE. Globally, the COVID-19 pandemic disrupted children and young people's education, leading to extended school closures and the immediate shift to online learning (Casey & McLaughlin, 2022). In England, schools faced COVID-19 impacts from March 2020 to April 2021, including closures, mask mandates, support bubbles, and testing. The complete timeline is detailed in Figure 1.1; this information was sourced from Casey and McLaughlin's (2022) report on how the pandemic disrupted education and affected children and young people's well-being. Moreover, children and young people with Special Educational Needs (SEN), including those with physical disabilities, found the lockdown particularly challenging due to routines being disrupted, among other reasons. Consequently, this had a negative impact on their physical and mental health (Casey & McLaughlin, 2022).

Similarly, children learning English as an additional language, asylum-seeking families, and migrant-origin young people faced extra barriers with remote learning because learning materials were not available in accessible formats; furthermore, they lacked sufficient educational support, and their parents might not be familiar with the current curriculum, making homeschooling more difficult (Casey & McLaughlin, 2022).

Figure 1. 1

COVID-19 English Schools Closures Timeline



All information taken from Casey & McLaughlin (2022)

Teachers have expressed that after the first national lockdown in June 2020, children’s physical, social, and academic development was impacted (House et al., 2024). As a result of the pandemic's disruption to learning and skill development, children now feel considerable pressure to catch up academically (House et al., 2024). Other post-pandemic issues also included weight gain and loss of fitness for some children, leading to avoidance behaviour towards physical activity in school (Walker et al., 2022). Children living in urban areas appeared disproportionately affected by the pandemic compared to those in rural areas, due to differences in local green space availability for physical activity (Walker et al., 2022). Families from minority ethnic groups and from low socioeconomic backgrounds were significantly affected by school closures (Bailey & Scheuer, 2022). Consequently, many

countries implemented measures to reduce learning gaps among students following the first school closures in 2020, with particular focus on disadvantaged pupils (OECD, 2021).

Unfortunately, the pressures of the pandemic were also felt by teachers, worsening staff's pre-existing issues within England's highly demanding primary school environment, including limited resources and overburdened workloads (House et al., 2024). Year 6 teachers explained that, in the post-pandemic period, there has been competition between PE lessons, additional physical activities, and the core subjects deemed high priority (House et al., 2024). Teachers also emphasised the significance of parental encouragement for physical activity during the pandemic, as they had little control over actions taken at home (Walker et al., 2022). While teachers monitored subjects such as Maths and English due to their tangible outcomes, they felt this was not possible with physical activity and PE. As a result, the responsibility to promote participation in PE shifted from school to home (Walker et al., 2022).

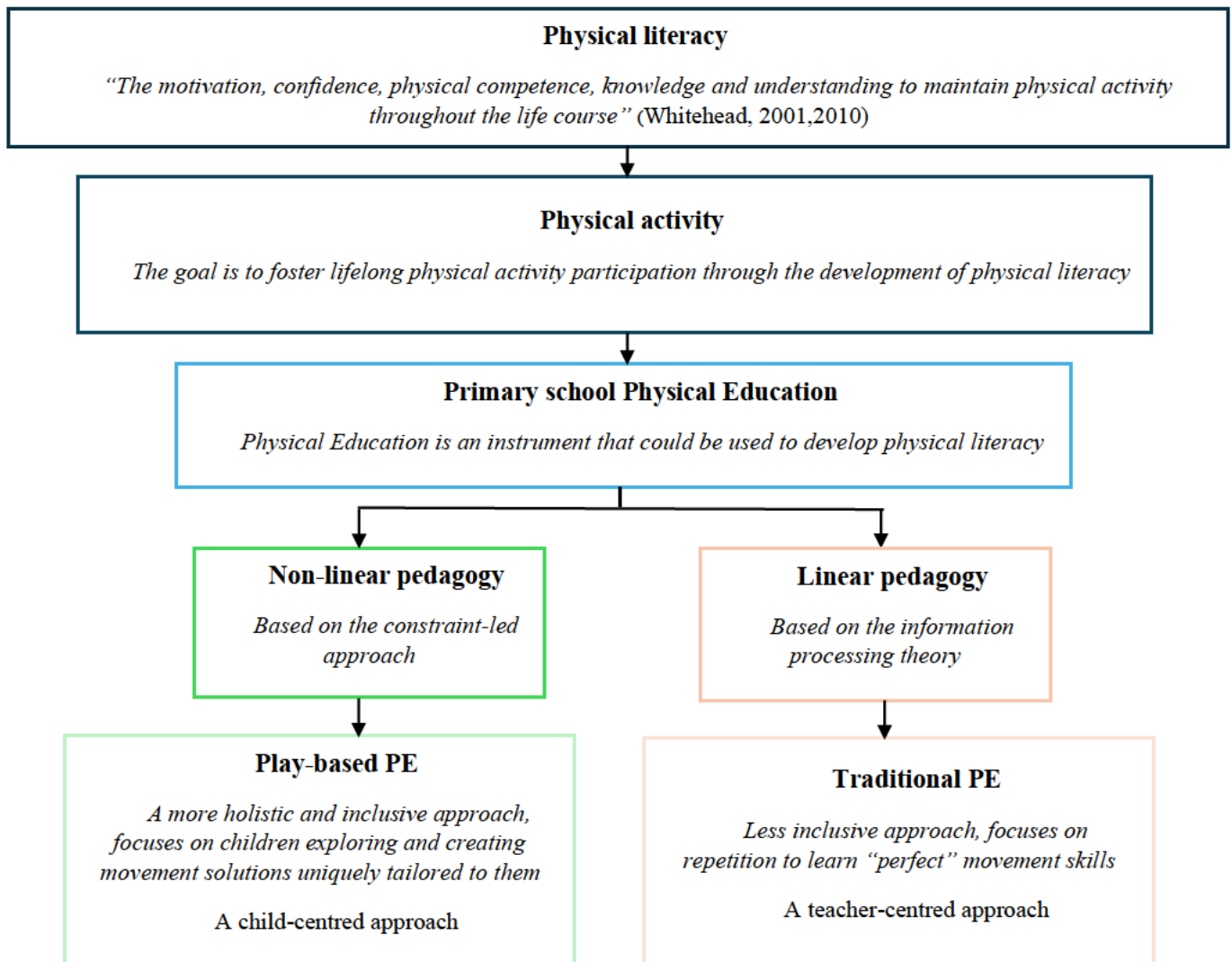
Staff from several schools discussed the post-pandemic effects on prioritising PE and physical activity (House et al., 2024). House et al (2024) conducted a repeated cross-sectional natural experiment in England to examine the impact of COVID-19 on children aged 10-11 years and their parents/carers (House et al., 2024). Twenty-eight schools participated, with 13 staff members being interviewed from 12 of these schools. Some school staff expressed how challenging it has been to prioritise physical activity post-lockdown due to structural issues such as a lack of resources, reduced external providers for extra-curricular activities, and competing academic priorities (House et al., 2024). Conversely, others mentioned that the pandemic had a positive effect in their schools, stating that greater awareness has been raised about children engaging in physical activities outside of PE, and advocating for PE to remain a priority despite the challenges faced (House et al., 2024).

1.6 Thesis Overarching Concepts

Given this context, it is important to understand how physical activity and PE are viewed in a post-pandemic climate from those who directly affect children's ability to be physically active and their experiences in PE. To do this, several concepts, theories, and ideas will be discussed throughout this thesis, including the increasing levels of children's physical activity: physical literacy, PE, linear and non-linear pedagogy, and play-based PE. Thus, this next section will explore how these concepts work together, as visualised below, Figure 1.2.

Figure 1. 2

The Overarching Concepts



As discussed in this chapter, physical activity refers to any movement that requires energy use, whether through structured or unstructured activities. In recent years, researchers have questioned whether a more holistic definition of physical activity is needed; this will be further discussed in the next chapter. Given the decline in physical activity starting in childhood, this thesis focuses on how to support increasing children’s physical activity levels.

One approach is to develop physical literacy, which is defined as “*the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course*” (Whitehead, 2001, 2010). This concept, which will be examined in detail in the following chapter, emphasises understanding the link between the body and mind to support lifelong physical activity. It aims to enhance motivation, confidence,

physical skills, and awareness of the importance of being active. A useful method for promoting physical literacy nationally is primary school PE, as it is a compulsory subject in England.

However, the question then becomes what the most inclusive and supportive way is to teach PE to nurture the development of physical literacy in children. As discussed earlier, children's experiences in PE can both positively and negatively influence their views on physical activity. Currently, PE is taught more linearly, focusing on repetition for learning, and a curriculum that has led many schools to prioritise the development of sport skills. While some children may enjoy this approach, others may feel it is not the most inclusive way to learn. Therefore, this thesis explores an alternative, non-linear approach to teaching PE using play: play-based PE. A pedagogical approach such as play-based PE would prioritise enjoyment and fun in PE, supporting the development of children's motivation and confidence to be physically active. This approach could also enhance their physical competence, knowledge, and understanding of the importance of physical activity through a structured curriculum. Most importantly, it could be a more inclusive form of PE, where children learn movement skills tailored to their individual needs, giving them greater autonomy over their learning.

On the one hand, the pandemic resulted in a lack of opportunity to take part in sports (Bailey & Scheuer, 2022). On the other hand, there was an increase in habitual physical activities such as gardening, cycling, home workouts and non-organised activities (Bailey & Scheuer, 2022). Thus, it can be argued that now would be a good time to focus on a more holistic approach to physical activity, as more teachers, parents, and students may be receptive to it. This is particularly so given that, mainly because outside of school, the pandemic had some surprising positive outcomes; while lockdown led to a reduction in some health-enhancing physical activities, it also led to an increase in others (Bailey & Scheuer, 2022; Schmidt et al., 2020). Therefore, it is imperative to understand teachers' and parents' perspectives on PE. It is also important to explore the factors that influence their respective ability to support physical activity and PE, and the acceptability and feasibility of a play-based PE programme in primary schools.

In summary, this chapter introduces the key issues and concepts of this thesis: physical activity, primary PE (using both linear and non-linear approaches), and physical literacy. The primary concern is the persistent decline in children's physical activity levels. One strategy to

address this is through primary PE, which aims to provide inclusive and enjoyable lessons. A shift from a linear to a non-linear pedagogical approach to teaching PE is proposed to support this goal. The main idea is to foster ongoing development of children's physical literacy via PE, encouraging lifelong physical activity. Since children rely heavily on adults (i.e. parents and teachers) for opportunities to be active, their perspectives are crucial. Therefore, this thesis explores parents' and teachers' views on PE, physical activity, and the factors influencing their ability to support children in a post-pandemic context. It also assesses the acceptability and feasibility of a play-based PE programme in primary schools. An approach that is considered more inclusive than traditional PE and better suited to promoting continuous physical literacy development.

1.7 Overview of Thesis

As mentioned at the beginning of this thesis, three studies were conducted to explore three main aims and subsequent objectives. Study one aimed to better understand the factors influencing parents' support for their child's physical activity and PE at home. This aim had two objectives and was divided into separate chapters, each focusing on physical activity and PE.

- Objective 1: To explore parental perception of physical activity and potential facilitators and barriers to supporting children's physical activity at home. (Chapter 4)
- Objective 2: To explore parental perception of the importance of PE and potential facilitators and barriers to supporting PE at home. (Chapter 5)

Study Two aimed to understand what influences teachers' and teaching assistants' confidence in teaching/supporting PE. The following objective was set to achieve this aim:

- Objective 1: To explore teachers' and teaching assistants' perceptions of PE and factors that affect their confidence in teaching/supporting PE. (Chapter 6)

Study Three aimed to assess the acceptability and feasibility of a play-based PE programme in Key Stage One lessons (ages 5-7). Two objects were set to achieve this aim, and written in separate chapters:

- Objective 1: To explore parents' and teachers' attitudes towards play-based PE pre-intervention using the COM-B framework. (Chapter 7)
- Objective 2: To explore parents' and teachers' attitudes towards play-based PE post-intervention using the COM-B framework. (Chapter 8)

Table 1. 1*Overview of Thesis Chapters*

Aim No.	Study No.	Chapter No.	Participants	Title	Study design	Data collection method
		1		Introduction		
		2		Literature		
		3		Methodology		
Aim one	Study 1 <i>Parents part 1</i>	4	Parents	Exploring the facilitators and barriers parents in England experience when supporting their primary school child's physical activity.	Explanatory sequential mixed methods design	Questionnaire and interview
Aim one	Study 1 <i>Parents part 2</i>	5	Parents	Understanding parental perceptions of the importance of primary school Physical Education in England, and their views on Play-Based Physical Education.	Explanatory sequential mixed methods design	Questionnaire and interview
Aim Two	Study 2	6	Teachers	The confidence of primary school teachers and teaching assistants in England in teaching/supporting Physical Education and their receptiveness to Play-Based Physical Education.	Quantitative	Questionnaire
Aim three	Study 3	7	Parents and teachers	The accessibility and feasibility of Play-Based pedagogy for Physical Education: pre-intervention data.	Quantitative	Questionnaire
Aim three	Study 3	8	Parents	The accessibility and feasibility of Play-Based pedagogy for Physical Education: post-intervention data.	Qualitative	Interview
		9		Overall discussion and conclusion.		

Ethical approval for the studies was gained from Oxford Brookes University Research Ethics Committee, registration No. 201496 (Chapters 4-6), registration No. 231671 (Chapters 7-8)

Chapter Two: Literature

In this chapter, the concepts previously introduced will be examined in detail: physical activity, physical literacy, play, primary PE, and linear and non-linear pedagogy. Physical activity will first be explored, as supporting long term physical activity participation in children is the end goal of this thesis; in order to achieve this the development of physical literacy is important. One way to support children's development of physical literacy is through play, particularly play-based pedagogy in primary PE, as it has been argued by some to be more inclusive and enjoyable for children compared to the current linear approach to PE; this debate will be explored further below. Using PE as the institutional tool to support physical literacy development both in school and at home with parents/caregivers could lead to long-term physical activity participation; however, there are several systemic issues within primary PE in England that need to be discussed. Throughout this chapter, the theoretical and philosophical foundations of these concepts will be explored and discussed. Additionally, barriers to adopting a play-based approach to PE will be considered within the context of primary school PE in England. This section will offer more context-specific information, including systemic issues facing primary PE in England, distinctions between PE and Sport, details on the PE and Sport Policy initiative, factors affecting teachers' confidence in delivering PE, and parental support.

2.1 Physical Activity

Nurturing a positive relationship with physical activity in childhood is important as the decrease in physical activity level seems to start from as young as age 6 (Cooper et al., 2015; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008). Furthermore, physical activity has several physical, psychological and cognitive benefits (Biddle et al., 2019; Bidzan-Bluma & Lipowska, 2018; Dale et al., 2019; De Greeff et al., 2018; Powell et al., 2019; Prakash et al., 2015; Rhodes et al., 2017; Warburton et al., 2006, 2007, 2010; Warburton & Bredin, 2016). However, before discussing these benefits, it is key to understand the term physical activity, where the definition originated, and the World Health Organisation's (WHO) physical activity recommendations for children and adolescents.

In 1985 Caspersen et al. defined physical activity as “*any bodily movement produced by skeletal muscles that results in energy expenditure*” (Caspersen et al., 1985, p. 126). This definition is still widely used within academic literature, with small variations being created over the years (Piggin, 2020). One example is the World Health Organisation's (WHO) definition, which describes physical activity as any bodily movement that *requires* energy expenditure rather than *results* in energy expenditure (WHO, 2010). In addition, policies

across the world have also been informed by this definition, including in Australia and the UK (Piggin, 2020).

As a result, for decades the dominating rationale of physical activity within the PE curriculum around the world has been health related benefits (Matias & Piggin, 2022). Despite there being slight variations to the 1985 definition, the sentiment remains the same, with all definitions focusing on the same areas: energy expenditure, skeletal muscles and bodily movement (Piggin, 2020). However, the concept that all physical activity results in health benefits has been open to criticism; for example, physical combat could count as physical activity, though it does not necessarily produce health benefits for everyone (Piggin, 2020). Thus, it is important that any definition should avoid claims that are absolute in regard to the positive health outcomes of physical activity (Piggin, 2020).

The positive benefits of physical activity are not only extensive but also lifelong (Goenka & Devarajan, 2020). Therefore, the main public health question is how we can encourage more children to be physically active (Goenka & Devarajan, 2020). To do this, an approach that engages individuals, families and diverse communities is needed in order to make physical activity easily accessible and a part of everyday life (Goenka & Devarajan, 2020).

Physical activity is inherently intertwined with the mind. It is also a social activity, shaped by physical and cultural spaces, and inherently is political - these are all areas the original 1985 definition excludes (Piggin, 2020). By accounting for all these factors, a broader definition can help expand how we think about physical activity, and influence how policies are written (Piggin, 2020). Therefore, any definition for physical activity that is now developed should become broader and more holistic, pushing beyond the traditional focus of epidemiology and medicine (Piggin, 2020).

An example would be Matias and Piggin's (2022) proposal of the Unifying Theory of Physical Activity (UTPA), which bridges the gap between disciplines such as kinesiology, PE, public health, and sports science. Doing so provides a shared justification for research and teaching in this field that extends beyond physical health alone (Matias & Piggin, 2022). This theory focuses on four human urges deemed fundamental drivers of physical activity: the urge 'to feel', 'to explore', 'to transform', and 'to connect'. It also acknowledges external cultural, political, and social factors that shape an individual's engagement with physical activity, thus proposing a holistic approach to understanding and promoting physical activity (Matias & Piggin, 2022). Despite this proposed theory and the argument for a more holistic

approach to defining physical activity, the current physical activity recommendations by the WHO for children and adolescents, which are used in this thesis, are based on the 1985 definition.

2.1.1 *Physical Activity Recommendations*

The four parameters used in WHO’s physical activity recommendations are type, duration (time), frequency, and intensity. The definitions can be found in Table 2.1 (WHO, 2010). These four parameters are mentioned throughout the literature on physical activity, particularly intensity, and so it is important to understand these definitions before delving into the research.

Table 2. 1

Definitions of the four parameters used by WHO

<i>Type</i>	“The mode of participation in physical activity. The type of physical activity can take on many forms: aerobic, strength, flexibility, balance.”
<i>Duration</i>	“The length of time in which an activity or exercise is performed. Duration is generally expressed in minutes”
<i>Frequency</i>	“The number of times an exercise or activity is performed. Frequency is generally expressed in sessions, episodes, or bouts per week”
<i>Intensity</i>	“Intensity refers to the rate at which work is being performed or the magnitude of the effort required to perform an activity or exercise”. Moderate-to-vigorous intensity (MVPA) is often focused on in physical activity research (Rhodes et al., 2017).

These recommendations are split into several categories: early years children aged 0-4 years, school-aged children and young people 5-17 years, adults aged 18-64 years, and older adults aged 65 years and older (WHO, 2020). Physical activity for children and young people aged 5-17 years includes a variety of types, such as but not limited to play, Physical Education (PE), and planned activities with family, school, or community (WHO, 2010). As this thesis focuses on primary school children (ages 5-11 years), Table 2.2 provides an

overview of the physical activity recommendations for children and young people aged 5-17 (WHO, 2020).

Table 2. 2

WHO recommended physical activity guidelines

Recommendation for physical activity
“Children and adolescents should do at least an average of 60 minutes per day of moderate- to vigorous-intensity, mostly aerobic, physical activity, across the week.”
“Vigorous-intensity aerobic activities, as well as those that strengthen muscle and bone, should be incorporated at least 3 days a week.”

Although physical activity ranges from very sedentary and inactive behaviour to extremely active, studies on physical activity typically categorise participants based on meeting the global physical activity recommendations either from the WHO or country-specific recommendations (Rhodes et al., 2017). These guidelines focus on moderate-to vigorous-intensity physical activity (MVPA) as this level of intensity is associated with substantial lifelong health benefits (Farooq et al., 2020). However, a significant annual decline in MVPA has been found in children from age 6 (Farooq et al., 2020). Given the range of physical, psychological, and cognitive benefits of physical activity, a decline in MVPA at a young age is concerning.

2.1.2 Physical Benefits

Participating in regular physical activity in adulthood has been linked to the primary and secondary prevention of various chronic medical conditions, such as stroke, obesity, breast cancer, and type 2 diabetes (Powell et al., 2019; Rhodes et al., 2017; Warburton et al., 2006, 2007, 2010; Warburton & Bredin, 2016). Physical activity is also associated with various health benefits in school-aged children and young people ages 5-17 years, including controlling blood pressure, bone mineral density and depression (Janssen & LeBlanc, 2010). In children aged between 3 and 6 years, bone health improves; in those aged 6-17, it improves cardiorespiratory and muscular fitness, bone health, and cardiovascular risk factor status (Powell et al., 2019). Increasing physical activity may also be sufficient for many children in preventing the onset of obesity, and is positively associated with motor skills

(Wyszyńska et al., 2020; Zeng et al., 2017). Thus, some have suggested that research focusing on the physical activity patterns of children who may be overweight at the start of primary school is essential (Jago et al., 2020). Identifying these patterns could provide necessary information on how to support this group of children to remain physically active (Jago et al., 2020).

2.1.3 Psychological Benefits

Among children and young people, reviews have found an association between physical activity and mental health, mainly when focusing on depression, self-esteem and cognitive function (Biddle et al., 2019; Dale et al., 2019). Between the ages of 10 and 24, many children and young people will experience mental health problems, with the most frequent conditions in teenage years including anxiety, depression, eating disorders and self-harm (Hagell & Shah, 2019). In 2023, National Health Service (NHS) Digital in England conducted its fourth follow-up report to the 2017 Mental Health of Children and Young People (MHYCP) survey (Treloar, 2023). It was estimated that 20% of young people aged 8-16 years had a probable mental health disorder (increased from 13% in 2017). Furthermore, children aged 11-16 were more likely to have a probable mental health disorder (23%) than those aged 8-10 (16%) (Treloar, 2023). Ultimately, ill mental health can have a negative impact on a person's well-being, affecting family relationships and reducing their ability to socialise, engage with education, and participate in recreational activities (Hagell & Shah, 2019). Physical activity could provide the support needed to reduce and potentially mitigate these negative effects on children and young people's well-being.

As physical activity has a protective role in supporting mental health, it could be used as a coping strategy by children and young people (Faulkner et al., 2020; Koziel Ly et al., 2022). Young people have rated physical activity as a therapy that is likely helpful for mental health (Jorm & Wright, 2007). Additionally, a scoping review exploring physical activity and exercises in promoting young people's mental health found that in 17 studies, physical activity has been seen to improve mental health in several areas such as body image, self-esteem, social skills and self-perception, thus could be used as a mental health-promoting strategy (Pascoe et al., 2020). Similarly, a positive association between psychological well-being and physical activity was also demonstrated in a systematic review of 114 studies (Rodriguez-Ayllon et al., 2019). Likewise, the Active Lives Children and Young People survey, which had over 100,000 responses from and on behalf of children and young people aged 5-16, found a positive association between mental well-being and physical activity

levels (Sport England, 2023a). Thus, some have suggested that increased physical activity could enhance the mental health of children and young people. Furthermore, sedentary behaviour, life satisfaction, and happiness were inversely associated among children and young people (Rodriguez-Ayllon et al., 2019). Other research has also found that increasing physical activity levels in adolescents could potentially reduce the risk of emotional problems such as easily losing confidence, feeling unhappy often, and various other emotions (Bell et al., 2019).

However, this level of consistency across the literature is not found in all research focusing on the social and psychosocial benefits of physical activity. A review conducted by Hinkley et al (2014) found inconsistencies among the findings of studies focusing on increased physical activity and the psychosocial well-being of children (Hinkley et al., 2014). Another study found no statistically significant association between social skills and physical activity (Carson et al., 2019). The lack of observational studies available could be one reason for this inconsistency, as many early childhood studies rely on proxy-report, creating more difficulty compared to if children were able to self-report (Hinkley et al., 2014). Furthermore, the lack of consistency in measures used for physical activity and the various psychosocial wellbeing indicators reported could be another reason (Hinkley et al., 2014). However, Hinkley et al (2014) have noted that a large body of research on older children, young people, and adults supports the idea that physical activity can positively affect psychosocial well-being. Based on this, they believe further research amongst the early childhood population is necessary.

2.1.4 Cognitive Development

Physical activity is also positively associated with cognitive development, such as improved memory function, verbal functions and academic performance (Bidzan-Bluma & Lipowska, 2018; De Greeff et al., 2018; Prakash et al., 2015). A meta-analysis of 31 studies found that acute physical activity positively affects attention, while longitudinal physical activity programs positively affect executive functions, attention and academic performance (De Greeff et al., 2018). Another meta-analysis also found a positive association between physical activity and cognition in children (Sibley & Etnier, 2003). Additionally, subjective physical activity and non-organised physical activity have both been significantly positively associated with vocabulary in children aged 2-4 (Carson, Rahman, et al., 2017). Carson et al (2017) used both subjective (parental reporting) and objective (accelerometer) measures of

both physical activity and sedentary behaviour to determine the association with cognitive development. There was no association between objectively measured physical activity and cognitive development, however, there was a positive association with subjectively measured physical activity (Carson et al., 2017). Though, it is important to remember this positive association was with parental reporting of physical activity, and parents have been known to overestimate their child's physical activity level (Corder et al., 2010, 2012; Hesketh et al., 2013). Therefore, this positive association should be taken with caution. Conversely, a positive association was found between physical activity and cognitive function in a randomised control trial; however the association was with objectively measured physical activity (Altenburg et al., 2016). MVPA in one versus two bouts a day was examined to determine the effect on Dutch primary school children's selective attention. The physical activity bout was a 20-minute dance workout to moderate intensity, children's heart rate was measured and research staff regularly checked and encouraged children to increase the intensity when not meeting the moderate intensity level (Altenburg et al., 2016). The results suggested that two repeated 20-minute bouts of physical activity a day enhanced selective attention (Altenburg et al., 2016). In addition, a randomised control trial using an afterschool physical activity intervention found that children (aged 7-9) in the intervention group had increased cognitive performance (Hillman et al., 2014). Again, providing support for the notion that physical activity can improve childhood cognition, though, in contrast to Carson et al. (2017), both the studies discussed here found a positive association using objective measures for physical activity.

However, these positive associations are not supported by all. A systematic review found that based on 11 high-quality intervention studies, there is inconclusive evidence regarding the beneficial effect of physical activity interventions on children's cognitive and general academic performance (Singh et al., 2019). This was also found in a review of reviews, where again the evidence on the association between the regular physical activity and improved cognitive performance was inconsistent (Biddle & Asare, 2011). Though, these differences could be based on what aspect of cognitive performance is being researched, while Hillman et al (2014) looked into tasks requiring greater executive control (e.g. cognitive flexibility), Altenburg et al (2016) focused on selective attention, and others have explored memory function, verbal functions and academic performance (Bidzan-Bluma & Lipowska, 2018; De Greeff et al., 2018; Prakash et al., 2015). As cognitive performance

incorporates several skills, including those mentioned above, it could be argued that the inconsistencies are based on what aspect of cognitive performance is examined.

One way in which this active lifestyle can be encouraged is through parents. Previous literature suggests a positive association between parental physical activity and young children's physical activity level, reflecting parents' potential influence on children's lifestyle (Trudeau et al., 2004). Furthermore, children often mirror parental attitudes towards the importance of physical activity, particularly the type of physical activity and its intensity (Anderson et al., 2009). This association shows the significant role parents play in shaping their children's attitudes towards physical activity and their overall health. However, like the literature above, inconsistencies have also been found in research on parental support due to the various ways in which physical activity is measured, both subjectively and objectively (Beets et al., 2010; Cheng et al., 2014; Edwardson & Gorely, 2010; Garcia et al., 2016; Gustafson & Rhodes, 2006; Jago et al., 2017b; Welk et al., 2003). This will be further explored in Chapter 4, where parental perspectives on physical activity will be discussed.

2.2 Physical Literacy

As mentioned in Chapter 1, physical literacy can be defined as “*The motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course*” (Whitehead, 2001, 2010). This definition has been widely used by many and has influenced the Physical Literacy Consensus Statement for England (Edwards et al., 2017; Sport England, 2023b). Developing a country-specific consensus statement has been key, as currently, there is no common understanding of physical literacy, with many countries describing it as a new concept (Carl et al., 2023). With some countries, such as France, not recognising the concept within their curriculum, while other countries, such as Cyprus, report that the idea is encompassed in the curriculum, despite not being explicitly stated (Carl et al., 2023). By having a consensus statement explicitly created for England, it can then be used to further support the continuous development of the primary PE curriculum in England, ensuring it supports children’s physical literacy development. This is critical as physical literacy could be the gateway to increasing physical activity levels and the foundation for lifelong participation (Caldwell et al., 2020).

2.2.1 The Physical Literacy Consensus Statement for England

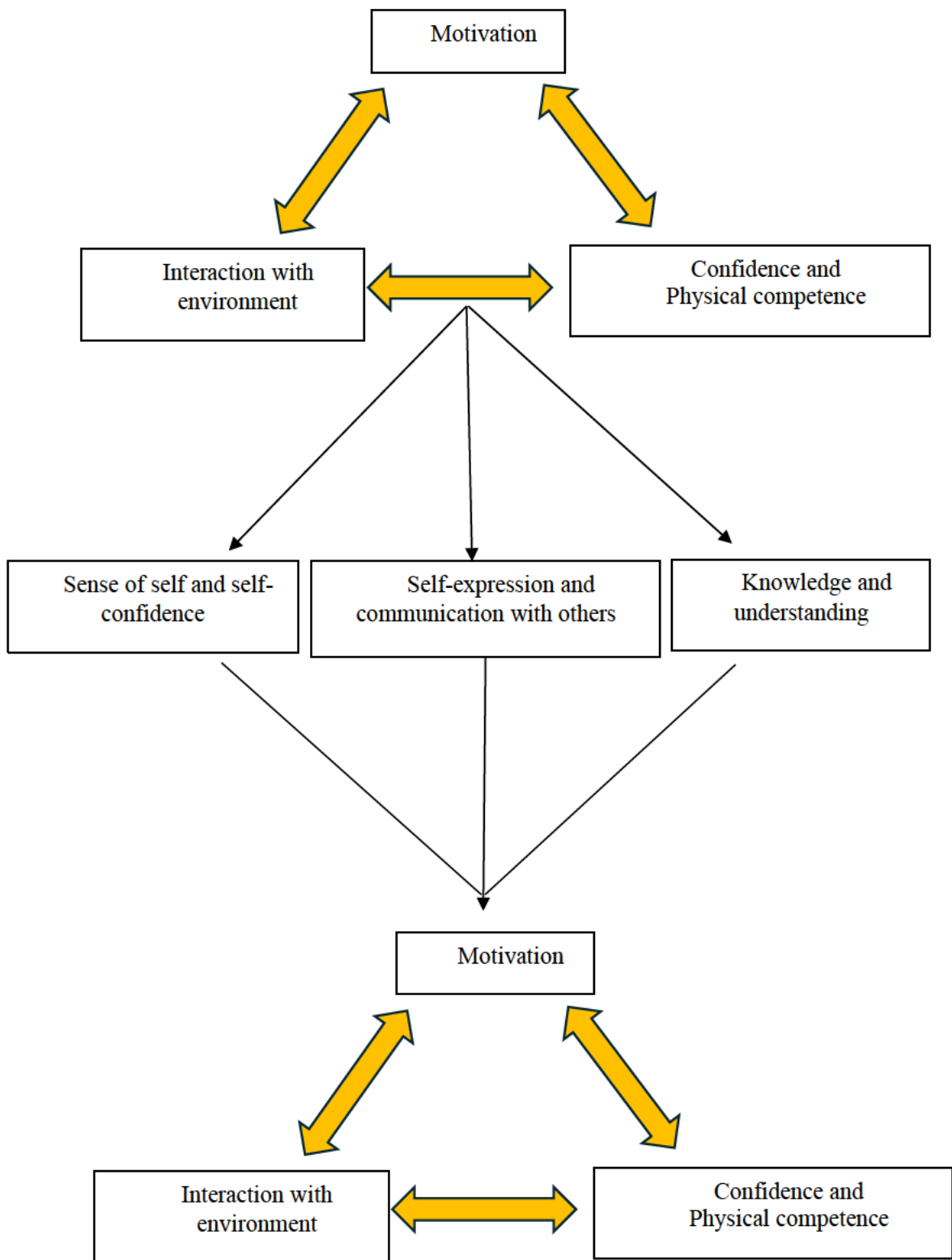
A year-long project was undertaken to develop the Physical Literacy Consensus Statement for England. This project was influenced by Sport England's Active Lives 2020/21 survey, which highlighted the importance of physical literacy for physical activity levels, and by the UK Government's inclusion of physical literacy in their national plan for sport, health, and wellbeing in 2022 (Department for Digital, Culture, Media & Sport, 2022; Sport England, 2021a). The project involved revising the existing evidence on physical literacy, understanding what physical literacy means to the community, including researchers and key stakeholders, and exploring children and young people's perceptions of physical literacy (Duncan et al., 2022; Hurter et al., 2022; Morris et al., 2022). Hurter et al. (2022) found that, despite definitions varying across countries, with 21 identified, most country-specific definitions incorporate the idea of lifelong physical activity participation (Hurter et al., 2022). They also include elements of physical, affective (e.g., confidence), and cognitive domains within their definitions (Hurter et al., 2022). Additionally, several conceptual frameworks or models for physical literacy have been identified, focusing on aspects such as policy considerations, physical education, and the assessment of physical literacy (Hurter et al., 2022). In addition to this research, a large expert panel comprising representatives from various sectors, including sport, health, education, academia, and the community, was recruited to provide a shared understanding of physical literacy (Roberts et al., 2023; Sport England, N.Da). The focus was on adopting a holistic approach to physical activity and movement, emphasising that everyone's experience will be different and unique; therefore, providing an inclusive environment is important (Sport England, N.Da).

2.2.2 The Development of Physical Literacy

While this thesis is based in England, and therefore, the definition of physical literacy in England is important, Whitehead developed the widely used definition for physical literacy: "*the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course*", see Figure 2.1 (Whitehead, 2001, 2010). A systematic review examining the core attributes of physical literacy revealed that, of the 50 papers analysed, 70% (35 papers) adopted Whitehead's perspective (Edwards et al., 2017). Furthermore, papers that included their philosophical and theoretical underpinnings focused on Whitehead's combination of monism, phenomenology and existentialism (Edwards et al., 2017). Notably, eight of these papers were written by Whitehead.

Figure 2. 1

Visual of Physical Literacy Elements



Adapted from Whitehead (2010), pp. 15-16

Whitehead's motivation for developing the concept of physical literacy stemmed from concerns about the undervaluing of movement development in children, the excessive emphasis on elite performance in physical education, and the growing disconnect between physical activity and everyday life (Whitehead, 2010). This concept aimed to establish a holistic understanding of physical activity encompassing motivation, competence, confidence, knowledge, and understanding, thereby fostering a lifelong positive relationship with physical activity (Whitehead, 2010).

As mentioned earlier, the philosophical and theoretical foundations of Whitehead's definition of physical literacy are monism, phenomenology, and existentialism (Whitehead, 2001, 2010). Monists, existentialists, and phenomenologists believe that humans are regarded as a whole, with different aspects recognised but not regarded as separate from each other (Whitehead, 2001). Monism examines the interconnectedness of the various embodiments humans possess; body, mind, and environment (Whitehead, 2010). This contrasts with a dualistic perspective, which separates the body from the mind and the individual from their environment (Plot et al., 2018). Existentialism and phenomenology suggest that an individual is shaped through interaction with their environment (Plot et al., 2018; Whitehead, 2001). Existentialists believe that through engaging with and living in the world, individuals create their sense of self (Whitehead, 2010). These views are consistent with phenomenology, which emphasises that early experiences generate unique perspectives through which individuals perceive the world (Whitehead, 2010).

However, the philosophical foundations underpinning physical literacy present a critical challenge. The combination of these abstract assumptions create a barrier for accessibility and implementation for many researchers and practitioners (Edwards et al., 2017). The need for those who are unfamiliar with the monism, existentialism and phenomenology to engage with detailed philosophy and ontology before applying the concept of physical literacy effectively creates a barrier (Edwards et al., 2017). Consequently, it has been questioned whether it is practical to require every teacher or coach to engage with philosophy before they can implement teaching approaches to support the development of physical literacy (Edwards et al., 2017).

In practice, this lack of understanding leads to reductionism. In PE curricula, physical literacy has mainly been explained as the need for the development of fundamental movement skills (FMS), drawing on the large body of literature on motor learning and theory (Jurbala, 2015). By first learning FMS such as balance and flexibility, children can then learn

to combine them together to learn skills such as agility, the combination of flexibility, balance and coordination (Whitehead, 2010). It is through the development of simple, combined and complex movement skills that an individual can develop their movement competence; though, this is not linear and does not need to follow that order (Whitehead, 2010). However, movement competence is only one element of physical literacy, and while it is a central attribute that a physically literate person would display, competence alone cannot be the only aspect of physical literacy developed (Whitehead, 2010). The reduction of the holistic concept of physical literacy to solely the physical, measurable domain risks undermining the other core aspects, thus defeating the idea of a body and mind approach. All elements of physical literacy are interlink and crucial, especially during primary school years where children's motor competence and self-confidence is formed (Doherty & Brennan, 2014). Developing physical literacy during primary school years significantly relies on teachers conducting PE, as well as adults who lead activity clubs, sports coaches, family and friends (Doherty & Brennan, 2014). Home, school, local clubs, and easily-accessible recreational facilities such as parks are all environments that are needed to support physical literacy development during primary school years (Doherty & Brennan, 2014). It is believed that physical literacy provides clarification on how physical education can make a substantial contribution to young people's education while also showcasing the unique value of physical activity (Capel & Whitehead, 2013). Therefore, making the philosophical and theoretical underpinnings more accessible and easily digestible for all is important, as this could facilitate future studies and the practical delivery of physical literacy (Edwards et al., 2017).

2.2.3 Does the Literature Support the Concept of Physical Literacy?

Studies have found that motivation, confidence, and enjoyment are the most important elements of physical literacy (Duncan et al., 2022; Moore, Edmondson, et al., 2023; Morris et al., 2022). This would align with Whitehead's (2010) understanding that motivation and confidence are important for the development of the remaining elements. An anonymous online survey was conducted for 193 stakeholders who work in spaces which have the potential to develop physical literacy in children (Duncan et al., 2022). The majority of participants had heard of the term 'physical literacy' and demonstrated an understanding of existing definitions or parts of definitions (Duncan et al., 2022). Many also rated elements within affective, cognitive, and social domains as more important than the physical domain. Elements within the physical component (muscular endurance, speed, power) were rated as less important overall; on the other hand, many elements within the affective component (e.g.

enjoyment, confidence, motivation) were rated as extremely important (Duncan et al., 2022). In contrast, in a survey conducted by Youth Sport Trust and YouGov, 61% of parents did not understand what physical literacy was; however, once it was explained, 70% expressed their belief that their child's physical literacy is as important as their child's language literacy and numeracy (Youth Sport Trust & YouGov, 2022).

Similarly, in a study conducted by Morris et al. (2022) with 27 children and young people in England, motivation, confidence and enjoyment were also deemed significant when considering physical literacy, particularly the importance of enjoyment with regard to motivation and engagement in physical activity throughout life. Additionally, support and learning from others were also viewed as valuable, showing how relationships can strengthen a person's physical capability (Morris et al., 2022). These children and young people also spoke about psychological well-being and mental health, particularly in relation to making movement-based activities meaningful (Morris et al., 2022). These conversations demonstrated that the children and young people had significant knowledge and understanding surrounding why moving their bodies is important (Morris et al., 2022).

Sport England also collected data about physical literacy from children and young people in England. They used the Physical Literacy Association's definition, which has four elements: confidence, motivation, competence and knowledge and understanding (Sport England, 2022). They used the definition to create statements to cover each attitude; an example for competence is "I find sports easy". For Years 1-2 (aged 5-9 years), they focused on competence and enjoyment; for the remaining Years, 3-11 (aged 7-16 years), they included the remaining elements. Results showed that for children in Years 1-2, 58% of the children love sports (enjoyment), 63% love being active (enjoyment), and 82% find sports easy (competence). For children in Years 3-11, the scores were the following: 47% for enjoyment, 35% for confidence, 21% for competence, 64% for understanding, and for children in Years 7-11 specifically, results for knowledge were 35% (Sport England, 2022). These results suggest that as children age, their enjoyment and competence are reduced.

Likewise, the data show that as children age, their physical activity levels decrease (Cooper et al., 2015; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008; Sport England, 2022, 2023a, 2024). Thus, this suggests that the reduction in enjoyment and competence could be linked to lower levels of physical activity. In addition, a study on Canadian children found that the total physical literacy score was low, although the following were at "progressing level": physical competence, motivation, confidence and daily behaviour

(Tremblay et al., 2018). On the other hand, knowledge and understanding were at a desired level of “achieving” (Tremblay et al., 2018).

However, it is necessary to discuss that, despite the rise in interest in physical literacy globally, the development of scientific and practical evidence is not equally distributed across all countries (Carl et al., 2023). Despite the rise in interest, the primary challenge currently is the lack of empirical data to support the concept of physical literacy (Green et al., 2018). Appropriate means of assessing or measuring the progress of physical literacy development is crucial in order to create evidence based research (Green et al., 2018). Most countries have described physical literacy as a new concept, with several non-English speaking countries expressing the difficulties in finding a sufficient translation for physical literacy, as currently there is no common understanding of the concept (Carl et al., 2023). This lack of global clarity directly hinders the development of validated and reliable assessment tools that are capable to holistically measure all the components of physical literacy. While there have been attempts to assess physical literacy, they have focused on the affective, physical and cognitive domains individually rather than integrating them (Green et al., 2018). This is believed to have been done in an attempt to showcase progress to research funders, parents and other key stakeholders (Green et al., 2018).

Currently, there are many countries (e.g., France, Romania, Sweden) where physical literacy is not recognised as a concept or principle within the curriculum. However, some countries, such as Wales, Cyprus, and Scotland, have reported that, although physical literacy is not explicitly stated, their existing curricula do encompass the idea of it (Carl et al., 2023). In contrast, Greek and Danish schools have incorporated physical literacy into their curricula. In essence, there are only a few countries where physical literacy serves as the foundation for learning in education (Carl et al., 2023). This is not surprising, as physical literacy has yet to make a significant impact, with the primary focus in PE literature currently debating how it should be defined and whether it is a concept that can be measured (Rudd et al., 2021a). If physical literacy cannot be defined or measured, it then raises the question of whether a pedagogical approach to PE can be created that supports the development of physical literacy. Furthermore, lack of definition would create a barrier to teaching educators about the concept of physical literacy. To better understand this in the context of England, the primary school National Curriculum will be explored in the next section of this chapter.

Regardless of the current uncertainty surrounding physical literacy in the literature, one clear thing is that both stakeholders and children and young people value enjoyment,

confidence, and motivation for participating in physical activity (Duncan et al., 2022; Morris et al., 2022). Furthermore, with the age of physical activity involvement decline being similar to the age of decline in children's enjoyment and competence, (Cooper et al., 2015; Jago et al., 2017a; Jago et al., 2020; Nader et al., 2008; Sport England, 2022), there is room to argue that developing children's physical literacy is important, regardless of the acceptance of the concept worldwide.

2.3 Play

One way to support the development of children's physical literacy and enjoyment of physical activity would be through play. As children do not view play as challenging work; instead, they see it as fun and exciting (Klein & Beach, 2023). When considering play as a whole, outside of the context of physical activity, it offers several benefits and is a key factor in fostering creative thinking behaviours (Cheung, 2018; Taylor & Kervin, 2022). During play, children are more likely to generate ideas, experiment with them, evaluate their outcomes, and learn about real-life situations (Cheung, 2018; Klein & Beach, 2023). Moreover, through play, children can develop their capacity to build friendships and social skills, which are vital for fostering motivation and participation in school (Khalil et al., 2022). Play also helps children become familiar with new environments and enables them to express their concerns and feelings, as seen in settings such as hospitals (Koukourikos et al., 2015). Ultimately, play supports the holistic development of children: physically, intellectually, socially, and emotionally (Lunga et al., 2022).

In the context of physical activity, play is an activity that is free, pleasurable, and voluntary (De Rossi et al., 2012). Through play, children can be creative and original in expressing themselves, which boosts their self-esteem in an enjoyable environment (De Rossi et al., 2012). It is the enjoyment and flexibility of play that foster the development of physical literacy in children. A study conducted in China found that a play-based intervention for children aged 5-6 years positively influenced their physical literacy (Liu et al., 2025). A total of 146 children participated in this study, which examined whether a structured play-based intervention could enhance physical literacy in preschool children. The children were divided into two groups: intervention and control. Results indicated that the intervention group showed significant improvements in movement skills compared to the control group. Additionally, the intervention effectively increased their motivation and enjoyment of

physical activities; the play-based approach enhanced their physical literacy (Liu et al., 2025).

Considering the psychological and social benefits of play, its role in learning has been extensively researched and debated (Taylor & Kervin, 2022). Learning through play can provide both academic and physical well-being benefits (Ali et al., 2018). Ensuring children have opportunities to be physically active in the classroom supports their physical development (Ali et al., 2018). Given that play emphasises flexibility and adaptability, it aligns naturally with a non-linear pedagogy approach to teaching. To fully understand how play-based teaching could be used to support the development of physical literacy in PE, it is necessary to first explore non-linear pedagogy.

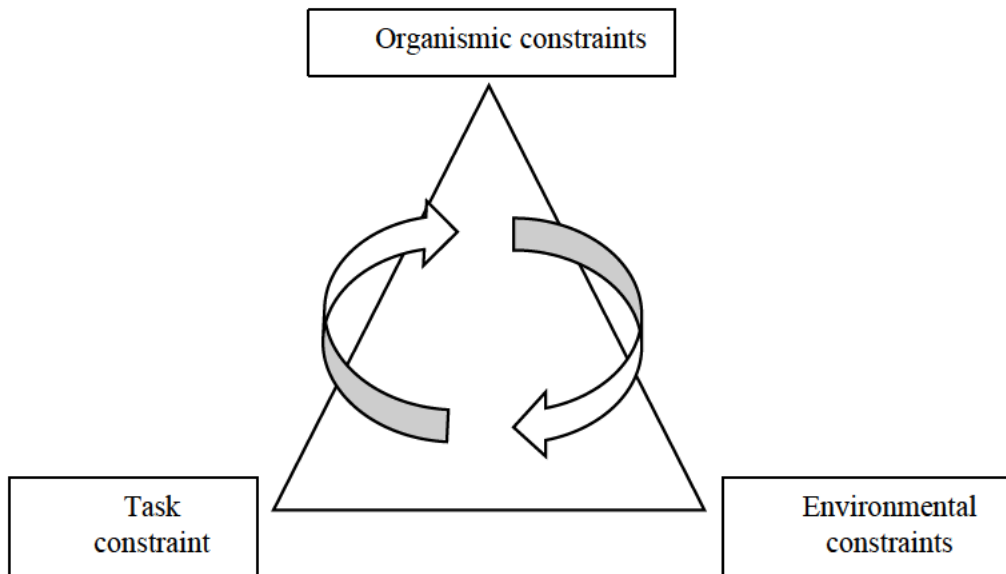
2.3.1 Non-Linear pedagogy

A non-linear pedagogical approach encourages students to be more flexible learners, providing them with skills such as adaptability and responsiveness that can be used in ‘real life’ (Chow & Atencio, 2014; Valeh et al., 2020). Non-linear pedagogy has been developed based on ecological dynamics (Crotti et al., 2021). Ecological dynamics is a multi-disciplinary framework that has adopted concepts from three theories: dynamic system theory, ecological psychology, and a complex systems approach to neurobiology (Seifert et al., 2022). The integration of ideas from these theories has provided the theoretical framework for ecological dynamics as a basis for understanding sport performance and skill gaining in the context of sports (Chow et al., 2016). A practical application of the ecological dynamics is the constraint led approach. The dynamic interactions between the constraints (individual, environmental and task) during a learning situation direct the learner to discover functional behaviours likely to succeed and achieve learning (Chow & Atencio, 2014).

The three factors mentioned in the constraint-led approach, organismic, environmental and task constraints (also known as boundaries) were developed by Newell (1984a), see Figure 2.2 for Newell’s model (Newell, 1984a, cited by Newell, 1986).

Figure 2. 2

Newell's model of constraints for motor development



Newell's model can be used to understand how individuals develop and learn movements. The top of the triangle in Figure 2.2 shows organismic constraints (also known as individual constraints). These can be either anthropomorphic (e.g. weight, height) or functional (e.g. ability, developmental disorders), they are constraints within an individual. They can also be socio-cultural (e.g. family, social values). Environmental constraints are external to the individual's body and cannot be manipulated by others (e.g. natural light, rain, a group of runners in the park). On the other hand, task constraints are created by the activity in question and can be changed or altered by a teacher or a coach (e.g. rules to follow, goals, equipment), (Newell, 1986; Renshaw & Chow, 2019; Sigmundsson et al., 2017). Simply, a constraint-led approach to non-linear pedagogy uses the interaction of different constraints to teach, and these constraints will result in a learner attempting to create effective movement solutions (Newell, 1986; Renshaw & Chow, 2019).

In the context of PE, a non-linear approach moves away from the traditional models of teaching that focus on linear learning; where it is believed there is one way to successfully learn a skill, and so children are taught to perform perfect movement skills in the "correct" way (Chow & Atencio, 2014; Crotti et al., 2021; Lee et al., 2017). Instead, a non-linear pedagogical approach allows children to explore learning, emphasising children individually creating movement solutions (Rudd et al., 2021a). There are many different methods of

teaching that align with the principles of non-linear pedagogy, and use the constraint led approach, such as Teaching Games for Understanding (TGfU) and models based practice (MBP) (Casey & MacPhail, 2018; Chow et al., 2007). TGfU focuses on tactics and decision making in games (Chow et al., 2007). TGfU is one of the most commonly adopted methods to teaching to support children's understanding between tactical skills and real world context application (Claudia, 2022). Although this approach has its strengths, the predominant focus on tactical skills seems more suitable for PE that focuses on strategic games and sports, steering away from a play-based approach that would be more inclusive of all children and focus less on sports and skill-based games. Other approaches such as models-based practice (MBP), strive to allow students to experience PE through models chosen by the teachers to understand and meet the needs of the students while also meeting the PE curriculum (Casey & MacPhail, 2018). Though, when using the MBP approach several models can be used such as Cooperative Learning, Sport Education, TGfU and Tactical Games, all of which can use the constraint-led approach (Casey & MacPhail, 2018; Dockerty & Pritchard, 2025). Play-based pedagogy is also a non-linear approach to teaching children, though, the literature surrounding play-based pedagogy and PE is limited. Therefore play-based pedagogy will broadly be discussed next, followed by play-based learning and the literature on play-based PE specifically.

2.3.1.1 Play-based Pedagogy

Play-based pedagogy exists on a continuum, ranging from child-directed to collaborative to teacher-directed (Pyle & Danniels, 2017). Within these categories, there is free play, which is entirely child-directed and contrasts with direct instruction; this type of pedagogy offers children more opportunities through play to take the lead in their learning (Pyle et al., 2018; Pyle & Danniels, 2017). Inquiry play, which is initiated by the child but can involve teachers integrating academic skills; collaboratively designed play, also known as guided play, involves a partnership between teacher and child; playful learning, which combines academic skills with play; and learning through games, which are completely teacher-directed (Pyle & Danniels, 2017). In a paper examining the teacher-guided and hands-off approaches to teaching via play, the teacher-guided approach showed children demonstrating persistence, commitment to completing challenges, a willingness to take risks, and tolerance for failure, essentially a can-do attitude (Cheung, 2018). Guided play underscores the importance of adult involvement in embedding or extending academic content within children's play ((Pyle et al., 2018). The findings highlight the need for a balanced pedagogical approach that

incorporates various learning contexts, including direct instruction, free play, and guided play, as each offers distinct benefits (Pyle et al., 2018).

In a study exploring the role of active play in improving children's physical literacy, De Rossi et al. (2012) found that children enjoy both structured and unstructured play. While play involves active engagement and rules, these rules are modifiable by the participants and children like this (De Rossi et al., 2012). When discussing the difference between sports and play, the children highlighted the fact that in play, the rules are flexible and adaptable, allowing for changes to be made based on individual differences and environmental conditions (De Rossi et al., 2012). The possibility to adapt and change puts children in the centre of decision making, allowing them to learn how to manage unexpected situations or conflicts (De Rossi et al., 2012). This idea children have of play allowing them to adapt to individual differences and environmental factors is also used in the constraint-led approach and explored through complexity thinking.

Complexity thinking provides a different way to view education, as it consists of parts that both self-organise and interact with one another within their own structure, while also interacting with the external environment in which they operate in (Carse et al., 2018; Jess et al., 2014). When viewing education through a complexity thinking lens, children, teachers, lessons, schools, policy makers and governments are all viewed as complex self-organising systems (Carse et al., 2018). They all interact with one another to create an education system that is also settled in the political system (Carse et al., 2018). To further understand the process of interaction between these elements, an ecological view has been applied to primary PE within this education system, where individuals (e.g. children, teachers) interact with tasks (e.g. learning experience) within an environment that has been influenced by sport, education and health agendas (Carse et al., 2018). Essentially, an individual and the environment cannot be defined without one another (Jess et al., 2014).

As children move through life, they are met with continuous new situations, which would be seen as new starting points represented as interactions between themselves (individual), new tasks, and the environment they are in (Jess et al., 2016). From a complexity perspective, these new starting points would be described as the interaction between the self-organising individual and the various constraints created by the current environment, the individual and the new task (Jess et al., 2016). Even if children face similar constraints, each child will respond to or interpret these barriers differently, in their own self-organising way (Jess et al., 2016). Thus, suggesting that when thinking about learning, each child would engage with a

new task from a different starting point, as this would be based on their previous experiences, personal interpretations of the various constraints, and current capacities, which would all shape their initial engagement with the task at hand (Jess et al., 2016). Similarly from a bioecological perspective children develop through proximal processes; reciprocal interaction with the surrounding environment consisting of subject, object and intersubjective elements (Högman et al., 2020). In regard to physical activity, proximal processes occur when sustainable physical activity behaviours such as motivation or competence develop (Högman et al., 2020). Thus implying that through interactions with their surroundings, children will develop behaviours needed to maintain physical activity behaviours. This environment could include school or home.

Children continuously self-organise continuously through both conscious and subconscious interactions that happen externally with the environment, task and teacher, and internally with themselves (Jess et al., 2014). By viewing the education system through both complexity thinking and an ecological approach, learning is observed to be non-linear and different for each child; therefore, having a pedagogical approach that nurtures teaching holistically is key. While a constraint-led approach could also be used in linear pedagogy to develop skills such as those in sports, its use in a play-based context allows children to adapt rules themselves and make games more flexible, as highlighted by children in the De Rossi et al (2012) study. Children would be able to modify games based on individual boundaries, the equipment available and the environment, providing them with a level of autonomy over their learning.

In addition to the literature that focuses on play-based pedagogy, the benefits of play-based learning have also been researched. While play-based pedagogy explores how play can be used to teach, play-based learning focuses on the implications of teaching through play. Similar to the research on play-based pedagogy, there is currently little evidence that explicitly focuses on PE, therefore play-based learning will generally be discussed.

2.3.1.2 Play-based Learning

Play-based learning supports child development, motor development, building creativity and skills such as problem-solving and risk management (Klein & Beach, 2023; Suherman et al., 2019). It also allows students to discover and enjoy their accomplishments, as it creates a stress-free learning environment (Klein & Beach, 2023). Another benefit of play-based learning, particularly in PE, is its inclusivity (Klein & Beach, 2023); a systematic review

found that 35 papers showed that play-based learning provided benefits for children with Autism Spectrum Disorder aged 0-21 years (Wilson, 2020). This form of learning could help improve social and communication skills (Koukourikos et al., 2015; Wilson, 2020). This is important because the early years could be a sensitive period where the foundations of social competence are built, setting the stage for later social development (Zhao & Gibson, 2022). In a Canadian study, all educational professionals and leaders agreed that a play-based pedagogical approach was likely the best way to teach children based on their needs developmentally, cognitively, socially and health-wise (Jachyra & Fusco, 2016). Additionally, parents believe play has physical and psychological benefits (Ali et al., 2019). These include children remaining healthy, learning emotional and behavioural control, sharing and playing with others, problem-solving, brain development, language and socio-emotional development (Ali et al., 2019).

In the Netherlands, play-based learning is used in around 5% of primary schools for vocabulary development (Van Oers & Duijkers, 2013). On the other hand, in Ontario, Canada, play-based learning has been fully implemented in full-day kindergartens since 2014. As a result, it has been an ideal setting to explore the role of play-based learning in an academic setting for many studies (Fesseha & Pyle, 2016; Jachyra & Fusco, 2016; Pyle et al., 2018; Pyle & Danniels, 2017). This approach is also being used in Wales, where a curriculum called the 'foundation phase' was created; this is for children aged three to seven years and includes four key features: *"play-based active learning; focused adult-led sessions; child-initiated learning; use of the outdoor for learning"* (Wainwright et al., 2016). The aim of this curriculum is to *"develop independent, motivated and active learners"*. By implementing this phase using a play-based approach, a balance between child-initiated and adult-led learning, mainly using the outdoors, they were developing students who had a motivated, independent and active approach to their learning (Wainwright et al., 2016). However, it is necessary to know that this curriculum did not have a PE subject specifically; although it did contribute to physical literacy development, it lacked specific physical skills development such as object control (Wainwright, 2014). Play does not just have benefits for children's overall well-being; play has shown to have an integral part in influencing young children's literacy and numeracy trajectories as these develop rapidly during early childhood years, and play-based scenarios and environments have a lot to offer those learning (Taylor & Kervin, 2022; Vogt et al., 2018).

2.3.2 Stakeholders' Perception of Play-Based Pedagogy

Solely knowing the benefits of play-based pedagogy is not enough though. Rather, it is necessary to explore the views of teachers and parents. This is due to the vital role they play in delivering and supporting this approach. A systematic review focusing on early childhood education teachers' views on play-based learning, including 62 papers from 24 countries, found that overall, many teachers see the link between play and learning and believe that play contributes to the development of children socially, emotionally, cognitively, and linguistically (Bubikova-Moan et al., 2019). However, some teachers expressed concern and scepticism about the effectiveness of play-based activities for learning (Bubikova-Moan et al., 2019). Conversely, other professionals have reported that play-based learning provided them opportunities to create cross-curricular learning between subjects such as maths and literacy (Jachyra & Fusco, 2016). Kindergarten teachers in Canada have expressed that play develops academic skills alongside personal and social skill development (Pyle & DeLuca, 2017). These teachers support the idea that they, as teachers, have an essential role in children's play and expressed the need for child-led play alongside directed play (Pyle & Danniels, 2017). The need for a connection between direct instructions and children's play is important in supporting children's understanding of academic concepts (Pyle & Danniels, 2017). Many teachers in Scotland have been enthusiastic about moving towards a play-based curriculum; however, their understanding of this approach and its purpose varies (Martlew et al., 2011). The need for this pedagogy that incorporates play in the early years of education creates challenges for some teachers, as it requires them to create an appropriate learning context that would allow them to follow children's interests (Martlew et al., 2011).

Despite the overall positive view of play-based learning, there are some barriers and difficulties that come with this approach to learning. Educational professionals have felt a disconnection between play-based learning and the increase in teaching strategies to prepare children for standardised tests, and raised this as a challenge they face (Jachyra & Fusco, 2016). Due to this focus on tests, despite the potential of play-based curricula meeting students' playful and imaginative needs, they continue to suffer scrutiny and are hindered; this is further constrained by parental and school board expectations regarding achievement (Jachyra & Fusco, 2016). Teachers have also expressed that the legitimisation of the approach was a cause of tension; the teachers frequently spoke about how implementing a play-based approach was not valued within the school community (Nolan & Paatsch, 2018). Kindergarten teachers have also expressed the challenges of balancing the academic

expectations from the curriculum and the play-based pedagogical approach that is now required in the Ontario kindergarten class (Pyle & Danniels, 2017). Various barriers have been discussed across many countries; these include limited space in school, inadequate resources, policy and pressure to deliver the curriculum, lack of training and skills about the approach, teacher-to-child ratio, difficulty in finding time to prepare and also teach using this approach, difficulty in meeting curricular standards using play, the focus on standardised tests, parental perception of play, and pressure for academic success (Bubikova-Moan et al., 2019; Fesseha & Pyle, 2016; Jachyra & Fusco, 2016; Martlew et al., 2011; McInnes et al., 2011; Singh & Gupta, 2012).

Furthermore, the development of a consistent definition of the construct of play-based learning is important, as this could be a barrier. Fesseha & Pyle (2016) conducted a study to understand Canadian kindergarten teachers' definition of play-based learning, and the results showed two different definitions emerged: "play for social development" and "play for holistic development of social and academic skills" (Fesseha & Pyle, 2016). Due to this lack of a concrete definition for play-based learning, they found that more than half of the teachers did not implement play-based learning; instead, they applied play without intentional integration of academic skills within their classroom (Fesseha & Pyle, 2016). A clearer definition could also help parents better understand play-based learning. Parents play a crucial role in the successful implementation of play-based pedagogy both in school but also their child's wider physical education outside of school, which could support the continued development of their physical literacy and physical activity behaviours. However, they can also be seen as a challenge and potential barrier for many teachers, as their perception of play may vary based on ethnicity, culture, or socioeconomic status. Although some parents have a positive attitude towards play, they may lack clear and specific knowledge about its benefits for their child's development (Ali et al., 2019).

The overall sentiment is that play-based learning is beneficial for children's psychological and social development, with key educational figures believing that play is important (Ali et al., 2019; Bubikova-Moan et al., 2019; Jachyra & Fusco, 2016; Klein & Beach, 2023; Koukourikos et al., 2015; Pyle & DeLuca, 2017; Suherman et al., 2019; Wilson, 2020). However, this level of importance is not translated when implementing play-based learning, as these stakeholders question how a play-based pedagogical approach could be used to maintain the academic attainment needed. While these studies do not focus on PE, they provide guidance for how to implement play-based learning for PE. Given the importance of

PE and the benefits of play for physical activity, using this form of teaching could provide children with an environment that is fun, fosters a positive attitude towards PE, and allows children to develop their physical literacy.

2.3.3 Play-based PE

Children find play ‘fun’, and so for young children a combination of free play and guided play is recommended to best support learning (Armstrong & Sutherland, 2020; Keung & Fung, 2021). However, when focusing on PE, guided play has been recommended for incorporating play-based learning, as it includes free play (Klein & Beach, 2023). This is important to understand because play-based pedagogy is not just about play alone, it also incorporates teacher involvement in play (Klein & Beach, 2023). Teaching PE in an enjoyable manner is important as it could potentially affect children’s uptake of physical activity beyond school context (Jefferson-Buchanan, 2022). Therefore, a shift from primary skill and game-based instruction for pre-kindergarten students to a non-linear pedagogical approach to teaching PE, in the form of play-based PE is being advocated (Armstrong & Sutherland, 2020). Non-linear pedagogy in the form of play, using the constraints-led approach, can be beneficial in the PE context as it shifts the central focus away from children’s performance, which is traditionally the teaching approach, to a more self-directed space (Jefferson-Buchanan, 2022).

Up until now, the terms play-based learning, non-linear pedagogy, and play-based PE have all been used. Play-based PE is an example of both play-based learning and non-linear pedagogy; therefore, from here the term play-based PE will be used throughout the thesis. However, in studies where non-linear pedagogy is discussed outside of the context of play, they will not be discussed as using play-based PE. A key part of the National Curriculum for primary PE in England is learning fundamental skills. It has been suggested that teaching through play-based PE would be better than a traditional and less enjoyable way (Jefferson-Buchanan, 2022). This form of pedagogy can be beneficial in the PE context as it shifts the central focus away from children’s performance, which is traditionally the teaching approach, to a more self-directed space (Jefferson-Buchanan, 2022). Thus, educators play a crucial role in ensuring that children, regardless of their competence and confidence levels (elements of physical literacy), can still achieve the learning objectives of fundamental movement skills at their level. Furthermore, developing these skills can be supported through play-based PE because the educators have more time to become catalysts and facilitate learning (Jefferson-Buchanan, 2022).

Using the constraint-led approach, task demands could be changed in play-based PE to help develop fundamental skills. These task demands could include speeding up or slowing down a particular skill, changing equipment through size, height, or resources (Jefferson-Buchanan, 2022). For example, for throwing, teachers could use play-based PE to change task constraints such as ball sizes and material (Klein & Beach, 2023). Adding a constraint allows the students to explore and figure out which kind of ball they find easiest to throw (Klein & Beach, 2023). This inclusive way of teaching would support the National Curriculum for PE, not only through teaching fundamental skills in a fun way, but also with increasing competence and confidence, of which are two elements that help develop physical literacy. Ultimately, play-based PE has potential to support children maintaining life-long physical activity.

Notably, play has primarily been explored in children, and so little is known about play for older students. As play is a central part of the Norwegian PE curriculum across all years, this study investigated how play is structured by teachers in lower and upper secondary school (aged 13-16), (Sæther et al., 2023). Four teachers from separate schools were observed and individually interviewed. These teachers expressed that with the assessment demand not aligning with play, this limited their ability to create space for play-based learning (Sæther et al., 2023). Furthermore, how play is structured in PE will more than likely always be motivated by the learning objectives that will need to be assessed (Sæther et al., 2023). As a result, they prioritise activities that have rules, such as sport activities. Thus, making it difficult to step away from the central part sport currently plays in PE (Sæther et al., 2023). Though this study is based on secondary school PE, these challenges could also be met in England due to the current difficulty in distinguishing between PE and sports. Therefore, when implementing play-based PE, it is important to ensure that teachers are supported and educated in this non-linear pedagogical approach. This will be further explored in Chapters 7-8, where play-based PE will be implemented in an intervention that provides teachers with support. Despite the growing literature and move towards a more holistic approach to teaching PE, the current way in which PE is being taught in primary schools is very linear. While common teaching practices in primary PE consist of direct command and practice-based approaches have a place in children's learning, consideration is needed for the educative purpose these approaches provide PE (Pill et al., 2024).

2.4 Primary School Physical Education

In Chapter 1, primary PE in England, as defined by the DfE was introduced and briefly discussed. However, in this thesis primary PE extends outside of school and further than just the subject itself, it involves parents/guardians at home. As previously mentioned the DfE believe that PE should empower all children to lead active and healthy lives (Department for Education, 2024). The aim of including parents is to extend this support beyond school. The purpose of involving parents is to extend this support beyond school. Physical education at home with parents goes beyond the classroom but shares the same aims and principles: nurturing and developing children's physical literacy to promote lifelong participation in physical activity (Department for Culture, Media and Sport et al., 2023; Department for Education et al., 2019). Parents can support their child's overall physical education outside of school by encouraging physical activity, engaging in physical activities with their child, and speaking positively about PE. The goal is to equip parents with the knowledge and support needed to help their child develop a positive attitude towards physical activity. Parental support, including motivation, encouragement, providing transport, and participating in activities with their child, has been identified as important in shaping children's attitudes and behaviours (Beets et al., 2010; Edwardson & Gorely, 2010; Trost et al., 2003; Trost & Loprinzi, 2011; Welk et al., 2003; Zecevic et al., 2010). Further discussion on parental influence and support with PE can be found in Chapter 5.

Given the numerous benefits of physical activity, and the decline in physical activity levels starting as young as 6, finding a way to promote and support positive physical activity participation in childhood should be of importance. One way to do this would be through primary PE, as across the primary school years children, on average, experience roughly 500 hours of PE lessons, based on the guidelines for 2 hours of PE per week in each year (Doherty & Brennan, 2014). Therefore, PE could be the optimal tool to support physical activity levels by developing children's physical literacy, although this may depend on how PE is taught. PE is a resource provided by schools to promote physical activity and teach physical skills (Giblin et al., 2014). It has been suggested that PE can influence children's approaches towards physical activity, thus having the potential to impact their physical activity behaviour (Coulter et al., 2020). Through PE, children can learn motor competence, understanding of rules, strategies and tactics, and healthy participation in PE, physical activity, and sport to boost confidence (Department for Education, 2024). Developing competence in PE is vital due to its link to motivation and enjoyment, which can foster

confidence and engagement in physical activity and sport (Ofsted, 2023). These are core components of physical literacy, as defined by Whitehead (2001,2010), recently emphasised more by the DfE and Ofsted (Department for Education, 2024; Department for Education et al., 2019; Ofsted, 2023). Though, whether primary PE currently executes these expectations set by the DfE through the linear approach to teaching used needs to be discussed.

2.4.1 Linear Pedagogy

Traditionally, primary PE in England is taught using a linear approach, which focuses on teaching sports using repetition to learn technique and skill (Kirk, 2010). This is opposite to non-linear pedagogy, which was discussed earlier. A linear approach to teaching PE focuses on repetition because it is based on the information processing theory (Miller, 1956) and stages of learning theories. Information processing theory aims to explore how information is processed and encoded into memory; this involves three stages: gathering and representing information (encoding), holding information (retention) and retrieving information (retrieval) (Rosnov & Roberts, 2005). Skills are learnt through repetition and developing a skill process through three stages of learning: cognitive, associative and autonomous (Fitts & Posner, 1967; Rudd et al., 2021a). In the cognitive stage, verbal instructions are used to learn movement execution and some parts of the movement are attempted. The cognitive process focuses on the mental activities that help the information transfer from one memory to another; this is done through the following processes: attention, perception, repetition, coding and retrieving. During the cognitive process, the information a person wants to learn is chosen; this is done by placing more attention on this stimulus or raw information, and meaningfulness is then placed on this information through perception (Çeliköz, 2019). Following on, the associative stage is where the movement is put together and repetition occurs. However, compared to the cognitive stage, an individual has more control of the movement. Lastly, at the autonomous stage an individual will be able to do the movement automatically, allowing them to perform other tasks alongside this movement as it becomes automatic. Currently in PE lessons, this model of learning is still predominantly being used to teach motor skills (Rudd et al., 2021a); Table 2.3 is an example of how a PE lesson would run using this model.

Table 2. 3

Example of primary PE lesson using Fitts and Posner's (1967) three stages of learning model

Stage	Process	Alternative names
Cognitive	At the start of a PE lesson, verbal instructions will be given to the children to learn how to execute a movement (e.g. throwing a ball). The children will have to pay attention to gather the information. After the instructions, the children will attempt to perform some aspects of the movement (e.g. hand placement for throwing)	Verbal-motor stage
Associative	The children will then refine the movement they are learning through repetition. This could take the whole session, or multiple sessions. These children will have more control of the movement and less conscious control is needed. Executing the movement will require less effort.	Motor stage
Autonomous	At the end of the multiple PE sessions, these children will be able to perform the movement automatically. They will be able to perform other tasks (e.g. talk to friends) alongside the movement they have learnt (e.g. throw a ball) as it has become automatic for them.	Automatic stage

Linear pedagogy has been categorised as a teacher-centred approach to PE for many reasons. One is that children are expected to learn optimal movement patterns for each skill, and every child should conform to these idealistic movement patterns (Crotti et al., 2021). Another reason is that these movement skills are required to be broken down into basic and simple movements to facilitate movement. All of this is done by the teacher and the children, who are provided instructions on what to do (Crotti et al., 2021). Children have little to no

room to explore their environments with this linear, one-size-fits-all approach to their learning (Rudd et al., 2021a).

A linear approach to pedagogy leaves little room for children to become motivated and emotionally engaged, instead learning is done passively and does not support the development of their physical literacy (Lundvall, 2015; Rudd et al., 2021a). As described in section 2.2, physical literacy is more than just learning and understanding fundamental movement skills; it forms our understanding of the experiences of learning and performing various activities and the individual holistically (Lundvall, 2015). Therefore, traditional teaching of PE (linear pedagogy) is not seen to support physical literacy as a whole (Claudia, 2022). While linear pedagogy may support physical competence, it lacks focus on other elements of physical literacy including motivation, confidence and knowledge. In a scoping review it was found that linear pedagogy has less focus on increasing and promoting physical literacy (Claudia, 2022).

As teachers follow a pre-determined curriculum designed for learning specific movement skills and techniques, PE lessons are structured a certain way. Normally a teacher would check if the class has learnt a skill by using assessments or a checklist in which they would tick off the skills and capabilities of the children (Rudd et al., 2021b). This takes a linear approach, where the focus is on learning a skill in a particular way; for example, through practicing a skill using drills and then playing a game to apply the skills learnt (Crotti et al., 2021). Yet, if PE was looked at through a non-linear approach (e.g. play-based PE) some might realise that the reoccurrence of sports year on year, conducted in the same environments and facilities, would likely result in diminishing emotional engagement from the children due to the absence of opportunities to explore, discover, invent and adapt (Rudd et al., 2021b).

2.4.2 *Linear vs Non-linear Pedagogy*

When focusing on the comparison between the two pedagogical approaches, Crotti et al. (2021) conducted a study in the North-West of England to evaluate the effectiveness of linear and non-linear pedagogy interventions for PE on the physical activity levels of children aged 5-6. They had 12 schools take part, three using non-linear, three using linear, and six as a control group, which continued their PE lessons as usual. These interventions lasted 15 weeks, with data being collected pre-intervention, up to two weeks post-intervention and a follow-up six months after post-intervention assessments. Trained coaches in each approach

were invited to teach these sessions. The PE lessons following linear pedagogy mostly followed a traditional structure, which involved a warm-up, practising movement within drills, a game to apply the skills learnt during the session, and a cool down (Crotti et al., 2021). On the other hand, the lessons based on non-linear pedagogy had coaches inviting children to explore the PE hall (their environment), and then varying constraints were provided based on the activities; these coaches did not provide demonstrations or feedback during the activities. Instead, they invited the children to reflect using questions or by observing their classmates (Crotti et al., 2021). Results from this study implied that neither intervention led to increased physical activity participation compared to the control group, thus suggesting that a non-linear approach to teaching PE, such as play-based PE, would not affect children's physical activity levels. Crotti et al. (2021) suggested that rather than enhancing PE, maybe promoting physical activity requires measures that extend beyond just the classroom, instead a whole school approach to physical activity promotion, and interventions that target multiple components (home and school community) should be considered.

Similarly, Valeh et al. (2020) also found no significant difference in performance and learning of a table tennis skill using both pedagogical methods. Although, the non-linear pedagogy group showed better performance due to having the ability to explore opportunities and had less of a reduction in transfer stage compared to the linear group (Valeh et al., 2020). As there is no significant difference in performance, the core question becomes which approach would help increase children's physical competence and confidence in being physical activity. As well as their motivation to participate long-term, thus helping the development of children's physical literacy. A non-linear approach could be one way to meet the goals of the National Curriculum whilst fostering children's enjoyment of PE and developing their physical literacy. In a study comparing a linear and nonlinear pedagogical approach to learning hurdling skills with pre-service PE teacher education students, results showed that the non-linear approach led to higher levels of motivation compared to the traditional (linear) approach (Moy et al., 2016). More specifically, mean scores for competence, relatedness, autonomy and effort were significantly higher after experiencing the constraints-led approach (non-linear pedagogy) compared to after experience the traditional approach (linear pedagogy), (Moy et al., 2016).

However, similar statistical results were not found in a study on 230 students aged 9-10 years, where two classes took part in a non-linear pedagogy intervention, and another two in

a linear pedagogy intervention (Lee et al., 2017). In addition to the quantitative data collected, eight children from each class with little to no experience with tennis and other racquet sports were selected to be interviewed. No statistical significance was found for all subscales of the intrinsic motivation inventory questionnaire (enjoyment, perceived competence, effort/importance, and value/usefulness) (Lee et al., 2017). However, interview data suggested that the non-linear approach was deemed to have produced an environment that helped the learning of perceived competence, autonomy and relatedness (Lee et al., 2017). Thus, it implies the potential enhancement of intrinsic motivation and enjoyment. On the other hand, the children categorised linear pedagogy as repetitive drills and prescriptive instructions, which led to the learners experiencing boredom (Lee et al., 2017). This approach, in contrast to the non-linear one, created an environment where perceived competence and autonomy were deemed at risk by the learners being told how to execute the “correct” movement pattern (Lee et al., 2017).

While there may not necessarily be a difference in physical competence between linear and nonlinear pedagogy, this suggests that non-linear pedagogy does not hinder motor competence. Instead, the literature suggests that a nonlinear pedagogical approach increases motivation and other elements of physical literacy. Based on the research discussed in this chapter, there is a plausible argument for using a non-linear approach to teaching PE in primary schools. This approach would support all aspects of the National Curriculum for PE, especially the physical literacy components that literature suggests are important for long-term physical activity. However, there are many systemic issues with primary PE that need to be addressed and could potentially be barriers to implementing a new approach to teaching PE; these being the hierarchy of subjects with PE being a foundation subject, distinguishing between PE and Sport, the PE and Sport Policy initiatives, and the factors that can affect teacher confidence.

2.4.3 The Systemic Issues with Primary PE

Some have argued that in England, the foundation subjects are deemed to have a lower status than the core subjects and are typically moved down the priority list (Duncombe et al., 2018; Lawless et al., 2020). Generally, core subjects are those on which a school's quality is judged, and so more teacher preparation time, time in class, and resources are allocated to these (Harris, 2018). As a result, foundation subjects such as PE are usually sidelined and limited by the time given to the subject and resources (Harris, 2018). Parents have expressed

frustration with the lack of time dedicated to PE and how often it is cancelled due to misbehaviour (Coulter et al., 2020). This will be further explored in Chapter 5, where parents are questioned about their perception of the importance of PE.

Furthermore, the attention senior school management gives to PE and the value schools place on PE seem to relate, as seen in the time and resources allocated and dedicated to PE (Elliot et al., 2013). The value placed on PE was also explored in a study with key stakeholders based in England (e.g. PE subject leads and teachers), with questionnaire results suggesting a generally positive outcome (Hooper et al., 2023). However, interview results painted a different picture, with many expressing that PE was undermined within their school. For example, children are being removed from PE for additional support for the core subjects, and PE facilities are being taken to support other activities such as examinations. This ultimately led participants to consider how valued PE is in their school and, more importantly, how much of a priority PE is (Hooper et al., 2023). However, this is not limited to teachers in England; a Croatian-based study found that teachers also considered the core subjects (i.e. mathematics, science, and Croatian language) more important than foundation subjects (Milić et al., 2022). They also believed they were more qualified to teach these core subjects than ‘foundation subjects’ such as PE and Art (Milić et al., 2022).

However, this sentiment is not limited to key stakeholders; primary school students in an England-based study expressed their perceived value of PE by identifying other subjects that were more important than PE, such as the core subjects. This reflects the importance and value of core subjects within the current National Curriculum (Hayes, 2017). This idea of a hierarchy and that PE, a foundation subject, is not as important as the core subjects (mathematics, English, and science) is further reflected in the guidance provided within the National Curriculum. As seen below in Table 2.4, far greater guidance is provided for the core subjects compared to PE. It could be argued that because PE is lower on the hierarchy in a government document, it sends the message that this subject is not a priority and is less valued than the core subjects. Teachers are provided between 32 and 86 pages of guidance for mathematics, English and science (Department for Education, 2013c, 2013b, 2013e). Within these pages, Key Stages One and Two are separated, with detailed information, guidelines and examples being provided for each year of primary school (Years 1-6). Several pages are dedicated to each year, so it is straightforward for teachers to know what they must teach. For example, English has separate information for Years 1 and 2, grouped information for Years

3 and 4, and 5 and 6. Spelling for each year's group is provided in the appendix, and further information on vocabulary, grammar, and punctuation is also included.

In comparison, PE has a total of 3 pages (Department for Education, 2013d). Page one informs the teachers of the purpose, aims and attainment targets for PE. Page two has the subject content for Key Stages One and Two, and page 3 provides swimming and water safety information. Teachers have one paragraph and three bullet points for Key Stage One. For Key Stage Two, they are given another paragraph and six bullet points. Unlike the core subjects, Years 1-6 are not individually separated. Instead, nine bullet points are provided to teachers on what children should learn throughout their six years in primary school. There is no appendix with examples to help children master the basic movements required in Key Stage One (e.g. balance, agility, jumping). There is no appendix for Key Stage Two; however, for this stage, teachers are provided examples of what competitive games they could play, and this is within the few bullet points available. Although these examples are not mandatory, the ones provided are mainly sports; for example, athletics and gymnastics are suggested for developing skills (e.g. flexibility and strength). To address this issue, it is important to consider potential solutions or strategies, such as revising the National Curriculum to place more value on PE, providing more resources and training for teachers in foundation subjects, and promoting the value of these subjects among students and parents.

Table 2. 4*Statutory guidelines for core subjects and Physical Education (PE)*

Subject	Guidance	Pages
English	<ul style="list-style-type: none"> ● Key Stage 1 – year 1 ● Key Stage 1 – year 2 ● Lower Key Stage 2 – Years 3 & 4 ● Upper Key Stage 2 – Years 5 & 6 ● English appendix: spelling <ul style="list-style-type: none"> - <i>Spelling – work for Year 1</i> - <i>Spelling - work for Year 2</i> - <i>Spelling – work for Years 3 & 4</i> - <i>Word list – Years 3 & 4</i> - <i>Spelling – Years 5 & 6</i> - <i>Wordlist – Years 5 & 6</i> - <i>International Phonetic Alphabet (non-statutory)</i> ● English appendix 2: Vocabulary, grammar and punctuation ● Glossary for the programmes of study for English (non-statutory) 	Page 13 – 98 (86 pages)
Mathematic	<ul style="list-style-type: none"> ● Key Stage 1 – Years 1 & 2 ● Year 1 programme of study ● Year 2 programme of study ● Lower Key Stage 2 – Years 3 & 4 ● Year 3 programme of study ● Year 4 programme of study ● Upper Key Stage 2 – Years 5 & 6 ● Year 5 programme of study ● Year 6 programme of study ● Mathematics Appendix 1: Examples of formal written methods for addition, subtraction, multiplication and division 	Page 99 – 143 (45 pages)
Science	<ul style="list-style-type: none"> ● Key Stage 1 ● Key Stage 1 programme of study – Years 1 & 2 ● Year 1 programme of study ● Year 2 programme of study ● Lower Key Stage 2 – Years 3 & 4 ● Lower Key Stage 2 programme of study ● Year 3 programme of study ● Year 4 programme of study ● Upper Key Stage 2 – Years 5 & 6 ● Upper Key Stage 2 programme of study ● Year 5 programme of study ● Year 6 programme of study 	Page 144 – 175 (32 pages)
Physical Education	<ul style="list-style-type: none"> ● Key Stage 1 (age 5-7) ● Key Stage 2 (age 7-11) ● Swimming and water safety 	Page 198 – 200 (3 pages)

This lack of guidance, however, is broader than the curriculum. Despite PE being a compulsory subject, schools have no set mandatory hours to dedicate to PE; instead, the Department for Education recommends two hours per week (Department for Education, 2015). This is due to the Education Act 2002, which prohibits the prescription of time to be spent on any curriculum subject by the Secretary of State for Education (Long et al., 2023). As a result, the government encourages schools to provide a minimum of two hours of PE (Long et al., 2023). However, this lack of direction is common in other countries; teachers decide the weekly allocation in countries such as the Netherlands and France (Department for Education, 2013a).

On the other hand, Singapore has three 30-minute lessons a week, Canada (Alberta) focuses on 30 minutes of daily physical activity, and Australia has a mandatory amount of time dedicated to PE based on the children's age (Department for Education, 2013a). Despite each country deciding the amount of time for PE, globally, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) recommends 120 minutes per week in primary schools (UNESCO & Loughborough University, 2024). Worldwide, only 53% of primary schools meet this recommendation; however, in certain regions, this issue is more obvious: Sub-Saharan Africa (46%), Latin America and the Caribbean (40%), and Northern Africa and Western Asia (20%) (UNESCO & Loughborough University, 2024). Although these results do not specify country by country, like the Department for Education (2013a), these results highlight the issue of global inconsistency in the time dedicated to PE in primary schools.

The adequacy of time dedicated to PE for students and the variance in the number of students reporting access to two hours of high-quality PE per week have been highlighted by teachers (Harris et al., 2012). Most teachers consider that 75% or more of their students did not receive high-quality PE and school sports for two hours per week (Harris et al., 2012). This could result in a lack of consistency in the amount of time children spend being active during PE and the skills children learn, as some schools may include netball while others include football. Previous literature has found that young people who had more frequent and long-lasting PE and participated in school sports had greater enjoyment of PE and were more physically active (Loprinzi et al., 2018). As previously mentioned, children experience roughly 500 hours of primary PE each year (Doherty & Brennan, 2014). With this substantial amount of learning, it would be common to expect a clear understanding of this subject's nature and purpose. However, this, unfortunately, is not the case, as the aims and outcomes

for PE in England still need to be collectively agreed upon (Doherty & Brennan, 2014). The approach to delivering PE in schools across England differs and needs to be more consistent (Duncombe et al., 2018).

2.4.4 Distinguishing Between PE and Sport

The lack of guidance and vagueness, particularly within the National Curriculum, leaves room for much interpretation. Although not mandatory, the examples provided within the guidelines show favour for the use of sports. However, the issue is that sports and PE are not the same, despite being used synonymously (Doherty & Brennan, 2014). The terms ‘physical activity’, ‘sport’, and ‘PE’ are not synonymous, and do not share the same goals, although they are closely associated (Ofsted, 2022). In previous years, there was concern about how effective the delivery of the National Curriculum for Physical Education (NCPE) in England had been in primary schools (Wright, 2004). Historically, PE has focused distinctively on performative games (O’Connor et al., 2012). The increase in extra-curricular opportunities for sports through partnerships with sports communities and clubs has resulted in a trend linking PE to sports, often with the two terms now being used interchangeably (Wright, 2004). This has further been highlighted when comparing the NCPE to other international PE curricula, where there is a clear difference in the focus and content. International PE curricula in places such as Australia, New Zealand, Scotland, and the USA emphasise the necessity for holistic development, prioritising health and lifelong physical activity, and are frequently informed by the concept of physical literacy (Herold, 2020). On the other hand, the NCPE focuses on competition and success; these are values gained from sports and are associated with character building (Herold, 2020).

However, it is necessary to understand why this has become the case. More emphasis was placed on competitive sports in 2010 when the PE curriculum in England was revised (Long et al., 2023). Equally, during this time, the Conservative-Liberal Democrat coalition government¹ ended the requirement for reporting how much time was spent in PE by schools (Long et al., 2023). This focus and inclusion of competition have varying views, suggesting that competition is primarily about winning and losing, and that children who are less skilled in the games played may experience competition negatively (Harvey & O’Donovan, 2013).

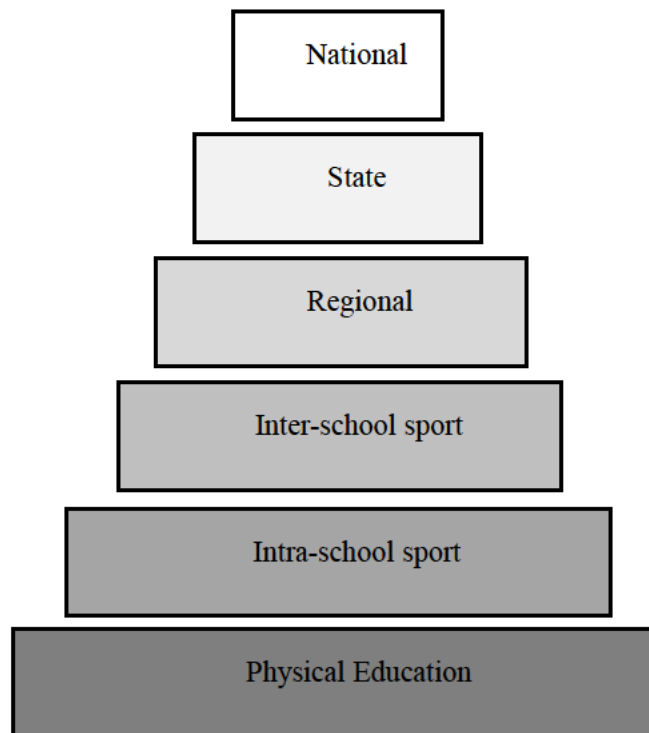
¹ A coalition government occurs when a political party fails to gain a majority vote in the UK. In 2010, the Conservative and Liberal Democrats formed a coalition government.

While the participants (i.e. pre-service physical education teachers) in this study felt that every student should experience competition to some degree, they felt that the positive impact of sports is only available to talented children. They also mentioned that skills such as teamwork and fair play are indirect outcomes of competition in PE (Harvey & O'Donovan, 2013). Competition can have both positive and negative contributions. However, students have emphasised their preference for focusing on challenges that come with competing rather than winning and losing (Beni et al., 2017). Furthermore, competitive activities in PE can have negative and exclusionary tendencies (Aggerholm et al., 2018). Students with higher physical ability tend to comment positively about competition (Hardy & Mawer, 1999). On the other hand, examples of personal embarrassment due to public competition and having your incompetence highlighted for everyone to witness are not challenging to find (Hardy & Mawer, 1999). While PE competition is being questioned, competitive activities conducted in clubs can provide a good experience for young people and be meaningful (Aggerholm et al., 2018).

However, the argument surrounding PE and sports dates back to the 1940s, suggesting that sports-based PE was introduced after the Second World War (Kirk & Gorely, 2000). Concerns were raised in the 1940s that this form of PE focuses on the few talented students at the expense of most students (Hamilton, 1941, as cited in Kirk & Gorely, 2000). Furthermore, it was speculated that the UK government could use this subject to identify talented students for their purpose (i.e. Olympic and elite sport competition), again at the expense of the less talented students (Hargreaves, 1977, as cited in Kirk & Gorely, 2000). This idea is further discussed and explored using a pyramid model of school sports and PE hierarchy, see Figure 2.3 (Tinning et al. 1993, as cited in Kirk & Gorely, 2000). This model suggests that PE is the foundation for learning sports; therefore, it is at the bottom of the pyramid. Through this, competition within the school is developed (e.g. between classes), competition among schools (e.g. neighbouring schools), regional competitions, and state competitions, finally leading to national titles for the school. While the hierarchy shown in Figure 2.3 is based on the Australian context of how each stage is named, regarding England, some of these stages would have different names, e.g. a 'regional' title would be considered a 'county' title.

Figure 2. 3

School sport and PE hierarchy



Adaptation of Tinning et al.'s (1993) 'School Sport & PE Hierarchy', as cited in Kirk & Gorely, (2000).

Despite the competition aspect being further emphasised in the curriculum in 2010, the 2012 London Olympics further influenced PE (Doherty & Brennan, 2014). With the UK government believing that sports positively affect everyone, there was a desire for a whole-school sporting ethos (Doherty & Brennan, 2014), allowing students to enjoy participating in sports both inside and outside of school. To help this, particularly in primary schools, the 'PE and Sport Premium' (discussed below in section 2.4.5) was introduced in 2013 (Jones & Green, 2015). However, this increased focus on PE, particularly sports, felt contradictory to the removal of schools reporting whether they met the target of two hours a week of sports (Doherty & Brennan, 2014).

Within this thesis, the value and inclusion of sport within PE is not being challenged or argued; instead, the concern is with the purpose of sports and their ability to exclude children (O'Connor et al., 2012). While performance activities such as sports have valuable learning opportunities, if the outcome and agenda are heavily performance-based, the broader educational experiences within PE will become less important (O'Connor et al., 2012). There

is a place for sport within PE, but it is part of a broader and balanced curriculum focusing on education (Kirk, 2006; O'Connor et al., 2012).

2.4.5 PE and Sport Policy Initiatives

As mentioned above, in 2013, the 'PE and Sport Premium' was introduced. The government in England's justification for the 'PE and Sports Premium' derives from a perceived need to boost the number of children participating in competitive sports, and investment in PE was a way to achieve this. The Premium was also designed to support the 'Childhood Obesity' plan, which recommended a minimum of 30 minutes of daily physical activity in school (Department for Education, 2023b). In previous years, the Premium on average provided primary schools £9,250 per year, equating to roughly two days per week worth of primary school teachers' work time (Jones & Green, 2015). This funding is based on the number of students in Years 1-6. It can range from £1,000 per pupil to £16,000 in total, with additional payment per student, depending on how many eligible students are in the school. Headteachers are given autonomy over how these funds are spent (Callanan et al., 2015; Jones & Green, 2015). However, the DfE does provide guidance on how this funding should be used; for example, they state it should not be used for the employment of external staff, such as coaches or specialist teachers, to cover the session (Long et al., 2023).

Despite this, the use of this Premium has varied. Some schools have used it to train existing staff (Callanan et al., 2015), while others source external coaches (Blair & Capel, 2011; Griggs, 2018; Smith, 2015). The lack of knowledge currently possessed by school staff on how to make both appropriate and sustainable decisions could be seen as a key problem and reason for how the Premium has been used (Lawless et al., 2020). However, using external providers for PE is not just a UK solution; it is shared internationally, with the reasons being access to experts, equipment, and facilities (Spittle et al., 2022). When reporting on using the Premium, schools expressed that the main difficulties in delivering PE were a lack of space, teacher confidence, skill or experience in some cases, and a lack of curriculum time (Long et al., 2023). Despite the government putting this funding in place to support schools with sports and PE, the issue remains that PE and sports are being used synonymously. Furthermore, with the influence of the Olympics and the clear focus on competition and sports within the curriculum, it calls into question whether this funding was put into place to further support sports rather than PE, as it may be seen as more important.

2.4.6 *Teacher Confidence*

It is vital to understand the background of PE within England, as all the factors mentioned above affect teacher confidence. Chapter 6 will fully explore this concept, focusing on a study conducted for this thesis that explores teachers' perceptions of PE and confidence levels. Despite the government's efforts with the Premium, examples such as Long et al. (2023) suggest that other issues, such as teacher confidence, can affect the delivery of PE. Many factors can affect a teacher's confidence and ability to teach PE, including their formal teacher training.²

2.4.6.1 **Teacher Training.**

Currently, there is no regulation on the amount of time in the Initial Teacher Education (ITE) programmes dedicated to PE, with many students stating they feel that their programme inadequately prepares them to teach both generally and specifically PE (Elliot et al., 2013; Harris et al., 2011). For years, inadequate time spent learning to teach PE has been a concern in England (Blair & Capel, 2011). With research dating back over three decades and recently conducted all reiterating the same view, the time available for PE in primary Initial Teacher Training (ITT) courses in England is very discouraging (Caldecott et al., 2006; Carney & Armstrong, 1996; Harris et al., 2012; Mcveagh et al., 2022). Nearly half of the teachers in one study stated that they felt their ITT course did not adequately prepare them to teach PE, and a quarter of the teachers reported less than 10 hours being allocated to PE during their course (Harris et al., 2012). Research has shown that a maximum of 12 hours is dedicated to PE in ITT, falling short of the required amount to ensure that teachers feel confident and safe in delivering PE (Kirk, 2012).

A significant problem highlighted in the UK is the lack of subject-specific knowledge regarding teaching quality PE lessons (Duncombe et al., 2018; Sloan, 2010). In many schools across England, generalist teachers deliver primary PE, as teachers in primary school are responsible for teaching all subjects, as seen in many other countries (Brennan et al., 2023). However, this is not just an issue with UK primary school PE; researchers in Australia have

²The name for this training varies depending on the year it was conducted, with some calling it Initial Teacher Education (ITE) and others referring to it as Initial Teacher Training (ITT), however, they are all referring to the same training.

expressed concern over the lack of confidence and qualification of teachers while teaching PE (Morgan & Bourke, 2008). This lack of training and preparation is one reason many studies have attributed to the lack of confidence teachers feel in teaching PE (Duncombe et al., 2018; Harris et al., 2012; Mcveagh et al., 2022). Furthermore, the quality of PE teacher education has been linked to a lack of confidence and knowledge (Morgan & Hansen, 2008). Notably, these issues can be exacerbated by the teacher's perception of PE, particularly if they have a negative attitude towards the subject and question its value (Morgan & Hansen, 2008).

Confidence can also be affected by other factors, such as personal experience; individuals who had a more negative experience during school PE indicated lower levels of confidence in teaching PE, in comparison to those who had a more positive experience (Morgan & Bourke, 2008). Teachers have also raised concerns surrounding the activities they are required to teach due to their skill level - for example, gymnastics - and their confidence in teaching it (Harris et al., 2011; Morgan & Bourke, 2008). As well as their views surrounding PE and their comfort in teaching it (Kirk, 2012). This will all be discussed in more detail in Chapter 6, as the study discussed in that chapter focuses on teacher confidence and perception of PE.

2.4.6.2 Teacher Workload.

Aside from a lack of training, it has been recognised that teachers have a huge workload, and this has become increasingly problematic (Morgan & Hansen, 2008). They may feel pressured to prioritise certain subjects such as Maths and English. As a result, despite their best efforts, it proves difficult to deliver effective PE sessions when there is limited time, training, and resources (Morgan & Hansen, 2008).

Therefore, to support teachers and schools, the government introduced 'planning, preparation, and assessment' (PPA) time in England in 2005. This gives teachers time away from students to focus on lesson planning, assessing students' work and preparing resources; generally, this equates to 20% of the teachers' timetable (Blair & Capel, 2011). It is common practice in many schools that this PPA time is taken during PE lessons, and this is often favoured by headteachers (Smith, 2015). Reasons such as focusing on academic achievement, prioritising the core subjects, and inadequate understanding of the role of PE have been suggested as to why this has become common practice (Blair & Capel, 2011). This further highlights the potentially unintended hierarchy within the curriculum and the lack of prioritisation provided to PE as a subject. To help support the PPA time being taken during

PE, the aforementioned PE and Sport Premium is used by many schools to pay for external coaches (Blair & Capel, 2011; Griggs, 2018; Smith, 2015).

2.4.6.3 External Coaches

While hiring external coaches may have benefits, an issue is the need for curriculum knowledge, which these coaches may not have (Blair & Capel, 2011), and the lack of schools reporting requiring qualifications when hiring sports coaches (Callanan et al., 2015). Of the schools that reported hiring sports coaches based on their accreditation and qualifications, few mentioned specific qualifications, but they included UK Coaching (UKCC) qualifications and Level 1-3 qualifications. Furthermore, in some schools, using specialist coaches has resulted in teachers being absent during PE regardless of when the subject is delivered (Smith, 2015). However, the reason for using coaches could be the confusion between PE and sport (Blair & Capel, 2011). The Department for Education research report found that before 2012/2013, 73% of schools used class teachers, compared to after 2014/2015, when it dropped to 66%. On the other hand, in the same years, external sports coach usage went from 57% to 90%. There is a clear move away from the traditional usage of teachers (Callanan et al., 2015).

This could be of concern, as children have expressed their enjoyment when their teacher is involved in PE, as it provides the impression that they care (Domville et al., 2019). In addition, sports coaches often lack classroom management abilities or teaching qualifications in relation to primary school (Jones & Green, 2015). Teachers have also expressed that coaches having expert knowledge in a particular sport as a coach does not translate to effective teaching practice (Smith, 2015). Furthermore, the close relationships the teachers have developed with their class mean they 'know the child', whereas coaches do not always have this valuable knowledge (Smith, 2015). This has resulted in some teachers requesting coaches to liaise with staff to ensure they are familiar with the student's needs. Despite this, a positive aspect of using sports coaches is their expertise, something very few generalist teachers could claim (Jones & Green, 2015), raising the question of whether PE has become just sports.

Nonetheless, the concern is that providing coaches in schools removes the teacher's responsibility of teaching PE and could result in long-term effects of de-skilling teachers whose confidence is already weakened (Keay & Spence, 2012). While teachers have expressed that their lack of confidence stems from a lack of ITT preparation, they also state

that external outsourcing of coaches removes them from the responsibility of teaching PE (Mcveagh et al., 2022). Some have criticised the use of coaches, as rather than upskilling and training existing staff, head teachers seem more inclined to use the Premium to externally outsource primary PE (Jones & Green, 2015). However, the use of external coaches is not necessarily the issue within this conversation; it demonstrates the lack of value placed on PE by head teachers and teachers. The current situation regarding teachers, their low confidence and limited knowledge of the subject area is of great concern for the future of primary PE (Lawless et al., 2020). It should also be mentioned that the current funding may not last forever, raising the question of how sustainable outsourcing is (Griggs, 2018; Griggs & Randall, 2019).

2.4.6.4 Continual Professional Development (CPD).

Although concerns such as low subject status, low teacher confidence and insufficient teacher professional development are still presently persistent in primary school PE, teachers have reported willingness and commitment to addressing these in order to improve the quality of the PE they deliver in school (Mcveagh et al., 2022). One potential approach to spending the Premium could be continuous professional development (CPD) courses focusing on PE, as this could be a possible sustainable way of improving primary PE (Lawless et al., 2020). While teachers have previously expressed that they have been unable to identify PE-specific CPD available to them, they also expressed that they rarely made use of these opportunities (Duncombe et al., 2018).

With the understanding of the state of PE within primary schools in England and the issues teachers are currently facing, change is necessary. A quality PE programme should lead children to a healthy lifestyle by ensuring they can develop their knowledge, understanding, value and attitude toward physical activity (Morgan & Hansen, 2007). Thus, those implementing PE, whether it be teachers, headteachers, or the government, need to recognise how beneficial physical activity and PE are (Lawless et al., 2020). Furthermore, with the current concerns about children's health and lack of physical activity, it could be argued that PE should become a core subject in the National Curriculum in England. This upgrade in status could: a) provide a sense of importance and value within schools, as it would be deemed as valuable as mathematics, English, and science; b) allow teachers more explicit guidance and support through their teacher training; and c) ensure more focus and support is provided within the National Curriculum to achieve parity with core subject such as

mathematics, English and science. This change from a foundation to a core subject would prioritise PE.

A former PE teacher and current PE researcher has voiced the critical role PE may play, given the current climate we live in post-pandemic and the impact this may have had on young people's health and physical activity level (Cale, 2023). Making PE a core subject would enhance its status, making it valued as much as English, mathematics and science (Harris, 2018). This could result in more time dedicated to the subject within schools and during teachers' training (Harris, 2018). There have been recent calls in England for a change in the classification of PE, making it a core subject (Hooper et al., 2023). However, improving test scores is vital to schools, so this has been a hurdle to advancing PE practices and policies (Sallis et al., 2012), as PE does not have test scores like the core subjects. Given the arguments above about the importance of primary PE, it could be argued that fostering an environment where children are able to develop their physical literacy skills is needed. These are skills that are already mentioned in the National Curriculum. Thus, it supports children in growing the skills deemed desirable to maintain physical activity throughout life. However, to do this, it is important to understand the current environment of PE, including how it is taught and whether the current teaching method fosters a supportive and inclusive environment, thus developing physical literacy skills.

2.4.7 Parental Support

In addition to teachers, parents also play an important role in supporting physical activity participation at home and their child's views on PE as a subject. However, there is limited research available on parental perception of the importance of PE, and particularly their perception of play-based PE in England. What is known is that parental physical activity levels and support have both been found to relate to a child's physical activity, with their effects appearing to be stronger in primary school-aged children (Gustafson & Rhodes, 2006; Sallis et al., 1992). Therefore, the way parents talk about PE at home with their child and the importance they give to it can influence how children perceive PE. Children often reflect their parents' attitudes towards learning; therefore, how a parent discusses PE and its significance at home can shape their child's view of the subject (Bartram, 2006). Consequently, it is important to consider how parents view PE as a subject, whether it is a priority for them, and what measures they take at home to support their child's physical education development. Equally important is to consider how supported parents feel by their

child's school regarding PE, whether they are provided with resources and knowledge to not only be physically active with their child at home but also to support their child's physical literacy. Parents can help increase their child's confidence and competence by participating in physical activity together and offering encouragement. Indeed, a statistically significant relationship was found between students' attitudes towards chemistry and parental influence (Mokoro et al., 2014). Additionally, an association was identified between parental and learner attitudes; when young people perceive their parents' attitude towards learning as positive, they tend to mirror this (Bartram, 2006). All these areas will be discussed and explored in detail in Chapter 4 and 5, to further understand parental influence on children's attitude towards physical activity and PE.

2.5 Research Gaps

While there are some inconsistencies within the literature surrounding physical activity and psychological and cognitive development, being physically active has many positive effects on an individual. However, the current literature suggests that a decline in physical activity levels starts as young as 6 years; therefore, understanding not only how to increase physical activity in children, but also how to ensure long term participation is key. To do so, the concept of physical literacy has been discussed throughout this chapter, as developing an individual's physical literacy theoretically would support long term physical activity participation. Although, the current literature lacks empirical data to support this theory.

While there is a growing understanding of physical literacy, there is little research on the impact play-based PE pedagogy can have on children's physical literacy development and, therefore, their likelihood to participate in physical activity into adulthood. More specifically, little is known in the context of primary PE in England, based on the National Curriculum for England. In addition, little is known about the feasibility and acceptability of a play-based approach to teaching PE in primary schools, from the perspective of both teachers and parents. Furthermore, the literature that focuses on PE and physical activity, which will be discussed in full in Chapters 4 and 5, lack ethnic diversity and were predominantly conducted pre-COVID. As a result, in addition to the lack of literature on parental perception of play-based PE, the current literature on parental perception on the importance of traditional PE is limited, with minimal being based in England, and most importantly lack ethnic diversity. Of the two UK-based studies cited in Chapter 5, focusing on parental perception on the importance of PE, one Ireland-based study is included, and none mentioned ethnicity (Coulter

et al., 2020; Earley & Fleet, 2021; Griffin et al., 2015). One study had all White parents (Sheehy, 2006), while another had 77% European American participants (Hong et al., 2014). Only one study separated the participants' ethnicities (Campbell & Verna, 2007). The remaining studies were all based outside of the UK, with no mention of the ethnicities of the participants, with many just stating participants were from the country (e.g. India, Spain and Portugal, Singapore, Kenya, Finland) (Ali et al., 2019; Lago-Ballesteros et al., 2019; Lwin et al., 2017; Mokoro et al., 2014; Na, 2015; Singh & Gupta, 2012; Telama et al., 2014; Yu, 2011).

Therefore, the research in this thesis will explore play-based PE as an approach to developing physical literacy through creating an inclusive and enjoyable environment. Furthermore, the studies will focus on parental and teacher understanding and views on the importance of primary PE, and specifically the concept of play-based, with specific goals of a more ethnically diverse and representative group of parents.

Chapter Three: Methodology

3.1 Introduction

This chapter examines the philosophical and methodological assumptions that have shaped the studies within this thesis, including the timeframe and overall approach. The methods for the three studies are outlined separately, explaining how and why each method was selected. This encompasses instruments and procedures, timeframes, and ethical considerations.

3.2 Philosophical and Methodological Assumptions

Philosophical perspectives must be used to underpin research, particularly in qualitative research (Otoo, 2020). Understanding an individual's research paradigm, also known as their worldview, is important because it explains their beliefs about reality, their perspective on how knowledge is understood, and how their values influence their research (Al-Ababneh, 2020; Pretorius, 2024). Researchers will focus on different sets of data and will view and analyse the findings from their research in different ways based on their research worldviews (Bracken, 2010). According to Creswell and Clark (2018), the four major research paradigms used in mixed methods research are 'postpositivist', 'constructivist', 'transformative' and 'pragmatist'. The key philosophical concepts in research used to understand and articulate these paradigms are ontology, epistemology, and axiology (Pretorius, 2024). Ontological and epistemological considerations provide a lens through which experiences are investigated and interpreted (Hathcoat et al., 2019).

Ontology refers to the nature of reality and the exploration of what reality is (Al-Saadi, 2014; Pretorius, 2024; Willig, 2008). There are two main ontological assumptions: realist and relativist. A researcher with a realist position assumes that reality is objective and tangible (Pretorius, 2024; Willig, 2008). Reality is independent of human insight and, therefore, observed and measured through empirical evidence (Pretorius, 2024). On the other hand, an individual who takes a relativist position believes that reality is subjective and not fixed; instead, it is shaped by various experiences. Therefore, reality can vary from person to person, or group to group, and is influenced by social and cultural contexts (Pretorius, 2024; Willig, 2008). Emphasis is placed on the importance of understanding how individuals make sense of their world, acknowledging the possibility of multiple realities coexisting (Pretorius, 2024). The ontological position chosen can then affect the epistemological position an individual holds, although it does not necessarily determine it (Marsh & Stoker, 2010).

The focus of this thesis has been to gain a deeper understanding of the PE environment for children from the perspectives of parents and teachers, with the goal of creating a more

inclusive environment through the support of both parents and teachers. Therefore, it is understood that teachers and parents will not only have different realities as separate groups, but also that, individually, their social and cultural experiences will create different realities. As a result, a relativist position has been adopted, acknowledging that multiple realities will coexist within this thesis.

Epistemology focuses on the nature of knowledge, examining how we acquire and understand the knowledge we possess. Having a clear understanding of the position taken is necessary, as the methods used in a research study will be affected by an individual's epistemological position (Marsh & Stoker, 2010). The three common epistemologies are objectivism, subjectivism and pragmatism. Those with an 'objective' position believe that reality can be understood through empirical observation, provided the right tools and methodologies are employed (Pretorius, 2024). Knowledge exists independently of human experience and can be discovered through careful testing, focusing on quantifiable data; therefore, those who hold an objectivist position tend to have a relativist ontological assumption (Pretorius, 2024). An inductive approach to understanding knowledge is typically employed in conjunction with quantitative methods (Ansari et al., 2016). In contrast, 'subjectivists' suggest that reality is known through the subjective lenses of individuals and is based on their experiences (Hathcoat et al., 2019). Reality is created in the mind and constructed based on personal experiences, beliefs and social interactions (Pretorius, 2024). Therefore, the only way to understand it is through studying the interpretation and meaning that individuals put on their experiences (Pretorius, 2024). As a result, a researcher who takes this position would lean towards deductive, qualitative research methods to explore the diversity of perspectives (Ansari et al., 2016; Pretorius, 2024). Finally, the third most common epistemological position, 'pragmatism', holds the viewpoint that it is hard to fully understand reality as it is constantly evolving (Pretorius, 2024). As knowledge is context-dependent and dynamic, it is always incomplete; therefore, researchers must remain flexible in their methods and interpretations (Pretorius, 2024). The focus of this position is on the consequences of the research and what works best as an approach to the methodology (Creswell & Clark, 2018). For this reason, mixed methods are used to gain knowledge, combining quantitative and qualitative practices to portray the complexity of reality (Pretorius, 2024).

While the focus of this thesis has been on understanding parents' and teachers' views and experiences with primary school PE in England, a 'what works best' and real-world practice

approach has been taken. This flexibility has been crucial due to the participant groups, including schools, being challenging to recruit and involve in research projects. Additionally, the real-world practice approach was taken as the end goal of the thesis, which was to implement a practical intervention for primary PE. For these reasons, a pragmatist epistemological position has been used in this thesis.

Axiology examines the role that an individual's values, beliefs, and biases play in the design, execution, and interpretation of their studies (Pretorius, 2024). Researchers must reflect on what guides their choice of topic, methods and how results are presented (Pretorius, 2024). Conversations surrounding axiology focus on whether research can and should be independent of a researcher's values; this would be considered value-free. This approach explores the idea that knowledge can be gained through rigorous methods, excluding subjective influence (Pretorius, 2024). In contrast, some researchers believe that not only is subjectivity unavoidable, but it can also be a strength to the research. Research is inherently value-laden, and deeper insights into human experiences can be gained through embracing the role of values in research (Pretorius, 2024).

A multi-stance viewpoint has guided this thesis, recognising that personal biases have positively contributed to the research and that these values have informed the choices made. Furthermore, it has been acknowledged that having a socio-cultural background as a Black woman and being the child of immigrant parents has shaped the research practices used in the studies. Highlighting the need for more ethnic diversity within this thesis, and when considering the best way to provide parents with a resource in the intervention study. A significant focus was placed on determining the easiest way to support parents who may struggle with using the internet or lack access to a computer/laptop/or phone, resulting in the provision of a physical booklet. Below, in Table 3.1, a summary of the four paradigms used in mixed methods research is provided.

Table 3. 1*Four paradigms used in mixed methods research*

Research paradigms	Ontology	Epistemology	Axiology	Methodology
Postpositivist	Nuanced realist – singular reality that can only be imperfectly understood	Objectivism	Value-free Unbiased	Deductive - <i>Quantitative</i>
Constructivist	Relativist – multiple realities	Subjectivism	Value-laden Biased	Inductive - <i>Qualitative</i>
Transformative	Multifaceted – based on different cultural and social positions	Collaboration – actively involving participants as collaborators	Based on human rights and social justice	Participatory - <i>Participants involved in all stages of the research</i>
Pragmatist	Singular and multiple realities	Practicality – what data collection works best to address the research question	Multiple stances - values guide the choices	Combining - <i>Mixed methods</i>

3.3 Positionality

An individual's positionality is unique to them and can impact all aspects of a research project (Holmes, 2020). Particularly in qualitative research, as the researcher is the data collection instrument, it is reasonable to suppose that their beliefs, cultural background, gender, race and socioeconomic status would be important factors that would affect their research process (Bourke, 2014). Our individual biases shape our research process; thus, recognising and acknowledging them allows us to understand how we may approach the research, particularly concerning specific group members and the ways we may engage with

participants (Bourke, 2014). Therefore, it is essential to acknowledge how my worldview has influenced and shaped my approach to the studies presented in this thesis, including the interpretation of the findings and the quality of my research. As a researcher who is neither a teacher nor a parent, I acknowledge that I am an outsider, as my personal biography does not provide me with lived experience or knowledge regarding the communities researched in my thesis (Holmes, 2020). Due to this, it is possible that the participants in my study may not have felt comfortable being interviewed by me, compared to a teacher researcher requesting interviews with teachers, for example. This would be because they are insiders with privileged access to the community and existing relationships (Gurr et al., 2024).

Despite this, I hold a degree in sports, health, and exercise, as well as mental health studies, and I previously coached football to children aged 18 months to 7 years. Furthermore, I am a gym enthusiast and qualified personal trainer. Furthermore, as a child, I loved PE, sports and being physically active, and I still enjoy physical activity as an adult. However, I do not enjoy sports as much due to their competitive nature. Aside from personal, educational and professional experiences, being a Black African woman has also shaped how I approached the studies in this thesis. I emphasised having an ethnically diverse participant pool due to my awareness that much of the current literature relies on non-diverse samples, and because I knew that the lack of value placed on PE or physical activity in my African household, with immigrant parents, was primarily due to a lack of knowledge and understanding. These experiences shaped the lens through which I view my research, the importance I placed on physical activity and the long-term effects of experiences during PE. Acknowledging these biases is important, as they will affect my research process; this is evident in my efforts to have a more ethnically diverse group of parent participants and the follow-up questions I have asked in my interviews.

3.4 Timeframe and Overarching Methodology

This section will include a discussion surrounding the initial plans for the PhD, which were established at the start of the PhD, with the understanding that studies may evolve. Next, the methodology for all three studies will be explained, providing a clear thread that outlines how the studies interact. The first two studies, which focused on parent and teacher perspectives of physical activity, PE, and play-based PE, directly fed into the creation and implementation of the final study, the intervention.

3.4.1 Initial Plans

At the beginning of the PhD, the plan was to initially explore parent and teacher perspectives on PE and physical activity through questionnaires and interviews. Study one (Chapters 4-5) would focus on parents, and study two (Chapter 6) would focus on teachers. The results would then influence the direction of the intervention in schools. The idea was that the results from the studies mentioned above would influence the target groups for the intervention, with the intervention focusing on a comparison between traditional PE and play-based PE, using BOING, an organisation whose mission is to help develop children's physical literacy through active and inclusive play (BOING, n.d.). However, the exact nature of the programme would have been finalised after discussion with the schools. Children would also have been asked about their feelings regarding the PE sessions (BOING or traditional). Teachers and parents would have also been asked to comment on the sessions. Due to the inclusion of a diverse population, the children's, parents', and teachers' responses would have been considered in light of ethnicity, affluence, and SEND to determine how inclusive these sessions are.

3.4.2 Parental Perspective (Chapters 4 & 5)

Data were collected regarding parental perspectives of *physical activity* and PE using a single questionnaire and then a single interview. Chapter 4 focuses on the motivations, aims, data, and inferences from the data regarding physical activity, while Chapter 5 describes the motivations, aims, data, and inferences regarding parental perspectives of PE.

3.4.2.1 A Mixed Methods Study Design

The literature on physical activity, barriers, and facilitators that parents face in supporting physical activity collects quantitative or qualitative data separately. The following studies, which will be discussed in Chapter 4, collected quantitative data (Corder et al., 2010; Hesketh et al., 2013; Jago et al., 2014; Jago et al., 2017; Lee & Park, 2021; Robinson et al., 2003; Sawyer et al., 2014; Shen et al., 2018) with a few collecting qualitative data (Bentley et al., 2012; Khanom et al., 2020). However, Story et al. (2003) was a mixed methods study that included questionnaires and post-intervention focus groups. While using quantitative or qualitative methods alone has benefits, combining the two also has benefits. A mixed methods design combines qualitative and quantitative research elements to increase both breadth and depth of understanding (Doorenbos, 2014). Conducting a study using a mixed

methods approach allows for a general understanding of parental support and parental perception of physical activity, with the added benefit of delving into why parents may or may not feel supportive of their child's physical activity, what barriers may be preventing them from providing this support and what has caused their perception of physical activity. In particular, using an explanatory mixed methods design allows the interviews to investigate further what the questionnaire population suggested as facilitators and barriers. Therefore, a mixed methods approach was adopted.

The study was conducted in England because the curriculum varies across the nations of the United Kingdom. Given that this thesis has taken a pragmatist worldview, it is understood that realities are influenced by social, cultural, and political contexts. Furthermore, the end goal was to implement a real-world intervention in primary schools. As England has its own distinct curriculum, which differs from Scotland, Wales, and Northern Ireland, discussing primary PE within the context of the United Kingdom and attempting to do so would be challenging. Parents' and teachers' perceptions of primary PE are shaped by the different social, cultural, and political information they receive, depending on whether they live in England, Scotland, Wales, or Northern Ireland. Furthermore, implementing an intervention in primary schools across the UK would not be practical due to the differences in curriculum. Parents of children in primary schools anywhere in England were welcome to participate, regardless of whether their child attended a state or private school. An explanatory sequential design was employed, as this approach is commonly used in mixed methods research (Li et al., 2015). This consists of two distinct phases that interact; initially, the quantitative phase is conducted, followed by the qualitative follow-up phase (Li et al., 2015). A visual representation of this method is shown in Figure 3.1. Generally, an explanatory design is employed when the research requires qualitative data to explain significant or nonsignificant quantitative results (Ivankova et al., 2006; Li et al., 2015). The unique aspect of a mixed methods study is having both quantitative and qualitative data within the same study (O'Cathain et al., 2010). Semi-structured interviews allow for valuable information to be gathered, with the flexibility to explore more deeply any unanticipated ideas discussed by the participants (Pyle et al., 2023).

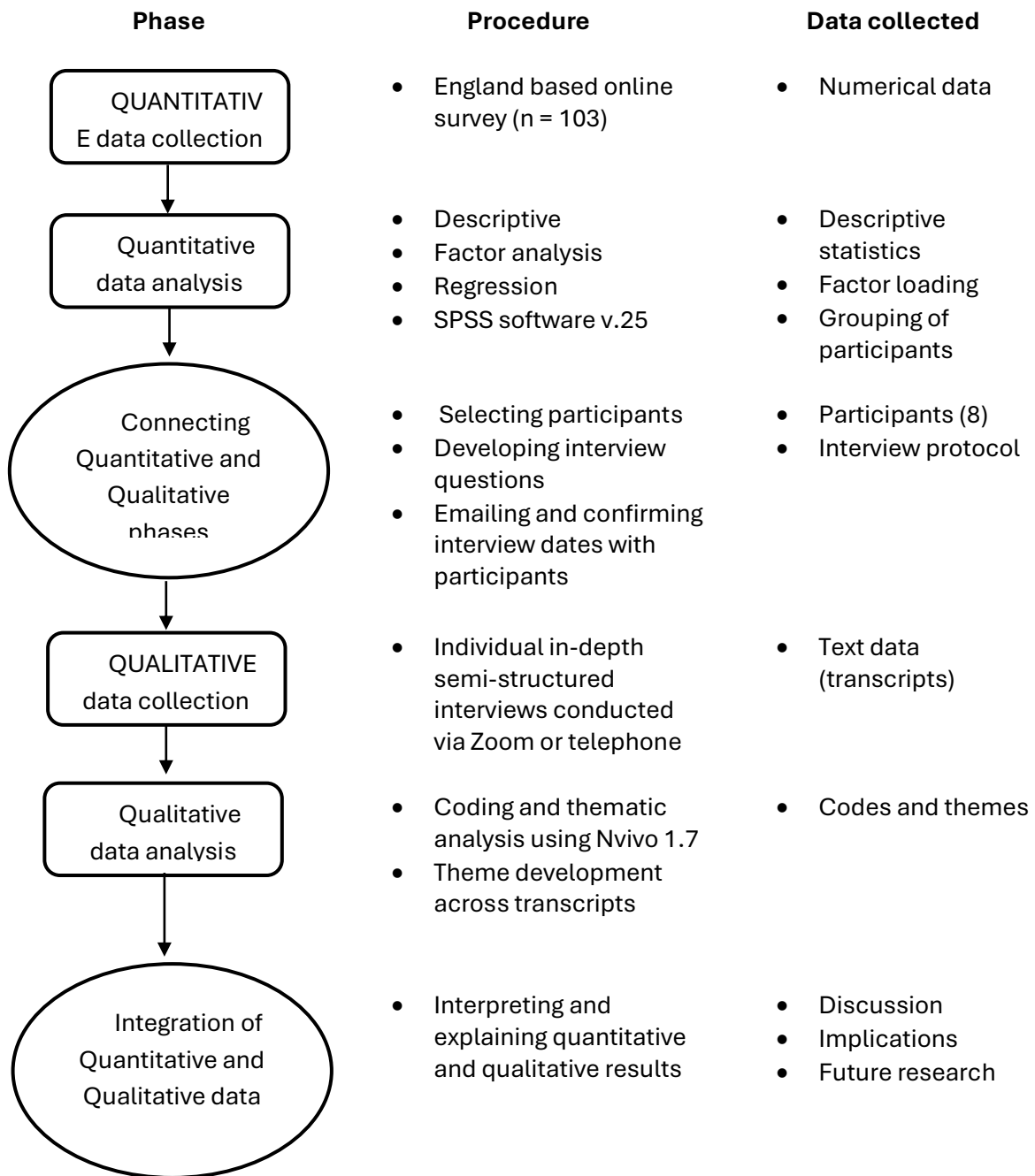
The quantitative stage used an online questionnaire (Appendix 1) to collect data from participants across England. Participants who completed this questionnaire were provided with an opportunity to sign up for an interview and provide their email address to be contacted. Based on the analysis of the quantitative data, an interview guide was created

(Appendix 2). This interview guide was used in the qualitative stage, where semi-structured interviews were conducted. These interviews were conducted via Zoom or telephone, with audio recordings taken for subsequent transcription. The interviews aimed to further explore the outcome of the questionnaire, focusing on areas where a more in-depth discussion would be helpful.

This design was used to develop a more comprehensive understanding of the parents' views of PE and physical activity, as well as potential facilitators or barriers they may face towards their child's physical activity level. The first set of data guided areas that may require further exploration and explanation, specifically through qualitative questioning (Creswell & Clark, 2018).

Figure 3. 1

Explanatory mixed methods study design for parents



This table has been adapted from Ivankova et al. (2006)

3.4.2.1.1 Instrument and Procedure for Quantitative Data Collection.

The participants completed the questionnaire electronically on Qualtrics, where they were provided with the participant information sheet and consent question. General demographic and socioeconomic questions were also included. The questionnaire provided to participants was a modified version used in a study conducted by Coulter et al. (2020), with additional questions added to focus on physical activity. Below, the sections of the adapted questionnaire are described in the order in which they were presented. The first section focused on physical activity (for which the data is presented in Chapter 4), and the second section focused on PE (for which the data is presented in Chapter 5).

3.4.2.1.1.1 Physical Activity Questions (Data Presented in Chapter 4)

Physical activity and government guidelines: parental understanding of the WHO guidelines for child physical activity was measured using a multiple-choice question. They were asked, “How many minutes per day of vigorous – moderate activity do the government guidelines suggest is a minimum for children?”, and given four options, with one being the correct answer. Both the child's and the parent's physical activity were then measured using a question from the Sport England question bank (Sport England, N.Db). The question relating to children was adapted to reflect the government's physical activity guidelines for children. Parents were asked in the past week how many days *their child* has done a total of 60 minutes or more of physical activity throughout the day; this amount of physical activity was needed to raise their breathing. Options ranged from 0 to 7 days. They were then asked in the past week how many days *they* had done a total of 30 minutes or more of physical activity throughout the day; this also needed to raise their breathing.

Child's view towards physical activity: Two questions from Coulter et al. (2020) were adapted to focus on physical activity. One question asked about child enjoyment of physical activity outside of PE. The question was answered on a 5-point Likert scale, while the other asked the parent about their child's attitude towards physical activity, with options including negative, neutral, or positive.

Parental support provided to child: Parental support was split into tangible (modelling) and intangible (motivational) support. This is due to the inconsistencies in the literature, which have been attributed to studies either combining tangible and intangible support or not stating which form of support is being investigated (Cheng et al., 2014; Edwardson & Gorely,

2010; Garcia et al., 2016; Sleddens et al., 2012; Trost et al., 2003; Welk et al., 2003; Zecevic et al., 2010). These questions were designed and included to better understand how supportive parents feel towards their child's physical activity.

Tangible: Five questions were asked to measure tangible (modelling) support. Four questions were adapted from Liszewska et al.'s (2018) version of the Comprehensive Feeding Practice Questionnaire, with rewording to focus on physical activity. One question was a merge of two questions from the Activity Support Scale created by Davison, Cutting & Birch (2003) (Davison et al., 2011). All these questions were answered on a 5-point Likert scale from strongly disagree to strongly agree. An example of the questions is "I model physical activity for my child by being physically active myself".

Intangible: Four questions were asked to measure intangible (motivational) support. One question was taken from Rhodes et al. (2019), and another from Wilson & Muon, (2008). The researcher created two extra questions based on previous literature. All questions were answered on a 5-point Likert scale from strongly disagree to strongly agree. An example of a question is "I encourage my child to be physically active."

Organised vs non-organised physical activity: Parents were asked if they ensured their child travelled actively on foot or by bike with or without them as often as possible, and whether they felt it was more beneficial for their child to participate in physical activity with a coach rather than with them. Both questions were answered on a 5-point Likert scale and aimed to understand how prioritised physical activity was. They were then questioned on what benefits they felt their child would gain from organised physical activity, defined as skill-based, and non-organised physical activity, defined as play-based. A question was adapted from Coulter et al.'s (2020) questionnaire to include more options. Parents were asked to select as many benefits as possible that they felt their child would gain from organised physical activity and non-organised physical activity, with examples including improved wellbeing, fun and enjoyment, and friendships. These were separate questions for organised and non-organised physical activity, with the same number of answers to choose from. These questions aimed to determine how much parents believed each form of physical activity would benefit their child's well-being; they were provided with a definition of well-being before these questions appeared. Based on the two questions, parents were then asked which form of physical activity they would choose if there were no barriers; the options were either organised or non-organised physical activity.

Parental barriers to children's physical activity: Based on previous literature (Bentley et al., 2012; Khanom et al., 2020; Lee & Park, 2021), the researcher created seven questions focusing on the barriers parents may face in promoting their child's physical activity. These barriers included, but were not limited to, time, physical ability and money. An example of the questions is 'I am not physically able to support my child's physical activity', which was answered on a 5-point Likert scale from strongly disagree to strongly agree.

3.4.2.1.1.2 PE Questions (Data Presented in Chapter 5)

Parental understanding of child's PE lessons and support from school: Questions focusing on parental understanding of PE, along with the support, opportunities, and information provided by schools, were mainly taken from Coulter et al.'s (2020) questionnaire, with some responses being adapted and the remaining questions being created by the researcher. Parents were asked, to the best of their knowledge, what activities their child has done in PE. They were provided with a list of activities to choose from, which included athletics, gymnastics, and aquatics, and could select as many as they wanted. They were then asked a series of questions, some from the Coulter et al (2020) questionnaire, and others created to assess PE school support. These questions had varying response options; for example, "How important is physical education in your child's school, in your opinion?" This was answered on a 5-point Likert scale from very unimportant to very important.

Parental view of PE: Questions on values, characteristics, skills and activities important to them for their child to learn during PE were also explored. Parents were given a list of qualities to rank from 1 to 3. These questions were used to understand how parents feel about PE, as previous literature has suggested that parents' views and understanding of PE can affect children's attitudes towards PE. Parents were also asked questions regarding what they think should be done in PE ideally, they were provided with seven options to choose from and asked to select between definitely yes – definitely no for each option provided. An example of one of the options is "Ideally I think my child's PE lessons should **improve fitness**". Parents were then given the same options, but with the statement "What my child's PE lessons actually do is....". These two questions were taken from the Coulter et al (2020) questionnaire. They were then asked four questions about their views on PE. All questions were answered on a 5-point Likert scale and created by the researcher. An example question is "PE is a waste of time", answering strongly disagree – strongly agree.

Child's views towards PE: Two questions from the Coulter et al (2020) questionnaire relating to PE were taken. One question asked about the child's enjoyment of PE, which was answered on a 5-point Likert scale, while the other asked the parent about their child's attitude towards PE, with options including negative, neutral, or positive.

Demographic questions: Participants were asked to identify whether they were the mother, father, or another adult completing the questionnaire and whether they were the primary caregiver. The child's and caregiver's ethnicity and age were also asked, alongside the child's gender and school year. Additionally, the area of residence, the caregiver's education level, and eligibility for free school meals were also asked.

3.4.2.2 Methods for Qualitative Data Collection (Interviews)

3.4.2.2.1 Instrument and Procedure

After completing the questionnaire, participants were asked if they would like to participate in an interview, and those who agreed were provided with an opportunity to provide their email addresses voluntarily. Those who provided their email address were sent an email with a Doodle poll link to choose an interview date and time, a preference for Zoom or telephone, and a participation information sheet. Calendar invitations were sent out, and parents received reminder emails a day before the interviews, along with definitions needed for the interview. All interviews were semi-structured, with 7 out of 8 interviews conducted over Zoom and recorded using live transcription, and one participant interviewed via telephone. All interviews were also recorded on an electronic Dictaphone and transcribed verbatim by the researcher. The interviews ranged from 17 to 48 minutes, with a mean duration of 25 minutes. Participant demographic data was taken from their questionnaire response.

The interview guide (see Appendix 2) was based on the findings from the parent questionnaire data. The questions were split into the following subheadings: 'overarching beliefs about PE'; 'satisfaction and dissatisfaction'; subthemes from the open-text questionnaire responses (i.e., 'wellbeing', 'fun', 'life skills', 'sports/activities to include in PE', 'teacher support'); and 'quality of teaching'. While the interview guide focused on PE (the themes for which are discussed in the next chapter), some of the themes from the interviews related to physical activity, and so those themes will be discussed in the current chapter.

3.4.3 Teachers' Perspective (Chapter 6)

The study was designed to mirror the parent-based study discussed above. Initially, the mixed methods explanatory sequential design, as visually shown in Figure 3.1, was to be used; however, due to limited interest in the interviews, no interview guide was created, and no qualitative data were collected through interviews. Five participants initially expressed interest in being interviewed; however, only two responded, despite an invitation and follow-up email. Due to the low number of responses, no interviews were conducted. However, the questionnaire included open-text questions, so Chapter 6 contains some qualitative data.

3.4.3.1 Instrument and Procedure

Teachers completed an online questionnaire to understand their opinions on PE and physical activity. The complete questionnaire is available in Appendix 4. Participants were provided with a participant information sheet and consent questions within Qualtrics, where they completed the questionnaire. General demographic and socioeconomic questions were also included in the questionnaire.

Based on previous literature, the questionnaire used was designed explicitly for the study. The questionnaire consists of several subsections, each focusing on a different aspect. One focused on factors that could affect teachers' confidence when teaching PE; this included a) qualifications, training, and experiences, with questions such as "did you complete an undergraduate degree, if so, what was the title?" and "are you required to do refresher training courses or In-service Education and Training (INSET) which focuses solely on PE?", and b) schools' attitude towards PE and support, example question "Do you feel that PE in your school meets the current curriculum?". These questions were created due to a large body of literature suggesting that training can affect teacher confidence in teaching PE (Duncombe et al., 2018; Harris et al., 2011; Jones & Green, 2015; Morgan & Bourke, 2008; Sloan, 2010). Additionally, school support could affect teacher confidence as they are less likely to be given time and resources for PE due to it not being a core subject (Harris, 2018; Hooper et al., 2023). Participants were also asked whether their school uses a coach for PE, as it has also been theorised to affect teacher confidence, with more and more schools replacing teachers with coaches for PE (Jones & Green, 2015; Mcveagh et al., 2022; Smith, 2015; Spittle et al., 2022). They were also asked about the type of school they work in and whether they serve as the PE coordinator in their school.

The second subsection focused on c) personal views of PE and physical activity, with statements such as “I feel PE is as important as English, Maths and Science”, and questions “parental involvement is important in children’s physical activity?” which were answered on a 5-point Likert scale from strongly disagree – strongly agree. Teachers have previously stated that support in the form of parental involvement is important for PE (Griffin et al., 2015).

Lastly, d) questions regarding play-based PE. All questions were answered on a 5-point Likert scale and included questions such as “Would training in activities like those shown in the example make you feel more equipped to teach PE?” and statements such as “In terms of children's enjoyment, do you think PE sessions like BOING would be?”. All statements were answered on a 5-point Likert scale from very detrimental to very beneficial. These questions were created based on the literature that suggests play-based PE would be more fun and inclusive (Jefferson-Buchanan, 2022; Klein & Beach, 2023).

Some questions were specific to teachers, and others were specific to Teaching Assistants (TAs). The questions were a mixture of 5-point Likert scale and open-ended questions designed to further understand the participants’ reasoning.

3.4.4 The Accessibility and Feasibility of Play-based PE: Quantitative Data (Chapter 7)

Given the findings from Chapters 4-6, an intervention was developed using the Capability Opportunity Motivation – Behaviour (COM-B) system for data collection (questionnaires and interview guidelines) and analysis. This intervention used resources provided by BOING. BOING is driven by research and theory, with various publications from the research team focusing on non-linear pedagogy and applying the constraints-led approach to teaching in schools (Roberts et al., 2019; Rudd et al., 2021a). They offer their course in person (half-day, full-day) and online and provide various free resources on their website for anyone to access. BOING was used as an example of play-based PE due to the focus on inclusive play and developing physical literacy.

The intervention aimed to provide school staff with a free online CPD course provided by BOING, to help with their training in play-based PE. Following this, teachers were tasked with delivering play-based PE for one term (5-6 weeks). Parents were provided with a booklet full of games from BOING, with a variety of games that can help minimise the barrier of space (see Appendix 11). This booklet is not normally provided with the CPD; instead, it was an original added resource based on the results from Chapter 4, produced

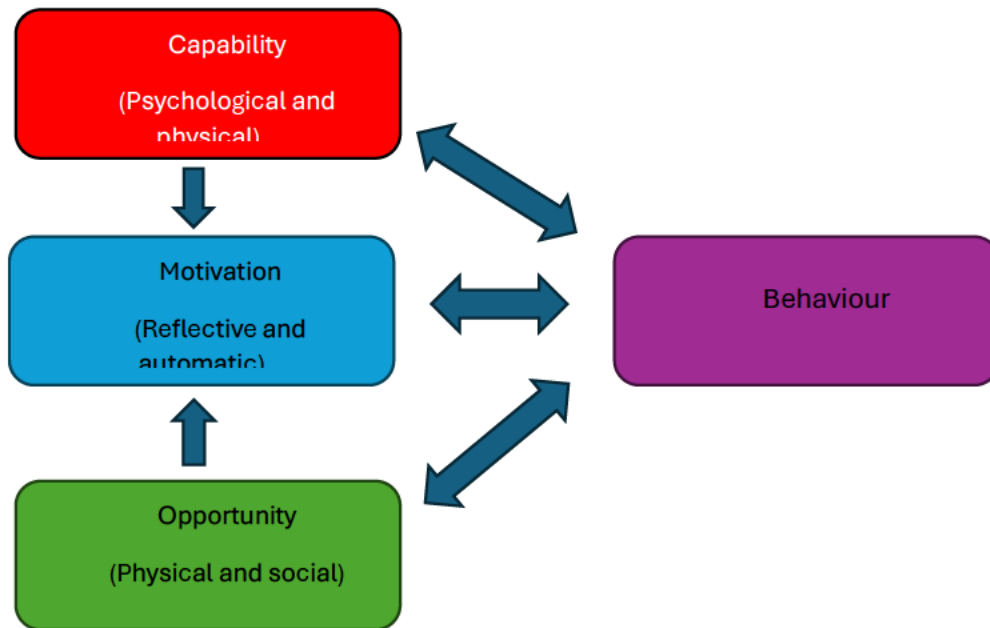
specifically for the study. This resource was provided to support parents with PE at home; teachers were also provided with weekly prompts to send to parents to create the connection between school and home. These prompts were created to encourage parents to try out a specific game from the booklet each week, thus providing the communication parents from Chapter 4 desired.

3.4.4.1 COM-B

Research suggests that to maximise the potential effectiveness of an intervention for behaviour change, a theoretical understanding of behavioural change is necessary (Davis et al., 2014). Therefore, the theoretical framework used within the study discussed in this chapter was the Capability, Opportunity, Motivation – Behaviour (COM-B) system. The three components that make up this system, ‘Capability’, ‘Motivation’, and ‘Opportunity’, are understood to drive a person’s behaviour. As shown in Figure 3.2, this system is not linear; all components interact with and influence one another. Essentially, the COM-B system suggests that for a person to engage in a behaviour, they would need the capability, opportunity, and motivation to execute it. Therefore, modifying at least one of these components is needed to change a behaviour.

Figure 3. 2

COM-B system



Adaptation from Michie et al (2011) The COM-B system

In interventions relating to public health and behaviour change, capabilities and motivation are usually targeted, while social and environmental variables are less likely to be considered (Davis et al., 2014). A scoping review conducted by Davis et al. (2014) on theories of behaviour change across social and behavioural science, found that of the 82 theories identified, the following four accounted for over half of the papers: the Transtheoretical Model of Change (TMM), the Theory of Planned Behaviour (TPB), Social Cognitive Theory (SCT) and the Information-Motivation-Behavioural-Skills Model (IMBS). Similarly, when focusing on theories used for physical activity behaviour, the four most frequently used theories were the SCT, TPB, TMM and the Self-Determination Theory (SDT) (Buchan et al., 2012). While these theories could be used for research on teachers and PE, some studies have used the COM-B framework (Moore, Edmondson, et al., 2023; Tristani et al., 2022). Tristani et al. (2022) used this framework to investigate what influences teachers' intentions in implementing inclusive PE. They proposed that researchers assessing interventions that purposely target significant COM-B components could translate to a change in teachers' design and delivery of an inclusive PE environment for all students (Tristani et al., 2022). Additionally, the Theory of Planned Behaviour (TPB) has been applied in research on inclusive PE (Wang et al., 2015).

The COM-B framework will be used, as it provides clear components to measure both before and after an intervention, allowing for the determination of change. It will also provide guidance on other potential interventions that could be useful based on the COM-B component results. The COM-B framework is part of the Behaviour Change Wheel (BCW) framework (Michie et al., 2011), which was designed to encompass the variety of intervention functions (e.g. education, training, persuasion) and policy categories (e.g. guidelines, regulation, service provisions) found in 19 existing behaviour change frameworks (Michie et al., 2011). It was also chosen due to its use in a study by Tristani et al. (2022), which focuses similarly on inclusive PE. Though the current study examined the change in behaviour using an intervention, rather than exploring influences on teacher behaviour.

While the COM-B system was utilised in these later stages, it was not employed in the earlier studies, which focused on exploring and understanding parents' and teachers' experiences and views on physical activity and PE. By understanding these experiences, the intervention was developed, and resources were provided to support behaviour change. The ideal behavioural change from teachers would have been how they perceive and teach PE; similarly, for parents, it would have involved offering more support for their child's physical activity and PE at home.

3.4.4.2 The PlayUp Club Booklet

The booklet (see Appendix 11) included a front page that explained why they were being provided with the booklet, information on the study and a QR code, should they have wanted to take part and complete the pre-questionnaire. They were also provided with the BOING website and informed that they could find more games on it; these were all added to the booklet for the study. Following on, the booklet then provided parents with a guide on how to use the PlayUp Club, and six games: 'GO GO Gold', 'Laser Webs', 'Dragon Lands', 'Planet Protectors', 'Tip Tap', and 'SuperShots'. Under each game, parents were informed of the kind of space and equipment needed, how to set up the game, the rules, how to play and variations to make the game harder. There was also a section for parents to fill out under each game once they completed it. This was included to help them when completing the post-questionnaire, which included questions on how much time they spent on the activity (0 min – 30+min), how they would rate the activity (from 1 = bad to 10 = excellent) and what their thoughts were on the activity (open text response). This booklet was created using the BOING PlayUp Club, which can be found on their website (BOING, n.d.). When informing

the BOING staff that the games for this resource needed to be ideal for parents with minimal space and equipment, and with one or more children, they mentioned they had the PlayUp Club online and would be happy to use it.

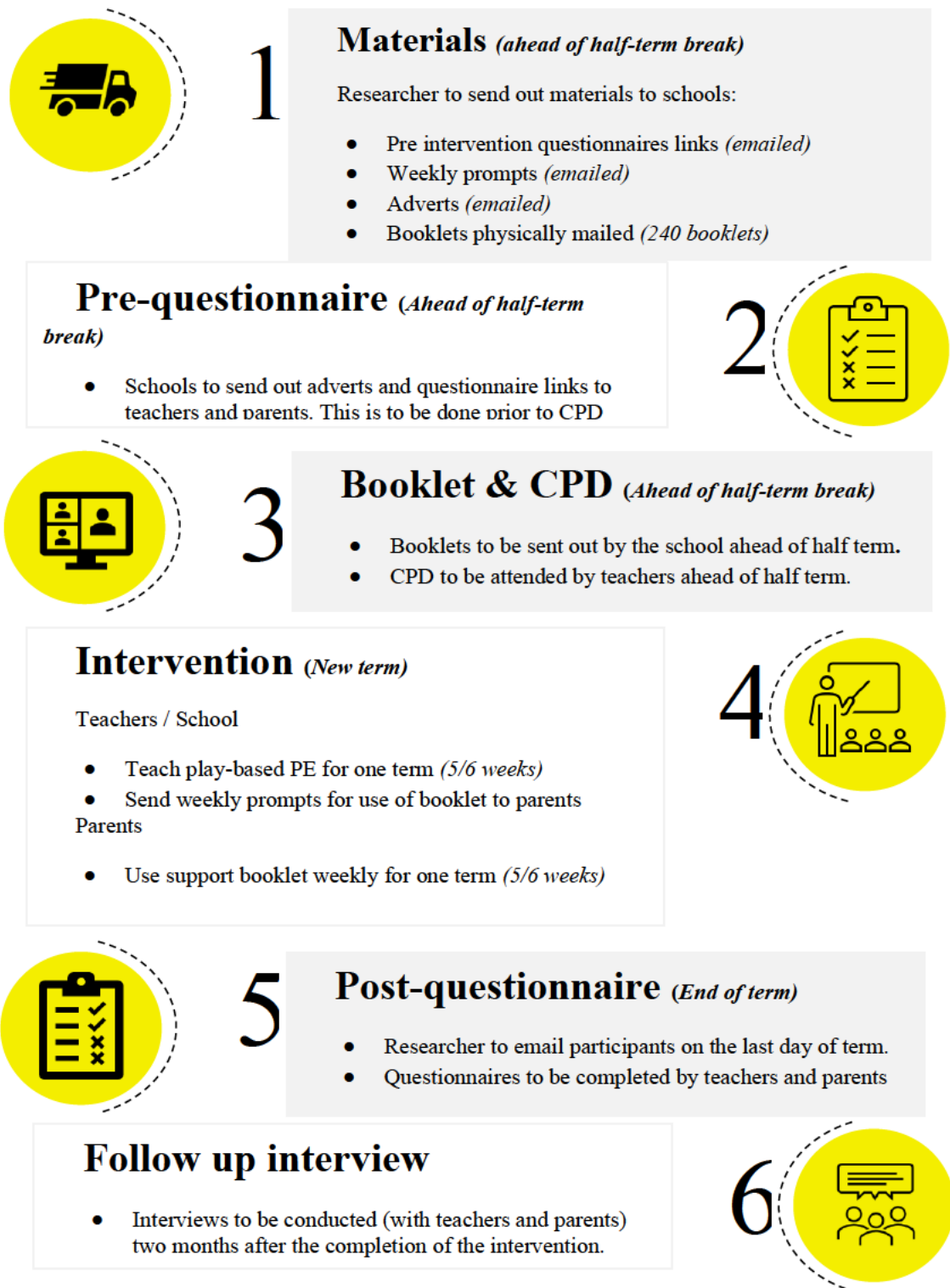
3.4.4.3 Ecological Validity

A ‘hands-off’ approach was taken, where the teachers conducted the PE lessons using what they learnt from the CPD, with no direct contact with the researcher. The intervention's usability and ecological validity were important. Ecological validity refers to the probability that the outcome of the intervention is meaningful outside of the research, which, in this case, essentially meant the feasibility of implementing the intervention in other schools across England (Ledford et al., 2016). This was necessary as the idea of the intervention was to scale it up so other schools could use it; therefore, the acceptability and feasibility of the study were important (Ledford et al., 2016). An intervention conducted in its typical setting (i.e., a school) and implemented by the teacher rather than a researcher enhances the ecological validity of the intervention (Ledford et al., 2016; Singer, 2000). Research suggests that in the context of educational research, controlling environmental variabilities (e.g. including highly trained individuals to take the PE lessons and use a non-linear approach) could constrain how generalisable the findings would be (Chezan et al., 2022; Ledford et al., 2016). In addition, cost, support and reports from a typical agent that the intervention can be used in the settings desired as planned are also indicators of ecological validity (Ledford et al., 2016). The CPD was provided for free to schools, and this is not something that would typically occur; therefore, the cost of the CPD could be a financial problem for some schools.

3.4.4.4 Outline of Intervention

The function of this intervention was to provide the ‘capability’ and ‘opportunity’ requested from parents, teachers, and TAs to a) help teachers teach a more high-quality PE lesson through play-based learning using BOING and b) help parents support their children’s PE lessons at home. The complete outline of this intervention can be seen in Figure 3.3.

Figure 3. 3
Outline of study



During the creation of this intervention, the aim was to collect complete questionnaires (pre and post) data from 12 teachers and 150 parents. At the follow-up interview stage, the goal was for 6-12 individual interviews with parents and three focus groups with up to four teachers in each group. This was deemed realistic based on two schools agreeing to participate in the study. The CPD was available for all teachers and staff, but the gatekeepers were all made aware that only Year 1 and 2 would be provided with the booklet.

School A was a three-form entry school, with three sets of Year 1 and Year 2 classes. They had at least 14 staff eligible to participate: three Year 1 teachers, four Year 2 teachers and seven supporting staff. The gatekeepers were the Assistant Vice Principal and PE lead. **School B** was a one-form-entry school with one set of Year 1 and Year 2 classes. They had three eligible staff: one Year 1 teacher and two Year 2 teachers. The gatekeeper was a teacher and PE lead. Based on the average number of students in a primary school class being 30 and a total of eight Year 1 and 2 classes collectively, 240 physical booklets were provided between the two schools. Both schools were based in the Southwest of England; the specific area will not be disclosed to maintain the anonymity of the school and its participants.

3.4.4.5 Instruments and Procedure

The parent questionnaire (Appendix 5) was created using the COM-B model, with the short form questionnaire developed by Keyworth et al. (2020) as a guideline. Parents were questioned on their perceived ‘capability’, ‘opportunity’ and ‘motivation’ towards their child’s PE and physical activity. Examples of PE and physical activity questions can be seen in Table 3.2. The same questionnaire was completed pre- and post-intervention, with the only difference being the addition of a handful of questions regarding the booklet in the post-questionnaire. However, post-questionnaire data were not analysed due to the limited number of participants.

3.4.4.5.1 Parent Questionnaire

They were first provided demographic questions relating to themselves and their child, and two questions on their child’s physical activity levels (their behaviour). Question one was “In the past **week**, on how many **days** has your child done **a total of 60 minutes or more** of physical activity throughout the day, which was enough to raise their breathing rate?”, with eight response options being between 0 days and 7 days. Question two was “In the past **week**, on average, how many minutes a day has your child done physical activity outside of school,

which was enough to raise their breathing rate?”, with eight response options being 0 minutes to above 60 minutes, with 10-minute intervals between each option.

Following these questions, parents were provided with a definition of physical activity, followed by COM-B style questions; they were then provided with a definition of PE, followed by COM-B style questions. For their psychological capability, a question regarding government guidelines for children's physical activity was asked; they were provided with four optional answers, with one being correct. The questions in the pre- and post-questionnaires were similar; however, some were worded slightly differently. Additional questions were also included for physical opportunity, based on the barriers faced by parents in Chapter 4. All the materials were designed to be sent to the school gatekeepers, who would then pass them on to the parents and teachers. As a result, only participants who completed the pre-intervention questionnaire and provided an email to be contacted were sent the link by the researcher for the post-questionnaire and/or follow-up interview. Participants were also informed about the post-intervention questionnaire by the gatekeepers, who were asked to send out an email.

Table 3. 2

Parents' Physical Education & Physical Activity question examples

All questions had a 5-point Likert scale response (Strongly disagree-strongly agree)

Physical opportunity

- I have enough time to support my child's **physical activity** (6 questions)
- I have the right equipment to effectively support my child's **physical education** (3 questions)

Social opportunity

- My child's school encourages **physical activity** outside of school (3 questions)
- My child's school provides me with activities to do at home to support my child's **physical education** (3 questions)

Reflective Motivation

- I have the motivation to ensure my child is **physically active** (3 questions)
- I have a plan with regard to how to support my child's **physical education** (3 questions)

Automatic motivation (*two positive and two negative emotions were taken from the Positive and Negative Affect Schedule (PANAS) Scales (Watson et al., 1988).*)

- Thinking about supporting my child's **physical activity** makes me feel excited (5 questions)
- Thinking about supporting my child's **physical education** makes me feel scared (5 questions)

Physical capability

- I am physically fit enough to support my child's **physical activity** (4 questions)
- I am strong enough to support my child's **physical education** (4 questions)

Psychological capability (4 questions total for physical activity, 3 for PE)

- I understand the importance of supporting my child with their **physical activity** (4 questions)
- I have a good understanding of the importance of **physical education** (3 questions)

Post-intervention questionnaire addition

- This booklet encouraged me to be more physically active with my child
Strongly agree – strongly disagree
- How many of the games did you try?
0, 1, 2,3,4,5,6
- On average, how much time did you spend playing each game with your child?
0 minutes, 5 minutes, 10 minutes, 15 minutes, 20minutes, more than 20 minutes
- Overall, how was your experience
Open ended

3.4.4.5.2 *Teacher Questionnaire*

The teacher questionnaire (Appendix 6) was created alongside the parent questionnaire, using the COM-B model. Teachers were questioned on their perceived Capability, Opportunity and Motivation to teach high-quality PE lessons; examples of these questions can be seen in Table 3.3. The questionnaire started with demographic questions, as well as year group taught and teaching experience. The questions in the pre- and post-questionnaires were the same, with the addition of post-intervention specific questions in the post-questionnaire. However, post-questionnaire data were not analysed due to the limited number of participants.

Table 3. 3

Teacher question examples

Current PE lessons: (4 questions in total)

- My PE lessons currently meet the National Curriculum guidelines
1 strongly disagree – 5 strongly agree

Physical opportunity (4 questions in total)

- I have enough space to deliver high-quality PE lessons
1 strongly disagree – 5 strongly agree

Social opportunity (3 questions in total)

- My head teacher supports me to deliver high-quality PE lessons
1 strongly disagree – 5 strongly agree

Reflective motivation (4 questions in total)

- I believe teaching high-quality PE lessons is important
1 strongly disagree – 5 strongly agree

Automatic motivation (6 questions in total) *(two positive and two negative emotions were taken from the Positive and Negative Affect Schedule (PANAS) Scales (Watson et al., 1988)).*

- When I teach PE I feel enthusiastic
1 strongly disagree – 5 strongly agree

Physical capability (3 questions in total)

- I have sufficient physical stamina to teach high-quality PE lessons
1 strongly disagree – 5 strongly agree

Psychological capability (5 questions in total)

- I have a good understanding of the PE curriculum
1 strongly disagree – 5 strongly agree

Confidence (3 questions in total)

- I am confident in my ability to teach inclusive PE lessons
1 strongly disagree – 5 strongly agree

Post-intervention questionnaire addition

- Now that I have completed a term teaching play-based PE, I intend on continuing teaching this form of PE
1 strongly disagree – 5 strongly agree
- Now that I have completed a term teaching play-based PE, I am considering integrating this form of PE with my normal PE lessons
1 strongly disagree – 5 strongly agree

3.4.5 The Accessibility and Feasibility of Play-based PE: Qualitative Data (Chapter 8)

Chapter 8 focuses on the post-intervention qualitative data collected for the intervention study. The combination of both qualitative and quantitative data collection increases both the breadth and depth of understanding (Doorenbos, 2014). A strength of qualitative methods is that they provide the ability to understand people's experiences in depth (Wilhelmy & Köhler, 2022). Interviews in particular allow for valuable information to be obtained, and for individuals to share their opinions, feelings and attitudes towards what they have experienced (Dunwoodie et al., 2023; Pyle et al., 2023). This provides flexibility to explore the parents' experiences of the intervention in-depth.

3.4.5.1 Instruments and Procedures

The interview guide for the parents was created based on the intervention, with prompts using the COM-B components. The complete interview guide can be seen in Appendix 7 with annotations to provide guidance on what prompts relate to the COM-B components. Unlike Study One (Chapters 4-5), the questions in this interview guide were not based on the results from the quantitative data shown in Chapter 7. The interviews were all conducted online via Zoom and ranged between 25 and 49 minutes long and were recorded. Once the recordings started, all participants were read a consent form to agree to verbally.

3.5 Ethical considerations

While the general ethical considerations, such as anonymity, data collection methods, and participant identifiable information, are important, it is also crucial to consider broader social and cultural issues. This is crucial because research conducting in school-based settings can be ethically challenging (Felzmann, 2009). Exploring how the results of the studies within this thesis can have both direct and indirect implications for the participant groups and children, is essential. Several ethical considerations and potential implications arise from the studies discussed in this thesis.

First and foremost, it is vital to consider how the results of this research might positively impact the parents and teachers who participated, and consequently, how they could indirectly benefit the children they support. Emphasising the importance of supporting children's physical literacy development through a more inclusive form of PE could potentially lead to a more physically active group of children, with long-term benefits for physical activity habits. This could, in turn, contribute to sustained improvements in the

population's physical and mental health. Furthermore, focusing on primary school PE and creating opportunities for sharing views and opinions can challenge prevailing narratives surrounding PE. The studies address social norms regarding the perception of PE and its inclusivity. Providing participants with an alternative, more inclusive form of PE (including definitions and examples) has fostered discussion about the current state of inclusivity in PE for all children. The most likely benefit of school-based research is the knowledge participants may gain from the research (Felzmann, 2009). However, these conversations might also cause parents and teachers to experience feelings of inadequacy or self-doubt, fearing they are failing their children or pupils. Therefore, these potential psychological risks need to be considered (Felzmann, 2009). In addition the added workload or time taken away from teachers needs to be considered (Head, 2020). While the aim of the studies is to positively influence parents, teachers, schools, and ultimately children, it is important to recognise that there could be unintended negative consequences resulting from the questions asked. Thus, whether the research being conducted is beneficial to the participants is something that needs to be considered, regardless of the intent (Kumashiro, 2014)

Secondly, studies focusing on parents, teachers, and the communication between schools and families might inadvertently highlight or exacerbate existing communication issues. Careful consideration was necessary, as the goal was not to create conflict but to support improved dialogue. Tensions or difficulties in relationships between parents, teachers, and schools could potentially impact children's experiences in PE negatively.

Finally, the emphasis on ethnic diversity has enabled marginalised groups to have their voices heard. This contribution is relevant not only to primary PE but also to fostering inclusivity and creating environments where more children can enjoy PE and physical activity, both at home and at school. Inequalities in the classroom due to race and ethnicity is still a problem in schools in the UK, therefore it is important to hear the voices of those affected (Gillborn et al., 2021). Although the students are not directly interviewed, providing parents and teachers with the space to voice their thoughts is key. This is particularly important because the very purpose of inclusive PE is for all children to feel able to participate. Therefore, understanding the effects of factors such as ethnicity, economic status, and environment is essential in achieving this goal.

**Chapter Four: Exploring Facilitators
and Barriers Parents in England
Experience in Supporting Their
Primary School Child's Physical
Activity.**

4.1 Introduction

Understanding parental perspective of physical activity is essential, as they play a vital role in shaping children and adolescents' physical activity behaviours (Trost & Loprinzi, 2011). Parents can also have significant roles in teaching skills and principles shaping important attitudes regarding physical activity for their child through multiple mechanisms (Edwardson & Gorely, 2010). These mechanisms include parental encouragement, role modelling, as well as parental beliefs and attitudes towards physical activity. Furthermore, children generally share their parents attitudes towards the importance of physical activity, particularly the type of physical activity and intensity (Anderson et al., 2009).

Ideally, parents should role model a healthy lifestyle, as for many children, increasing their physical activity level could be sufficient in preventing the onset of conditions such as obesity (Wyszyńska et al., 2020). Furthermore, several physical and psychological benefits of physical activity have been found for children (Biddle et al., 2019; Bidzan-Bluma & Lipowska, 2018; Dale et al., 2019; De Greeff et al., 2018; Rhodes et al., 2017; Rodriguez-Ayllon et al., 2019; Zeng et al., 2017). However, there may be many facilitators and barriers parents face when supporting their child's physical activity, such as socioeconomic and demographic factors (e.g. ethnicity and finances) (Sport England, 2022). It is through exploring all these factors that we gain an overall understanding of how parents view physical activity and how to help them support their child's physical activity.

4.1.1 *Children's Physical Activity*

As mentioned in Chapter 1, healthy behaviours such as physical activity are deemed to be established and developed during early childhood, which has been considered a critical time period (Ward et al., 2010). It is accepted widely that if an individual makes the choice to be physically active during childhood or adolescence, this increases the likelihood of them remaining physically active during adulthood (Trudeau et al., 2004). Furthermore, children who have a positive attitude towards physical activity are more physically active (Sport England, 2023a). However, a large body of literature has shown that as age increases, physical activity level decreases in children between the ages of 6 and 15 (Cooper et al., 2015; Farooq et al., 2018; Jago et al., 2017b; Jago et al., 2020; Nader et al., 2008; Sport England, 2022; Telama et al., 2014). This is very important because this decrease coincides with the average age of onset for many mental health conditions globally, (Solmi et al., 2022), some starting as early as four years old (Kessler et al., 2007).

In the UK, a longitudinal study found there was a decrease in physical activity between Year 1 and 4 (Jago et al., 2017b). Data was collected from primary school children and their parents at two points, one in Year 1 (age 5-6), with a follow up in Year 4 (age 8-9), with a total of 1837 children participating at either one or both stages. The results displayed an increase in sedentary time and decrease in physical activity between Year 1 and 4, consistent with the ICAD data analysed by Cooper et al (2015). These findings suggest the importance of early intervention to prevent this age related decline of physical activity (Jago et al., 2017b). Furthermore, the lack of engagement with physical activity during childhood has far-reaching consequences, with children growing up less active, less healthy, and less inclined to get moving (Farooq et al., 2018).

4.1.2 What Influences Childhood Physical Activity

There are several factors that can influence an individual's physical activity level. A few being their demographic characteristics, personal beliefs and attitudes about physical activity, social environment (e.g. supportive family and friends), physical environment (e.g. accessible facilities) and government policies (Glanz et al., 2008; Lee & Park, 2021). When focusing on a child's social environment, parents and caregivers play a large role and so understanding their perspectives and barriers to supporting their child's physical activity levels is necessary. However, it is equally essential to recognise that not all parents may understand the influence they may have on their child, and so it is necessary to inform them of their direct and indirect effect on their child's physical activity behaviour (Anderson et al., 2009).

4.1.2.1 Parental Support

Beets et al (2010) conducted a review investigating parental social support and youth physical activity-related behaviours. Based on the 80 papers included in this review, four primary forms of support were identified: 'instrumental' (e.g. financial support and transport) (Davison et al., 2003), 'conditional' (e.g. doing the activity with child) (Welk et al., 2003), 'motivational' (e.g. encouragement and praise), and 'informational' (discussing physical activity benefits) (Beets et al., 2010). These variations in support have been grouped into tangible support ('instrumental' and 'conditional') and intangible support ('motivational' and 'informational') (Beets et al., 2010).

These results are mostly supported by another systematic review that was conducted looking into parental influence on youth's physical activity (Edwardson & Gorely, 2010).

This review included papers focusing on children aged 6-11 years or adolescents aged 12-18 years. In contrast to Beets et al (2010) review, modelling was included as a form of support and was deemed to be significant. Edwardson & Gorely's (2010) review included 86 studies, with 36 on children (aged 6-11), 55 on adolescents (aged 12-18), and 5 on both. The data for children aged 6-11 displayed a positive association between several factors: parental involvement and child's overall physical activity, mothers modelling and moderative to vigorous physical activity, and overall support and organised physical activity. They also found that fathers modelling, and parental involvement were both associated with leisure-time physical activity (Edwardson & Gorely, 2010). Parental encouragement, involvement and facilitation have been deemed the three most important forms of parental support (Gustafson & Rhodes, 2006)

One study exploring the influence of parents on their child's physical activity level found that social support and social influence were most significant (Welk et al., 2003). They had 994 children (mean age = 9.95 years) and 56 parents, the majority mothers, take part. This study had a diverse and representative sample for the area with 32% of participants not being Caucasian. Children completed a survey during PE class, while parents were sent a separate survey home (Welk et al., 2003). They found that parents have a direct and indirect (through vicarious reinforcement) influence on their child's physical activity. Suggestions were made on the three main ways parents can do this; a) 'social influence' (e.g., encouragement); b) 'social support' (e.g. providing transportation); and c) 'parental influence' (modelling). Results showed that 'social support' and 'social influence' were the most powerful mediators of a child's physical activity, while 'parental influence' through modelling was not a major source of influence. Furthermore, parents who were more physically active were more likely to support their child's physical activity (Welk et al., 2003). Similarly, Trost & Loprinzi (2011) found a strong positive association between parental support and child physical activity behaviour. In addition, they found parental physical activity to have an influence (Trost & Loprinzi, 2011).

Generally there is an agreement that intangible support in the form of motivation (e.g. encouragement), (Trost et al., 2003; Welk et al., 2003; Zecevic et al., 2010) and tangible support in the form of conditional (doing the activity with child) and instrumental (transportation) (Beets et al., 2010; Edwardson & Gorely, 2010; Trost et al., 2003; Trost & Loprinzi, 2011; Welk et al., 2003) are important sources of parental support and influence. Noticeably, there are inconsistencies with modelling being seen as an important form of

parental support, with some studies finding it significant (Edwardson & Gorely, 2010; Zecevic et al., 2010), while others found it less impactful (Troost et al., 2003; Welk et al., 2003). These inconsistencies could be due to methodological differences in how physical activity was measured, and the specification of activity when examining social support (Beets et al., 2010; Edwardson & Gorely, 2010). Furthermore, the discrepancies on what social support entails could be another reason for the inconsistencies. Many studies either combined the various forms of support (tangible and intangible), or were unclear on what type of support they were investigating (Cheng et al., 2014; Garcia et al., 2016; Sleddens et al., 2012; Welk et al., 2003).

4.2.1.2 Child's Perception of Parental Physical Activity Level

Nonetheless, similar to the research on parental support, there are inconsistencies within the literature that focuses on the influence of parental physical activity on their child's physical activity level (Gustafson & Rhodes, 2006). Findings from one paper found a small association between parent's physical activity level and their child's (aged 8-9) physical activity level (Jago et al., 2017c). Though, the researchers in this study concluded that interventions focusing on parental physical activity to increase child physical activity level will not make much of an impact (Jago et al., 2017c). However, another study also found a positive association between parental physical activity and young children, reflecting a potential direct influence from parents on children's lifestyle (Trudeau et al., 2004). One review also found a strong positive correlation between two active parents and child physical activity (Gustafson & Rhodes, 2006). Children with one active parent were more active than children from families with no active parent (Gustafson & Rhodes, 2006).

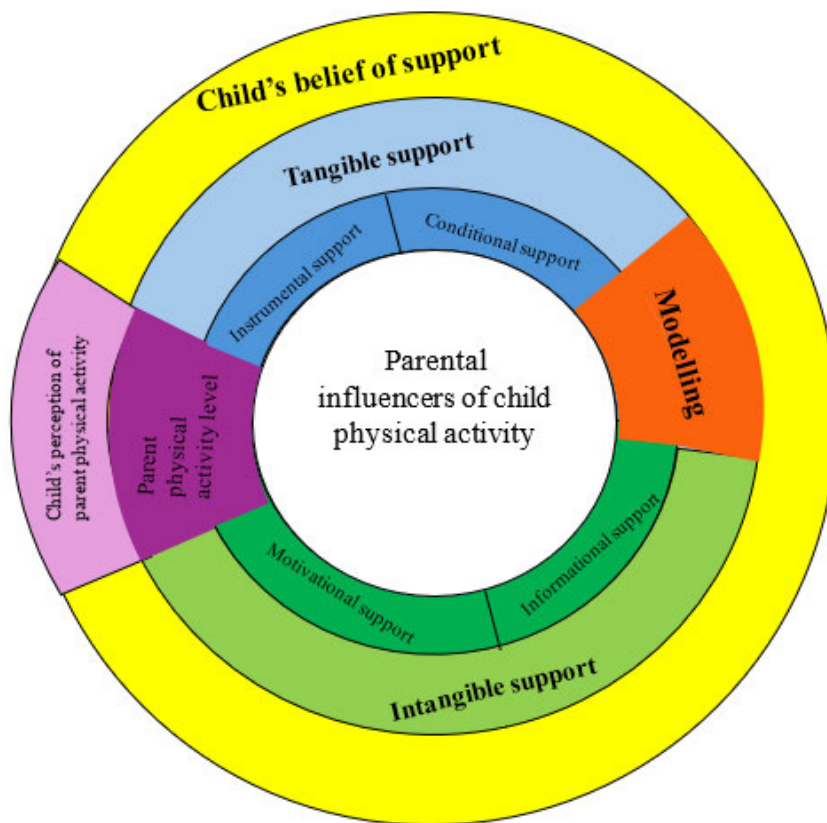
Furthermore, research suggests that young people who perceive their friends and parents to be more physically active (Cheng et al., 2014) and children who perceive their parents to be physically active (Edwardson & Gorely, 2010) are influenced by this and may be more physically active themselves. However, it is not just about perceiving others being physically active; a lack of support in parental recognition of a child's physical activity level could be an important barrier to their child's physical activity behaviour change (Bentley et al., 2012). A paper focusing on children aged 5-6 years old also found similar results, there was a weak association between parent's time spent in moderate to vigorous physical activity and child's moderate to vigorous physical activity level (Jago et al., 2014). However, parental modelling and facilitation of physical activity for the children was not examined in this study (Jago et

al., 2014). As previous studies have found, modelling and facilitation could help with children's physical activity level (Beets et al., 2010; Edwardson & Gorely, 2010; Trost et al., 2003; Trost & Loprinzi, 2011; Welk et al., 2003; Zecevic et al., 2010). Children would perceive their parent's physical activity level through parental modelling. While modelling may not directly be mentioned in these studies, through this form of support, their child would perceive them to be physically active. This could potentially increase their own physical activity behaviour, leaning into the argument that modelling could be influential, either directly or indirectly. However, despite parental support being important, the child's belief of this support is equally significant (Shen et al., 2018). Children's belief of the social support they are receiving can help model their attitude and values toward physical activity, impacting their physical activity behaviour (Shen et al., 2018).

The various ways in which children can be supported or influenced with their physical activity are fairly intertwined, with various literature suggesting one form of support may be more or less important than the other, or that parental physical activity can influence child physical activity. To simplify the literature, Figure 4.1 has been created, showcasing how interconnected the factors influencing child physical activity are.

Figure 4. 1

Factors that influence child physical activity



Again, the way physical activity is measured could be one reason for the inconsistencies. Beets et al (2010) found that studies using objective measures of physical activity either had no relationship with social support or had a weaker relationship in comparison to self-reported physical activity. However, there seems to be variations within the type of objective measures used for physical activity, including accelerometers, and heart rate monitors, of which, all measure different characteristics of physical activity (Edwardson & Gorely, 2010; Gustafson & Rhodes, 2006; Jago et al., 2017). The variety of self-report measures for physical activity (e.g., the difference in recollection period) and instruments used for parental support used within many studies could also be the reason for inconsistencies (Cheng et al., 2014; Edwardson & Gorely, 2010; Garcia et al., 2016; Welk et al., 2003). In addition, Beets et al (2010) also expressed in their review the concern about the wording of physical activity in the available questionnaires for social support, as generally, they include physical activity

and sports together. This is an issue because the type of support needed for physical activity could be very different to the type of support needed for sports.

Regardless, parents are gatekeepers to, and essential in children's physical activity (Davison et al., 2003; McElroy, 2002). They fund and organise activities, as well as participate, provide encouragement and transportation, all of which have been linked to higher levels of physical activity for children (Davison et al., 2003; McElroy, 2002). Understanding the most effective form of support parents can provide is essential because parental support can also help with maintenance of physical activity habits later on, particularly in the case of adolescent girls (Dowda et al., 2007). Despite the inconsistencies in the literature, overall, parental support positively affects children's physical activity levels, whether direct or indirect and in various forms. Therefore, it is important to understand the barriers and facilitators parents face when supporting their children's physical activity level. Factors such as ethnicity, education level, and age can all play a role in a parent's physical activity level and their ability to support their child's physical activity.

4.1.3 Barriers and Facilitators to Supporting Child Physical Activity Level

4.1.3.1 Predictors of Physical Activity

Sociocultural, environmental, and individual factors (e.g. age) have been identified as factors that specifically affect children's physical activity levels (Wyszyńska et al., 2020). With those from particular demographic groups, i.e. minority ethnic groups and those with a disability being overrepresented among the inactive population (Moore, Vernon, et al., 2023). Over the last few years, Sport England's surveys have found a difference in children's physical activity levels based on age, gender, ethnicity and family affluence (Sport England, 2022, 2023a, 2024). A difference has also been found in family social support based on ethnicity, however it is unclear with these studies whether it is due to cultural differences in parent-child interaction or difference in parenting styles (Beets et al., 2010). Regardless of the reason for these differences between ethnicities, happiness from having a programme that was culturally exclusive was expressed from parents and African American girls (Story et al., 2003). Thus, highlighting the question of how ethnicity can affect physical activity behaviours, and providing one way to support minority ethnic groups (Story et al., 2003).

In adults, sex, education level and age also had significant effects on the physical activity levels, with males statistically reporting to be more physically active than females (Lee &

Park, 2021). Parent occupation, income and education has also been associated with physical activity during leisure time, income in particular was most stated when the activity was restricted to sports (Stephens et al., 1985). Similar results, with more barriers were found in a UK based study on parents. Khanom et al. (2020) interviewed parent communities in the UK and found several barrier themes: a) the balance between work and family life; b) space, safety, and accessibility outdoors; c) parental beliefs and attitudes; and d) facilitators for physical activity (such as information). Another UK study indicated that parents reported similar barriers to engaging in physical activity such as cost, time and lack of a safe outdoor environment (Bentley et al., 2012). They also found that their child's willingness to be active and enjoyment of physical activity to be an issue, they found it difficult to encourage physical activity based on their child's preference (Bentley et al., 2012). Parents with multiple children also mentioned the difficulties in managing all their children, especially if they differed in age (Bentley et al., 2012).

4.1.3.2 Knowledge of WHO Guidelines and Overestimation of Child's Physical Activity Level

When focusing on the barrier 'information', it has been reported that very few parents know the WHO physical activity guidelines for their children and so may not be aware that their children are not as physically active as they should be (Sawyer et al., 2014). Furthermore, White participants are more likely to have more knowledge of the guidelines in comparison to ethnically minoritised participants (Sawyer et al., 2014). The reason that a parent's understanding of the recommended guidelines for physical activity is important is because it would provide them with the baseline to assess their child's physical activity level. Without them knowing it, they may assume due to their child's body composition and weight (Corder et al., 2010), or how often they transport their child to an activity (Corder et al., 2012), that their child is meeting the guideline or is active enough. Parents have equated their active child with them being slim, and excess weight with their child being inactive (Bentley et al., 2012). This could result in parents pushing their child who they deem overweight or not an acceptable weight to constantly be physically active, while a child they deem an acceptable weight to not be as active. Additionally, these beliefs could then result in their child believing that physical activity is all about weight. As previously discussed, parents play a vital role in teaching skills and principles that then shape their child's attitude and behaviour towards physical activity (Edwardson & Gorely, 2010; Trost & Loprinzi, 2011).

Parents have also been found to overestimate their child's physical activity level. In one study based in the UK, parents with children who had a lower fat mass index, assumed their child must have been active enough (Corder et al., 2010). Increasing education and awareness on the benefits of physical activity, that go beyond weight control, could help with reversing the misconceptions and overestimation of physical activity levels (Corder et al., 2010). This was also found by Bentley et al. (2012) who interviewed parents, and found that parents emphasised that physical activity had a role in weight management and they associated their child's weight and size, with their activity level (Bentley et al., 2012). Nonetheless, overestimation of physical activity level is not the only issue; parents incorrectly also assume their child is meeting the WHO guidelines for physical activity. One study found that in the UK around 90% of the mothers perceived their preschool child to be active despite just over 40% of the children in the study not meeting the recommended guidelines (Hesketh et al., 2013). The results from this study highlight the idea that if a parent is unaware their child is not meeting the guidelines, they could be less inclined to encourage physical activity and not take part in interventions to promote it (Hesketh et al., 2013). It is possible the reason for this overestimation in Hesketh et al.'s (2013) study is due to social desirability bias, or it could be due to the methodology within this study. The parents were asked whether they believed their child was active rather than whether their child engaged in 60 minutes of activity per day (Hesketh et al., 2013).

Parents may also be unaware of the guidelines, although this study did not focus on that. However, this overestimation has been found in other literature regardless of the way in which parents were asked to report their child's physical activity (Corder et al., 2012). Furthermore, this level of overestimation has been found when adults refer to their own level of physical activity (Van Sluijs et al., 2007; Watkinson et al., 2010). Therefore it is plausible to believe that many parents may not actually be aware of how physically inactive their child is (Hesketh et al., 2013). Many parents in these studies believe that their child is being active enough, despite not meeting the guidelines, suggesting that they may not know what the recommended amount of physical activity for their child is. However, these results are not limited to the UK. In a study based in the USA focusing on parental awareness of children's physical activity level, most parents incorrectly categorised their child as meeting the physical activity guidelines on days when their child was actually inactive and not meeting the guidelines (Corder et al., 2012). Furthermore most parents overestimated their child's physical activity level during some point in the measurement period (Corder et al., 2012).

Results from this study also found that parents who reported to be more supportive, overestimated their child's physical activity level, particularly parents who provided tangible support such as transportation (Corder et al., 2012). Even if a child does not meet the guidelines, parents who provide transport to physical activity locations may assume that their child is active enough (Corder et al., 2012).

4.1.4 Aims

Based on the current evidence, the aim is to better understand the factors that influence parents to support their child's physical activity at home. This will be achieved through the following objectives:

- Explore parental perception of the importance of PE
- Explore the effects of parent physical activity level on child physical activity level
- Explore the effects of parental knowledge of government guidelines on child physical activity
- Explore the effects of parent ethnicity on child physical activity level
- Explore the effects of parental support (conditional and motivational) on child physical activity level
- Explore barriers parents face when supporting their child's physical activity at home

Focus was also placed on the ethnic diversity of participants through strategic recruitment processes, as previous literature suggests that ethnicity plays a role in child physical activity. These aims were specifically identified because previous literature suggests that parents are key in shaping how children feel about physical activity and how active children are (Anderson et al., 2009; Beets et al., 2010; Edwardson & Gorely, 2010; Trost & Loprinzi, 2011; Welk et al., 2003)

4.2 Methods

4.2.1 Study Design

As explained in Chapter 3, section 3.4.2.1, an explanatory sequential mixed methods designed was used to explore facilitators and barriers parents experience in supporting their child's physical activity.

4.2.2 Methods for Quantitative Data Collection (Questionnaire)

4.2.2.1 Participants.

Participants were contacted and recruited through several methods; social media, word of mouth, schools and sports companies that work with primary school children. As the study was based in England, participants had to have a child in a primary school in England. An advert was created and circulated containing all the information about the study and how to participate. Table 4.1 provides characteristics of the caregiver population and of their child. A total of 103 parents completed the questionnaire.

Table 4. 1*Characteristics of survey study population – caregivers and child*

Characteristic	No.	Percent
Total sample	103	
Caregiver		
Mother	79	77
Father	24	23
Main care giver	101	98
Ethnicity of parent		
White	64	62
Black & Caribbean	29	28
Other Ethnicity	10	10
Education level of parent		
Primary – A level	18	17
Undergraduate or postgraduate degree	82	80
Prefer not to say	3	3
Education year of child		
Reception & KS1	44	43
KS2	59	57
Ethnicity of child		
White	59	57
Black & Caribbean	27	26
Other Ethnicity	17	17
Free school meal eligibility		
Yes	27	26
No	76	74
Area of residence		
Big city	31	30
Suburbs or outskirts of city	33	32
Town	24	15
Village/rural area	15	15

Mean age of caregivers was 30.02 years (SD=5.692)

4.2.2.2 Instrument and Procedure.

4.2.2.2.1 Physical Activity Questions (Data Presented in the Current Chapter):

The full details of the questionnaire and procedure can be found in Chapter 3, section 3.4.2.1.1. In this chapter the results of the physical activity questions will be analysed and discussed.

4.2.2.3 Data Analysis.

Where appropriate data was reduced using an exploratory factor analysis. For the factor analysis, the number of factors to be extracted was determined using parallel analysis (eyeballing a scree plot and eigenvalues over 1.0) and an Oblimin rotation was applied. Appropriate assumption tests were conducted prior to the factor analysis using Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity. All simple relationships were explored using Spearman's correlation coefficients and complex relationships were explored using regression analysis with appropriate assumption tests conducted prior to analysis. The assumption of independence of residuals was assessed by the Durbin-Watson statistics test. The linear relationship was assessed using scatter plots. Evidence of multicollinearity was assessed using correlations and VIF. Participants standardised residuals were checked to ensure they were above three standard deviations, and the distribution was checked using histograms and P-P plots. Finally, independent sample t-tests (or non-parametric equivalent) were conducted to determine the presence of group differences and Chi-square was conducted to determine the associations between factors. All statistical tests were conducted using SPSS 25 and an alpha value of .05 was used to determine significance.

4.2.3 Methods for Qualitative Data Collection (Interviews)

4.2.3.1 Participants

A total of 32 parents provided their email to be contacted regarding an interview, all were emailed and invited to participate, those that did not respond were sent one follow-up email. Of the 32 parents, eight took part in individual semi-structured interviews. Table 4.2 provides the characteristics of the parents and their child.

Table 4. 2*Characteristics of interview participants*

	P1	P2	P3	P4	P5	P6	P7	P8
Caregiver	Mother	Mother	Mother	Mother	Mother	Mother	Mother	Father
Caregiver age	31	39	43	46	36	40	37	32
Caregiver ethnicity	White	White	White	White	Any other Black / African / Caribbean background	White	White	African
Child age (years)	7	5	7	5	10	11	4	5
Child gender	Boy	Boy	Boy	Girl	Girl	Girl	Girl	Boy
Child ethnicity	White and Black African	White	White	White	Any other Black / African / Caribbean background	White	Any other mix/multiple ethnic backgrounds	African

4.2.3.2 Instrument and Procedure

The full explanation for the instrument and procedure of the qualitative data collection can be found in Chapter 3, section 3.4.2.2.

4.2.3.3 Data Analysis

To examine these data, thematic analysis was used; this is a method that identifies, analyses and reports patterns, also known as themes, within data (Braun & Clarke, 2021, p.4). This method was used to analyse the data due to its flexibility and ability to be used across a variety of theoretical approaches (Braun & Clarke, 2022). In the analysis, the guidelines of reflexive thematic analysis were broadly followed, as it can be useful when researching people's experiences, perception, and views (Braun & Clarke, n.d.). There are several variations of this method, as shown in Table 4.3, however, these are guidelines rather than rigid rules and in cases such as inductive and deductive orientation to data, are seen as more of a spectrum (Braun & Clarke, 2021).

Table 4. 3

Variations of reflexive thematic analysis

Orientation to data	Inductive Analysis is located within, and coding and theme development are driven by, the data content	Deductive Analysis is shaped by existing theoretical constructs, which provide the ‘lens’ through which to read and code the data and develop themes.
Focus of meaning	Sematic Analysis explores meaning at the more surface, explicit, or manifest levels	Latent Analysis explores meaning at the more underlying or implicit levels
Qualitative framework	Experimental Analysis aims to capture and explore people’s own perspectives and understandings	Critical Analysis focuses on interrogating and unpacking meaning around the topic or issues
Theoretical frameworks	Realist, Essentialist Analysis aims to capture truth and reality, as expressed within the dataset	Relativist, Constructionist Analysis aims to interrogate and unpack the realities that are expressed within the dataset

This table has been taken from Braun & Clarke (2021) p.10.

The approach taken to the orientation to data was a mixture of inductive and deductive orientation, also known as an abductive approach (Lipscomb, 2012; Thompson, 2022; Timmermans & Tavory, 2012; Townsend & Cushion, 2017). This was done using NVivo 14. The initial stages of coding (see Table 2.4) were driven by the data content. However, due to the interview guide being created using data from the questionnaire, general themes were already created, and so stages 3, 4 and 5 (see Table 4.4) which are the stages of creating themes, and refining both codes and themes were influenced by this. Despite this, these themes were open to change, and within the themes reflexive analysis was used to code throughout the interviews.

Table 4. 4

The six step process to reflexive thematic analysis (Braun & Clarke, 2021)

Phase	Description	Application
1	Familiarising yourself with the data	Audio recordings of interviews were transcribed verbatim in Microsoft Word. Transcripts were then checked against the recordings and amended where necessary. Initial ideas for codes were also noted
2	Coding	The transcriptions were then put into Nvivo 14, and each interview was individually coded. Through using Nvivo, any reoccurring codes throughout the interviews were able to be coded together.
3	Initial themes	Similar codes were then grouped together into the themes used in the interview guide and other potential themes.
4	Reviewing themes	All codes were reread, refined, some were removed while others renamed. Additional themes were also established. Codes within each theme were then reread.
5	Defining and naming themes	Whilst there were initial themes used from the interview guide, these alongside the new themes created were then further refined. They were also renamed if needed and the codes within each theme were then read through again.
6	Writing up	The final analysis of this data was then written up within this thesis.

Reflexive statement

Researcher subjectivity is the primary tool for reflexive thematic analysis (Braun & Clarke, 2021). As our positionality (e.g. ethnicity, sex, gender) and who we are as a person (e.g. socioeconomic environment, personality) play a central role in the research process (Palaganas et al., 2017), it is important as researchers we are reflexive of how our experiences and positionality can influence our research. There are many ways in which to discuss research subjectivity including personal reflexivity, where a researcher explores how their prior experiences and motivations could influence any decisions made throughout the study (Olmos-Vega et al., 2023). Thus, it is important to acknowledge that my interests and previous experiences have influenced the questions asked and the analysis process.

My undergraduate degree was in Sports, Health and Exercise Science where I grew an interest particularly into public health and wellbeing. During this degree I also coached football to children aged 18 months – 7 years old and completed my level three personal trainer course. I have had a personal interest in fitness and physical activity for many years prior to conducting this study, and this further developed during my masters in which I studied Mental Health Studies. I chose that course due to my interest in using physical activity to better support mental health and overall wellbeing. As a result, when taking on this PhD and creating my study, my focus was on wellbeing and mental health, particularly in children, with the goal of understanding how to make physical activity fun and accessible for all. Aside from my research interest, it is also important to note that I am a Black woman, and so my focus on diversity in my study has come from both the lack of diversity in the current literature and my personal viewpoint as a Black woman of wanting more diversity in my work. Additionally, I am not a parent or former teacher, so the way in which I viewed the data and the follow up questions asked in the interviews would have been affected by my views on the importance of physical activity and experiences I had in PE. Different questions may have been asked by an individual who is a parent or former primary school teacher.

4.2.4 Integration of Quantitative and Qualitative Data

The quantitative and qualitative data were integrated using what Fetters et al. (2013) refer to as a ‘narrative approach’ to the interpretation and reporting of mixed-methods data. There are three ways in which this narrative approach can be used, one being the ‘weaving’ approach. This consists of writing both quantitative and qualitative data together, on a theme by theme basis, in this case enabling the opportunity to use qualitative data from the interviews to explain the quantitative data from the questionnaire (Curry & Nunez-Smith, 2015; Fetters et al., 2013). Where appropriate, the themes from the interviews were integrated to further explore the statistical data and provide an explanation for the results. Themes that were not woven with quantitative data will be presented separately.

4.3 Results

4.3.1 Data Reduction

All the questions from the questionnaire related to physical activity, which were based on a 5-point Likert scale (see Appendix 1), were subject to a factor analysis using component

matrix analysis with direct oblimin rotation. The 10 questions can be seen in Table 4.5, these questions are on support (tangible and intangible) and child's enjoyment of physical activity.

Kaiser-Meyer-Olkin measure of sampling adequacy was .84, above the commonly recommended value of .6, and Bartlett's test of sphericity was significant ($\chi^2(45) = 510.57, p < .001$). Using the scree plot and eigenvalues it was decided to extract two factors, which explained 63% of the variance in the data.

Table 4. 5

Factor loading of physical activity questions (designed to be tangible and intangible support, and child's enjoyment of physical activity)

	Component 1	Component 2
I encourage my child to be physically active	.83	-.40
I also encourage my child to try a variety of different activities (e.g. tree climbing, walking, swimming, playing in the park)	.75	-.37
I praise my child when they are physically active	.72	-.43
I consider myself a supportive parent for my child's physical activity	.66	.44
I try and show enthusiasm about physical activity	.68	.07
I model physical activity for my child by being physically active myself	.71	.50
I try to be physically active in front of my child, even if I do not enjoy it	.62	.53
I show my child how much I enjoy being physically active	.71	.54
I frequently exercise or do something active with my child for example organising family outings that involve physical activity (going for a walk or a bike ride, going ice skating).	.66	.27
How much does your child enjoy physical activity outside of PE?	.37	-.21

Component 1 was labelled ‘parental support’ because of the high loading by all of the items, except the question “How much does your child enjoy physical activity outside of PE” which was removed due to low loading. This component explained 47% of the variance after rotation. Component 1 includes both tangible and intangible support questions. Despite previous literature’s suggestion to separate the different forms of support (Sleddens et al., 2012), based on the factor analysis, tangible and intangible support has been merged together to create a new variable ‘parental support’. A high score highlights that parents felt they were supportive of their child’s physical activity (M = 38.56, Range = 18). Child’s enjoyment of physical activity will be used alone later. As all the questions except child enjoyment loaded strongly on component one, there is no component two because no question loaded strongly on this component.

The remaining physical activity questions that were not entered into the factor analysis can be found below; these include child’s attitude to physical activity, physical activity levels of parent and child, parental barriers, and parental understanding of WHO guidelines.

4.3.2 Physical Activity Levels

The descriptive for parental and child physical activity level can be found in Table 4.6. Parents on average were active for 4.87 days and children were active for an average of 4.46 days out of the week.

Table 4. 6

Mean score for parental and child activity level

	N	Number of days (M)	SD	Min	Max
Parent	103	4.87	1.90	1	8
Child	103	4.46	1.98	1	9

4.3.3 Parental Barriers Towards Child's Physical Activity

Barriers parents may face with their child's physical activity level were ranked from highest to lowest based on mean score, this can be seen in Table 4.7. The higher the mean score, the more people expressed it was a barrier and as a result, time was the biggest barrier.

Table 4. 7

Parental barriers towards physical activity

Barrier	Mean
Time	2.80
Close enough services/environments	2.49
Money	2.43
Skill	2.11
Access to what I need	2.03
Physically able	1.88
Emotionally able	1.57

4.3.4 WHO Guidelines

Parental understanding of the World Health Organisation (WHO) guidelines for children's physical activity level was then assessed. Participants were given a statement from the guidelines and four options as to how many minutes their child should be doing each day, most of the participants (71%) incorrectly answered the question.

To determine whether there was a difference in parental support based on understanding of WHO guidelines an independent t-test was conducted. There was no significant difference in parental support from parents who correctly selected the WHO guidelines ($M = 38.55$, $SD = 4.35$) and parents who were incorrect ($M = 38.56$, $SD = 5.20$); [$t(100) = -.01$, $p = .99$]. Therefore, correctly or incorrectly selecting the WHO guidelines had no effect on how supportive parents felt they were able to be towards their child's physical activity.

In addition, to understand factors that may be associated with parental understanding of WHO guidelines, the following factors were explored: child physical activity, child's age and parental ethnicity. A chi-square test of independence showed there was no statistical significance in the association between parental understanding of WHO guidelines and child's physical activity level $\chi^2 (1) = .849, p = .357$, or parental understanding of WHO guidelines and parental ethnicity groups $\chi^2 (2) = 4.73, p = .094$. Furthermore, an independent t-test found no significant difference in child's age for parents who correctly selected the WHO guidelines ($M = 7, SD = 2.24$), and parents who were incorrect ($M = 7.51, SD = 2.02$); [$t (101) = -1.12, p = .27$].

4.3.5 Predictors of Child's Physical Activity

Previous literature has suggested that demographic and socioeconomic factors, alongside barriers such as money, time, and access to facilities could affect a child's physical activity level. To determine whether these were a factor, a Spearman's rank order correlation was run with all the demographic factors, socioeconomic factors, all seven barriers shown in Table 4.7 and child's enjoyment of physical activity; this can be seen in Table 4.8. Child's physical activity positively correlated with parental physical activity ($r_s (101) = .28, p = .004$), parental support ($r_s (100) = .22, p = .03$), child's enjoyment of physical activity ($r_s (100) = .33, p = .001$) and negatively correlated with parent ethnicity ($r_s (101) = -.20, p = .05$) and lack of money ($r (101) = -.23, p = .02$).

Table 4. 8

Correlation between child's physical activity level and demographic & socioeconomic factors, barriers and child's enjoyment of physical activity

Child physical activity level			
	(df)	r	p
WHO guidelines	101	-.15	.14
Parent physical activity level	101	.28**	.00
Parent ethnicity	101	-.20*	.05
Parental support	100	.22*	.03
Free school meal eligibility	101	-.11	.29
Area of residence	101	.08	.40
Caregiver education level	98	.01	.89
Child's age	101	-.14	.15
Child enjoyment of physical activity	101	.33**	.00
Not physically able to support	101	-.06	.56
Not emotionally able to support	101	-.01	.89
Not enough skill to support	101	-.06	.56
No access to what's needed	101	-.14	.17
Not enough time to support	101	-.16	.10
Not enough money to support	101	-.23*	.02
Cannot access close enough services/ environments to support	100	-.11	.28

Consequently, a linear regression was conducted to see whether these statistically significant factors predicted child's physical activity level. There were independent of residuals, as assessed by a Durbin-Watson statistics, of 2.06. As this number is between 1-3 it is deemed independent (Field, 2013). Multicollinearity was assessed using correlations and VIF (parental support, *tolerance* = .81, *VIF* = 1.24; caregiver physical activity level, *tolerance* = .87, *VIF* = 1.1, not enough money to support, *tolerance* = .91, *VIF* = 1.10; caregiver ethnicity, *tolerance* = .99, *VIF* = 1.0; child enjoyment of physical activity, *tolerance* = .90, *VIF* = 1.12). As the collinearity tolerance for each variable was above .10, and VIF

was less than 10, there was no evidence of multicollinearity (Pallant, 2020). There were no participants whose standardised residuals was above three standard deviations, and residues were normally distributed as assessed using a histogram and P-P plots.

The results of the regression shown in Table 4.9 indicated that the model explained 27% ($R^2 = .27$) of the variance and that the model was significant, $F(5, 96) = 7.15, p < .001$. It was found that caregiver physical activity level ($\beta_1 = .21, p = .03$), and child's enjoyment of physical activity ($\beta_1 = -.80, p < .001$) significantly predict child physical activity. Caregiver ethnicity ($\beta_1 = -.57, p = .03$) also significantly predicts child physical activity. However, with caregiver ethnicity, there is a negative prediction, a decrease in child physical activity is associated with participants who are non-White.

Table 4. 9

Regression table for predictors of child's physical activity level

Child's physical activity level	B	SE B	β	p	95% CI	
					LB	UP
Parental support	.03	.04	.07	.48	-.06	.10
Caregiver physical activity level	.21	.09	.21	.03	.03	.39
Not enough money to support	-.19	.13	-.13	.16	-.45	.08
Caregiver ethnicity	-.57	.26	-.20	.03	-1.08	-.06
Child enjoyment of physical activity	.80	.22	.33	.00	.35	1.24

4.3.6 Skill-based vs Play-based Physical Activity

Parents were asked what they felt their child would gain from organised physical activity (skill-based), and non-organised physical activity (play-based). They were provided with 22 characteristics to select from for each question, they could select as many as they wished.

These characteristics were the same for both questions, and they were grouped into four categories during the analysis stage:

Mental Health (seven options): *Fun and enjoyment, reduced stress (let off steam), reduced anxiety, improved wellbeing, confidence and self-esteem, resilience, improved mental health*

Physical Health (three options): *Liking activity and wanting to be active, improved coordination / motor skills, improved physical health*

Social Health (five options): *Sportspersonship and respect for rules and officials, teamwork, competition (challenging others), friendships, social skills*

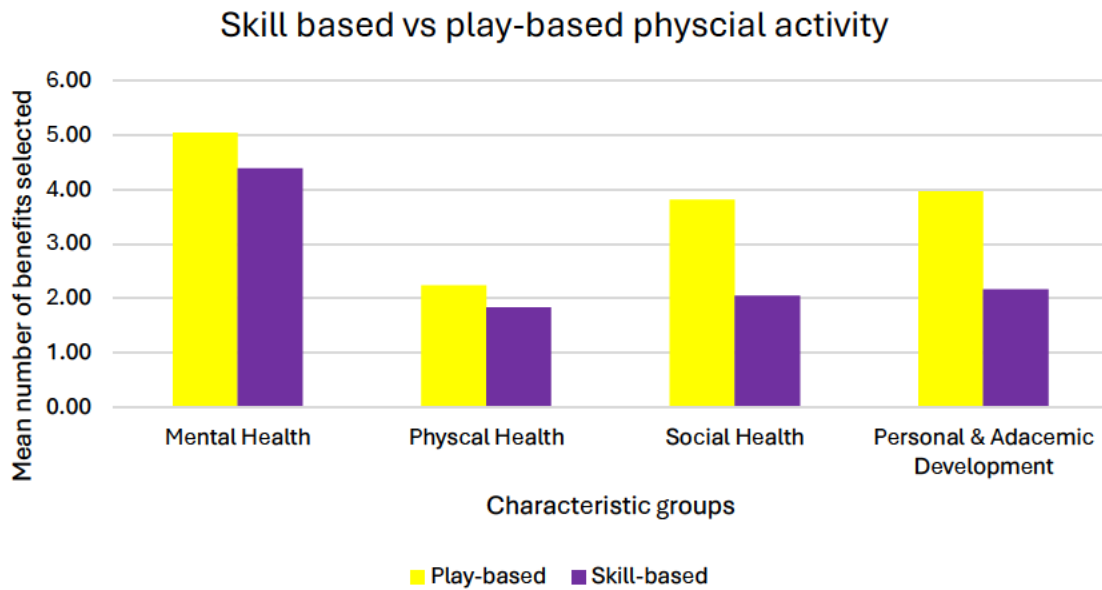
Personal and Academic Development (seven options): *Competition (challenging self), discipline, self-defence, improved concentration, improved academic performance, improved communication skills, organisational skills*

During the grouping of the questions, the number of selections for each category was used to create a sum. These categories have been used for comparison between play-based and skill-based activities, there is no comparison being done across the four categories.

A paired samples t-test was conducted to determine whether parents felt that there were better **mental health, physical health, social health and personal and academic development** benefits from play-based activities compared to skill-based activities. For all four areas, mental health, physical health, social health and personal and academic development a significant difference was seen: **mental health** benefits from play-based activities (M=5.05, SD=2.17) and skill-based activities (M=4.39, SD=2.43); [t(102) = 2.73, $p = .007$], **physical health** benefits from play-based activities (M=2.23, SD=1.05) and skill-based activities (M=1.83, SD=1.25); [t(102) = 3.65, $p < .001$], **social health** benefits from play-based activities (M=3.82, SD=1.23) and skill-based activities (M=2.05, SD=1.52); [t(102) = 10.89, $p < .001$], and **personal and academic development** benefits from play-based activities (M=3.96, SD=2.31) and skill-based activities (M=2.17, SD=2.47); [t(102) = 9.00, $p < .001$]. For all four areas, benefits were seen as higher for play-based activities. The higher the number, the more benefits selected within the groups, for all four areas more benefits were selected for play-based physical activity compared to skill based. This can be seen in the graph below in Figure 4.2.

Figure 4. 2

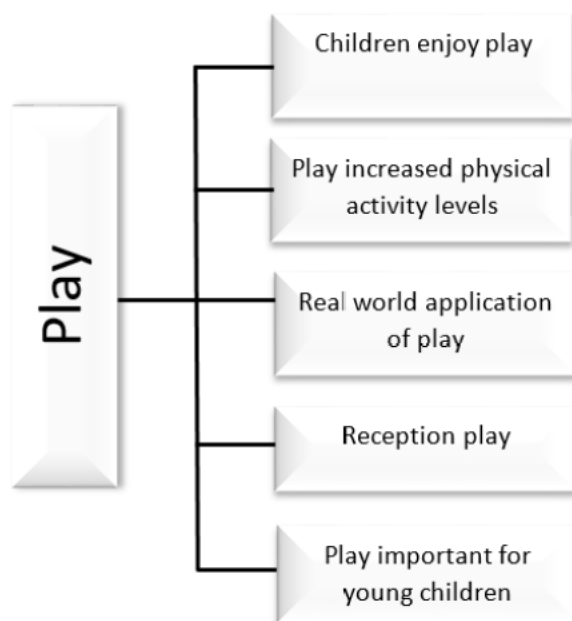
Graph showing skill-based vs play-based benefits



Analysis of the interview data provided explanatory themes in relation to the mentioned benefits of play-based activities; parents mentioned the concept of play, how they felt about it, with many parents placing value on play. The theme ‘Play’ can be seen in Figure 4.3.

Figure 4. 3

‘Play’ theme and sub-themes



Parents valued play; one expressed that most children love to play and that it could increase children's physical activity level:

Participant 7: "It's not really many kids out there that don't really enjoy playing that that enjoyment might come in different forms and the play that they enjoy might be different, but, kids love to play...and so if you know we could embedded more of that kind of thing play based movement then that can and just get, you know, increase their physical activity levels"

Another mentioned that they felt play had real world application in comparison to being sat down and learning through structure:

Participant 1: "they can make those connections in the real world better through play as opposed to being sat down and told this is how we're gonna do it this is the structure of it when they're freely making the connections themselves I think they're they're more solid they can refer back to them better"

The idea that play predominantly happens in the 'Reception' year in school (i.e. 4-5 years of age) was also raised; parents felt that this was positive, but one parent raised the question of whether play is being taken away from children as they get older in primary school:

Participant 2: "yeah my child is so quite young so they're in foundation stage at the moment, and so they're very, they have formal PE once a week, but actually, they actively have the kids doing some sort of guided activity every day, which I think is just absolutely fantastic."

Participant 1: "I'd like us to keep that a bit longer in primary school. So, Year 5 and 6 still loads of benefits through through play. I just think we we we're taking it away from them as adults I don't think we should be doing I think we should be allowing them to do it for longer."

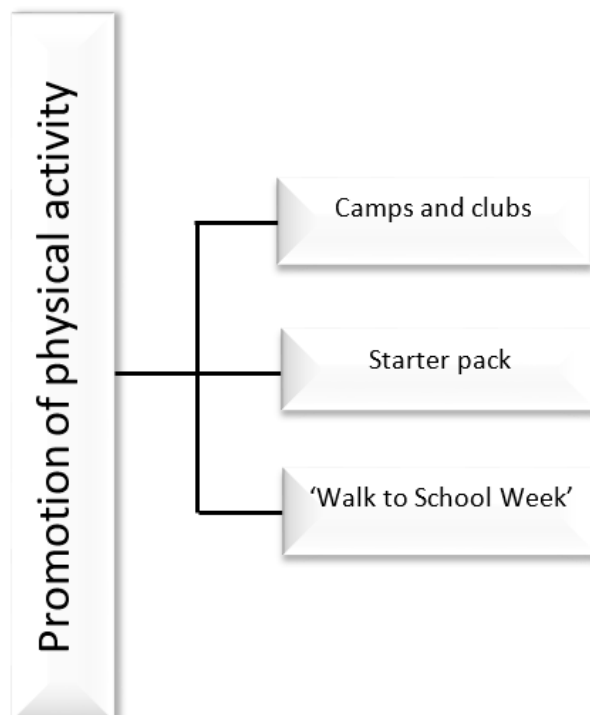
Of the parents that mentioned play, they were all positive and valued it for one reason or another. This was highlighted not only in the interviews, but also in the questionnaire (Figure 2.3); where parents felt that play-based activities would have more overall wellbeing benefits in comparison to skill-based activities. They value play as an activity that helps with child development, with some even suggesting that it should not be taken away from children as they progress in primary school years.

4.3.7 Promotion of Physical Activity

Despite parents valuing physical activity, of the 103 participants in the questionnaire, 31% of parents felt that they needed more information to support their child's physical activity. On the other hand, 8% felt that physical activity was the school's job. In the interviews parents were asked a similar question, focusing more on what type of support they receive if any and whether they would want more support, the theme 'promotion of physical activity' can be seen in Figure 4.4.

Figure 4. 4

'Promotion of physical activity' theme



The interviewees concurred that schools did not really promote physical activity frequently in their experience; few parents felt that their child's school provided them with anything in this regard. However, one parent was very happy with their child's promotion of half term and after school club activities, and another mentioned that they were provided with a starter pack in preparation for Reception:

Participant 1: *"Yes, so they do, and the half term camps the after-school clubs, all of that is promoted, and it's promoted with a fee."*

Participant 7: *“So like in the starter pack that parents got, you know, preparing your kid for reception, there is talk about them going to the playground and going on the monkey bars and you know, climbing up climbing frames and things and how that would develop their upper body strength and control and coordination, and things like that.”*

The main form of promotion stated was the ‘Walk to School Week’ scheme; a few parents mentioned this and explained that it could vary from ‘Walk to School Week’ to ‘Ride a Bike Week’, and ultimately promoted physical activity:

Participant 3: *“So this week it’s walk, to walk to school week so the homework is to have a picture or video of them doing some kind of physical transport, so scooter, bike, walking or whatever to school, so I mean that’s that’s sort of thing there are things like that, but it is not specifically I don’t think tied into their PE.”*

Participant 5: *“I think currently this week they do it’s walk to school week, so they they do like promotion stuff like that. So, this week is walk to walk to school week I don’t know if it’s a national thing, or it’s just the school doing it. Another week it might be ride to school week, where they encourage kids to ride a bike or ride their scooters to school.”*

Another theme from the interviews was ‘support’; parents discussed how schools could help support them with PE and physical activity. Focusing on physical activity, one parent mentioned the need for guidance on the dialogue to use, as they struggle with motivating their child to be physically active, especially during the winter:

Participant 4: *“It’s yeah, I think in terms of resources, it would be more around, more support about the dialogue. What you can say to a child to help motivate them into some sort of activity. Because I think when it is raining outside, and say you know I might have a plan on let’s just go to the swimming pool, it becomes problematic, in fact, even when it’s not raining outside during the winter getting children out is the challenge, so, yeah it’s more around that dialogue rather than an actual activity.”*

Another parent, who has some form of an academic understanding of physical activity, expressed that not every parent enjoys physical activity, nor do they have the knowledge about physical activity. Thus, guidance for these parents could also be very helpful:

Participant 7: *“Not that she doesn’t already but I think it would also support parents who maybe don’t have the knowledge and awareness... could help them to think about*

ways that they could, bring in some of those that you know physical activities to support that PE and enjoying a bit more kind of in home”

4.4 Discussion

The present study sought out to find out what facilitators and barriers parents face when supporting their child’s physical activity levels, including their knowledge of the WHO guidelines and whether their ethnicity played a role. The results suggest that WHO guidelines do not play a factor, however parent ethnicity does. Furthermore, caregiver ethnicity, physical activity level and child’s enjoyment of physical activity were all predictors of child physical activity level. In addition, parents felt the top three barriers’ they faced to supporting their child’s physical activity were time, environment, and money.

4.4.1 WHO Guidelines

Only 29% of the parents correctly identified the WHO recommended physical activity guidelines for children. However, there was no statistical significance found between parental knowledge of WHO guidelines and child’s physical activity level, child’s age, caregiver ethnicity and parental support. Regardless of the lack of statistical significance, the lack of knowledge is not new; it has been found in previous literature (Corder et al., 2012; Sawyer et al., 2014) and could be harmful. When parents do not have a baseline to judge their child’s physical activity against, they rely on other measures such as basing how active their child is on their weight and fat mass index (Bentley et al., 2012; Corder et al., 2010). Parents are also known to overestimate their child’s physical activity level, particularly those who believe they are supportive (Corder et al., 2010, 2012; Hesketh et al., 2013). Due to the interviews focusing predominantly on PE, this was not further explored. However, parents should be questioned on whether they associate their child’s physical activity with weight, and what factors they use to determine if their child is being active enough. Considering, the majority were unable to correctly select the guidelines for child physical activity.

Although the result from the current study is not surprising and in line with what we would expect based on the previous literature, it is concerning that 71% of the parents in the current study lacked the knowledge on the guidelines. Parents play a vital role in shaping their child’s attitude and behaviour towards physical activity (Edwardson & Gorely, 2010; Trost & Loprinzi, 2011). If 71% of the parents in this study are potentially basing their child’s physical activity on their child’s weight and body composition (Bentley et al., 2012;

Corder et al., 2010) or how often they transport their child to an activity (Corder et al., 2012), this could result in many children not only lacking in physical activity, but taking their parent's belief in associating weight, body composition and fat mass with physical activity. Many children may end up focusing on being physically active for the sole purpose of changing their body, rather than for fun and the numerous physical and psychological benefits of physical activity (Biddle et al., 2019; Bidzan-Bluma & Lipowska, 2018; Dale et al., 2019; De Greeff et al., 2018; Rhodes et al., 2017; Rodriguez-Ayllon et al., 2019; Zeng et al., 2017)

4.4.2 Ethnicity

One reason for this lack of awareness could be ethnic differences, previous research has shown that White participants are more likely to have more knowledge of the guidelines in comparison to ethnic minorities (Sawyer et al., 2014). These differences have also been found with children's physical activity level; White children are also more likely to meet the guidelines in comparison to children from Black, Asian or other minority ethnic backgrounds (Sport England, 2024). These ethnic differences, however, were not found in the current study, there was no statistical significance found with caregiver ethnicity and understanding of WHO guidelines. These differences between findings might be driven by the samples, with the current study showing a greater degree of ethnic diversity. While on the one hand the Sawyer et al (2014) paper had only 5% in their Ethnic minority group, the current study on the other hand had 62% White, 28% Black & Caribbean and 10% Other Ethnic minority participants. The greater representation in the current study suggests that the differences seen in Sawyer et al. (2014) may have been an artefact of a small non-representative sample.

This lack of diversity is not only an issue Sawyer et al (2014) faced, several papers mentioned not analysing Ethnicity due to homogeneity (~96% White participants), (Corder et al., 2010; Hesketh et al., 2013), having majority or all White participants (Davison et al., 2003; Jago et al., 2020; Khanom et al., 2020; Trost et al., 2003), Brazilian participants (Cheng et al., 2014), Korean participants (Lee & Park, 2021) or non-disclosure of participant ethnicity (Bentley et al., 2012; Cooper et al., 2015; Jago et al., 2014; Jago et al., 2017b; Jago et al., 2017c; Welk et al., 2003; Zecevic et al., 2010). Very few studies either had majority ethnic minority participants (Garcia et al., 2016; Shen et al., 2018) or a diverse participant pool and were based in the USA (Anderson et al., 2009; Corder et al., 2012; Prochaska et al., 2002).

It is therefore difficult to determine whether ethnicity, particularly caregiver ethnicity, has previously played a role as a barrier to children's physical activity level, as many of the studies mentioned have not explored or analysed the potential link. Assumably due to the absence of ethnic diversity. Despite this, the results of the current study suggest that caregiver ethnicity is a significant predictor of perceived child physical activity and that White parents deemed their child to have higher levels of physical activity. These results are in line with Sport England's survey (Sport England, 2024), although in this survey the focus was on child ethnicity, and other literature that suggests ethnicity plays a role in physical activity levels of children (Beets et al., 2010; Moore, Vernon, et al., 2023). However, parents in the UK are known to overestimate how physically active their child is (Corder et al., 2010; Hesketh et al., 2013), therefore, it could be the case that White parents believe their children are more active than Black, Asian, Minority Ethnic parents. These differences could be cultural and as a result also affect what parents deem as support for physical activity, what they consider physical activity to be and their parenting style. As the results are based on parental perception of their child's physical activity, one way to further explore whether there is a difference in physical activity level based on ethnicity, could be through using objective measures. This could be in the form of an accelerometer or heart rate monitor, although they measure different characteristics of physical activity (Edwardson & Gorely, 2010; Gustafson & Rhodes, 2006; Jago et al., 2017).

4.4.3 Predictors of Child Physical Activity

In order to investigate predictors of child physical activity, several factors were correlated with child physical activity level (see Table 8), of those, caregiver ethnicity, caregiver physical activity level, parental support, child enjoyment of physical activity and lack of finances were all statistically significant. However, only **caregiver ethnicity**, **caregiver physical activity level** and **child's enjoyment of physical activity** were predictors for child physical activity level.

Both tangible (modelling) and intangible (motivational) support were explored. However, based on the factor analysis results (Table 3) they were combined to create the variable 'parental support', despite previous literature mentioning the issue with combining forms of support together (Sleddens et al., 2012). Although parental support positively correlated with child physical activity it was not found to be a predictor. However, this positive correlation is

similar to what other studies have previously found (Edwardson & Gorely, 2010; Trost et al., 2003; Trost & Loprinzi, 2011; Welk et al., 2003; Zecevic et al., 2010).

During the interviews, in the theme ‘promotion of physical activity’, parents mentioned schemes such as ‘Walk to School Week’ that their child’s school used to encourage physical activity. By parents taking part in this, they are providing their child a form of tangible (conditional) support which has been positively associated with child physical activity (Beets et al., 2010; Trost et al., 2003; Trost & Loprinzi, 2011; Welk et al., 2003). Through this support, they would be physically doing the activity with the child, thus, it could be beneficial to investigate this form of support further with an ethnically diverse group of participants. This would also allow further understanding on whether this form of support is only provided when schools prompt it through their schemes.

Despite the results, it is imperative to note that everything was self-reported. Through a systematic review, it was found that studies using objective measures of physical activity either had no relationship with social support or had a weaker relationship in comparison to self-reported physical activity (Beets et al., 2010). Thus, the results should be taken with caution, as objective measures for physical activity were not used, instead parents reported their child’s physical activity level.

This is also true for the correlation between parental physical activity and child physical activity, which was found to be statistically significant in the current study. Parental physical activity was also a predictive factor for child physical activity. However, it is unclear whether this is because the parents were modelling physical activity (i.e., their child witnesses them being active) or because the parents enjoy and value physical activity, therefore encourage and promote it to their child. Similarly, while some studies have found that children and young people who perceive their parent to be physically active are more likely to be active (Cheng et al., 2014; Edwardson & Gorely, 2010), other studies have found a weak association between parent physical activity and child activity (Jago et al., 2014; Jago et al., 2017b). However, despite the difficulty in determining exactly how parental physical activity affects child physical activity and the inconsistencies in previous literature, based on the current study there is a significant correlation and predictor.

4.4.4 Skill-based vs Play-based Activities

Parents were specifically asked about their views on play-based and skill-based physical activities in the questionnaire, and overall, they felt that play-based activities have more

benefits compared to skill-based activities. This was further discussed in the interviews, where some parents expressed placing value on play, feeling that play is a great way to increase child physical activity, children enjoying play, as well as having more real-world applications (see Figure 4.3: 'Play' themes and sub-themes). This coincides with previous literature that suggests children view play as fun, and play has several benefits, including learning about real life situations, becoming familiar with unknown environments, and supporting child development, motor development, building creativity, and skills such as problem-solving and risk management (Klein & Beach, 2023; Koukourikos et al., 2015; Suherman et al., 2019). Exploring this perspective allows for us to better understand what kind of activities parents would like their child to take part in. This in turn then provides us with the information needed to help support and guide parents on what activities are available and how they can support their child. This is vital as many parents have stated the need for more information to support their child's physical activity, both in the current study (31%) and other studies where parents have been interviewed (Bentley et al., 2012; Khanom et al., 2020).

4.4.5 Parental Request for Support

This issue was further explored in the interviews; as seen in Figure 4.4 'promotion of physical activity' theme, the majority of parents expressed their child's school not promoting physical activity frequently. The most common form of promotion was through schemes such as 'Walk to School Week', which ultimately provided parents with some form of support with their child's physical activity. This could be seen as effective intervention processes in schools aiming to promote physical activity (Coulter et al., 2020). One parent also mentioned camps and clubs being available during half-term and after school being helpful. However, it could be assumed that these would only be helpful during term time, when the weather permits and when the schemes are being run. Parents still need help and guidance for general support of child physical activity throughout the year. When discussed in the interviews, one parent mentioned needing assistance in the dialogue to use with their child, as they struggle with motivating their child to be physically active, especially during winter. Another parent spoke about the reality that not every parent enjoys being physically active, nor does every parent realistically have the knowledge surrounding physical activity. Consequently, they expressed that guidance for these parents could be very helpful. Similarly, in other studies parents felt information on physical activity and child's personality, preference and enjoyment of physical activity were all barriers to supporting their child's physical activity

(Bentley et al., 2012; Khanom et al., 2020). However, those were not the only difficulties parent's faced, time, accessible environments and money were the top three barriers parents faced in the current study. These were also some of the obstacles parents mentioned in previous studies (Bentley et al., 2012; Khanom et al., 2020).

Providing parents with leaflets, emails or booklets with the relevant information could be helpful for some of the barriers they have expressed. With most parents (71%) lacking knowledge of the WHO guidelines for physical activity, this could easily be tackled by providing the guidelines in a user-friendly format. An important first step in parent physical activity interventions could be improving their knowledge of the physical activity recommendations for children (Bentley et al., 2012). The easiest way to do this could be through schools. By providing this information, it could help foster a more positive and encouraging environment for children, thus having the potential to create positive beliefs and attitudes towards physical activity for both the parent and child (Edwardson & Gorely, 2010; Trost & Loprinzi, 2011). Along with the guideline, information regarding the overall wellbeing benefits of physical activity could be included, shifting the focus away from weight management. Parents could also be informed of the various types of support they can provide their child (modelling and motivational), as these forms of support could be more universally doable due to them not needing equipment, finances or accessible external environments.

Secondly, based on the parents having a positive view on play, they could be provided with games and different ways to play with their child. Providing these examples could help eliminate the feeling of not knowing what to do. These games could also be grouped based on the amount of time, equipment, space, age appropriateness and participants needed (one child or several children). In doing so, parents have the option to pick games best suited for their circumstances. Based on these results, particularly parents expressing how they would like to be supported, a school-based intervention could be created tailored to helping parents support their child's physical activity through play. This will further be discussed in Chapter 5, where parents are asked about their opinion on play-based PE, and future chapters (Chapters 7-8), where an intervention using play-based PE will be conducted.

4.4.6 Limitations

A limitation is that child physical activity was based on parent's recollection and beliefs of how active their child was, rather than an objective measure such as a heart rate monitor. Although some of the results mirror previous literature, it is important to remember this is a

limitation that many studies have faced. Additionally, the effects of ethnicity could have been explored more in both the questionnaire and the interviews to further understand why there seems to be a difference based on ethnicity. Despite this, the fact that there was more ethnic diversity than most of the literature discussed is a strength, as one focus was ethnic diversity.

4.5 Conclusion

To conclude, parents demonstrated a lack in understanding of physical activity recommendations, however, this was not statistically associated with parental support. Furthermore, caregiver ethnicity, caregiver physical activity and child's enjoyment of physical activity were all found to be predictors of child physical activity. Overall, parents valued play as a form of physical activity and are willing to support their child's physical activity, they just require more support. They felt that lack of information, difficulty in motivating their child, along with time, accessible environments and costs were some of the few barriers they faced when trying to support their child's physical activity. While some of these barriers are difficult to overcome, it is possible to provide some assistance in supporting their child's physical activity. Based on the support parents have requested and results presented, some recommendations can be made. Overall, there was a general sentiment that parents wanted to support their child's physical activity, they were just unaware how to do so.

**Chapter Five: Understanding Parental
Perception of the Importance of
Primary School Physical Education in
England, and Their Views on Play-
Based Physical Education.**

5.1 Introduction

A physically active lifestyle begins to develop early in childhood, from as young as 3 years of age (Telama et al., 2014). Prioritising increasing the enjoyment of and level of physical activity in primary school children is necessary, particularly in physical education (PE). This is because primary school can be helpful in developing positive views towards PE and sport (Sloan, 2010). Generally, primary school children have a positive mind set towards PE, however, as they enter and progress through secondary school, their feelings toward PE become ambiguous (Trudeau & Shephard, 2005). Trudeau & Shephard (2005) conducted a systematic review and found that one reason for the shift in views of PE could be due to the quality of the PE sessions. Another reason particularly for girls, was the lack of status PE had as a subject in their school, especially when the grades for PE were not included or their general academic results, girls would lose interest (Trudeau & Shephard, 2005).

5.1.1 Parental Influence

In Chapter 2, parental influence on children's attitude towards physical activity was discussed, this influence is also key in facilitating children's acceptance of PE (Coulter et al., 2020). Both parental support and child's perception of parent physical activity were seen as large influences on child physical activity. However, this influence is not limited to just physical activity. A large body of literature has explored how parents influence their children in many aspects of their life. In a study conducted across three countries, England, Germany and The Netherlands, the young people from England expressed having the impression that their parents' did not value learning languages as much as core subjects (Bartram, 2006). Parental influence operated largely through communication of beliefs about the importance of language (Bartram, 2006). When children have a positive environment at home (termed 'Academic Home Climate'), it creates curiosity and encourages them to pursue their academic interests (Campbell & Verna, 2007). Furthermore, this climate produces positive behaviours, attitudes, beliefs and values that lead to higher levels of achievement in children, especially when the home climate is co-ordinated with the school's academic climate (Campbell & Verna, 2007).

Parents can also influence their child's attitude towards others with a disability, oral health and eating behaviours. Their preference of food, portion sizes, and support of child's oral-health behaviour can all influence their child's attitude towards these health aspects (Anzman et al., 2010; Hooley et al., 2012; Lwin et al., 2017; Scaglioni et al., 2008). However, it has

been suggested that this influence may only occur when parents are vocal about views or model their views (Hong et al., 2014). Hong et al. (2014) did not find a significant relationship between parental attitude towards people with a disability and their child's attitude, they expressed that a reason could be due to parents potentially not directly or explicitly discussing the topic with their preschool children (Hong et al., 2014). This is a key factor to consider, as children may only be influenced by parental attitudes if this attitude is explicitly expressed and modelled by the parent or if there is a direct conversation between child and parent (Hong et al., 2014). Taking this perspective, it is possible that only the parents who vocalise or model their views on the importance of PE will influence their child's view towards PE.

Fundamentally, parents play a large role in their child adopting very important health behaviours, as well as gaining academic success, and this can be affected by their attitude to the topic. As a result, it is necessary to understand parental perception of the importance of PE, as this could potentially affect their child's attitude to PE.

5.1.2 Parental Perception of the Importance of PE

Many factors can affect how important parents perceive PE to be, this includes, their own personal experience of PE, knowledge on the subject, the value school places on PE and communication between the school and parent regarding PE. Before delving into these factors, it is key to understand that parents can value PE and its role in improving health and wellbeing, without necessarily viewing it as important as the core subjects (Earley & Fleet, 2021). Some parents do value PE as part of the curriculum (Na, 2015); however, they still may perceive PE as less important than other academic subjects (Alcántara-Porcuna et al., 2021; Graham, 2008; Sheehy, 2011). Notably, in England a survey found that 68% of parents believe PE should be a core subject on the curriculum (Youth Sport Trust & YouGov, 2022). Parental perception of PE has been examined in research focusing on assessing the effectiveness of physical activity interventions in school settings (Alcántara-Porcuna et al., 2021). Focus groups with parents of pre-school and primary school children in Spain found that parents are more concerned and promote academic achievement in Maths and Spanish compared to PE. They are also more likely to ask their child about the other subjects and what they have learnt in class compared to PE (Alcántara-Porcuna et al., 2021).

Irrespective of the value parents placed on PE as a subject, their beliefs on its place within the curriculum is associated with their personal experiences of PE and knowledge on the

subject (Lago-Ballesteros et al., 2019). Past experiences affect how important parents view PE as a subject for their children (Lago-Ballesteros et al., 2019). This has also been found within the student population, where they described their association between being picked last and alienation, embarrassment and emotional harm, all of which have diminished their self-confidence and wellbeing (Cardinal et al., 2013). As a result of their PE experience, they formed negative feelings towards physical activity and they reduced levels of physical activity later in their life (Cardinal et al., 2013). Ultimately, parents who have had a positive experience with PE during childhood are more likely to say their child enjoys PE, encourage physical activity and sport participation for their child, choose a school that prioritises PE and speak to the school about PE (Youth Sport Trust & YouGov, 2022).

When focusing on knowledge of the subject, many parents' main source of information about what goes on in PE is from their child (Alcántara-Porcuna et al., 2021; Sheehy, 2006). As a result, in a study where 27 parents were interviewed, the majority were incapable of providing detailed information about their child's PE (Sheehy, 2006). Instead, all parents used their own experience of childhood PE to fill in the gaps. Furthermore, parents from this study expressed that the school's subtle signals reinforced their existing view that PE was not an important subject. Two examples of these signals were lack of information on child's performance compared to other subjects, and difference in grading systems for PE in comparison to core/academic subjects (Sheehy, 2006). Thus, further indicated to parents the unimportance of PE. With the improvement in test scores being of such concern and priority for schools, it has been difficult to advance PE practices and policies (Sallis et al., 2012) as PE does not have test scores like the core subjects.

Furthermore, parents have previously raised the issue of limited time being dedicated to PE and in some cases it being cancelled (Coulter et al., 2020). They also believe that the role school plays in their child's physical activity is limited due to insufficient time allocated to PE (Alcántara-Porcuna et al., 2021). This should be no surprise as generally core subjects have a greater advantage with status, teacher preparation, time provided for these subjects, and resources schools allocate to them (Harris, 2018). Subjects such as PE are normally sidelined, with limited time and resources provided to them (Harris, 2018). Parent's knowledge on the subject, particularly what their child is learning, seems to coincide with the school's communication about the subject. This communication, or lack thereof, results in some parents believing that their child's school does not value PE, sending the message that it is not as important as the core subjects. It is this, alongside parents' childhood experience of PE,

that can shape how they view the subject and therefore could potentially affect their child's perception of it due to their influence as parents.

With PE being a subject that can increase physical activity participation, parental knowledge of the subject and school's communication and value of the subject is very important. As a result, it has been recommended that teachers be proactive and responsible in communicating regularly with parents, as a means to address perception and increase the current status of PE (Sheehy, 2011). Equally, teachers have also identified the need for more support, particularly parental involvement, as this would ensure a consistent message is given to children both at home and in school (Griffin et al., 2015). This could be very useful, as parental involvement in a child's learning can positively affect learning and academic success (Fan & Chen, 2001; Green et al., 2007). Specifically, parental involvement could be beneficial in facilitating PE teachers in reducing the effects of children's low capability perception, as parents play a vital role in children's development and socialisation (Shen et al., 2018). Thus, due to the significance of parental involvement, their perception of the importance of PE could hugely affect their child's attitude to PE. Furthermore, a parent who views PE as less significant would be less involved and may provide less encouragement or positive speaking about the subject.

Despite there being many reasons for parents to perceive PE as less valuable, Sheehy (2011) provided suggestions on how to improve this. One way could be to invite parents to take part in PE classes; this could help with both increasing communication and influencing their views. Another is to develop homework that is both interactive and related to what is being taught in PE, as this could be beneficial for both parents and children. Lastly, special events organised for both parents and the students could be valuable (Sheehy, 2011).

5.1.3 Play-based PE

Parental perception of the importance of PE could also be altered by the type of PE their child is taught. Parents have raised the concern that PE is currently very competitive, thus, leading to some students feeling incapable of participating in extra-curricular activities and lacking in confidence (Earley & Fleet, 2021). The aspect of competitiveness was also mentioned in a workshop where participants were asked to 'design their dream school for good mental health', the results were then collated into an illustration where the area for PE states "*less emphasis on competitive sports*" (Rethink Education, 2022). Furthermore,

parents have noticed that their child comes home happier when the activities in PE encourage play, compared to sport practice or just running (Alcántara-Porcuna et al., 2021).

An alternative to current competitive, sport focused PE is play-based PE. As mentioned in Chapter 2, for long term physical activity uptake, teaching PE in an enjoyable manner is important (Jefferson-Buchanan, 2022). To recap, through play-based PE using the constraints-led approach (non-linear pedagogy) children are able to individually explore and figure out what works for them, for example, changing ball sizes and material would allow children to find what kind of ball they find easier to throw (Klein & Beach, 2023). This form of teaching moves away from the traditional way of teaching to a more self-directed space (Jefferson-Buchanan, 2022) and is deemed more inclusive (Klein & Beach, 2023).

While parents may have a positive attitude towards play, as they believe it has both physical and psychological benefits (Ali et al., 2019), they may also feel compelled to restrict their child's play due to academic pressures, and keeping up with school demands (Singh & Gupta, 2012). Understanding how parents feel about play-based PE would allow for more discussion on whether it should be implemented or not in primary schools across England.

5.1.4 Aims

As mentioned in Chapter 4, a focus was placed on ethnic diversity of participants through strategic recruitment processes, this is because, as discussed above, previous literature on PE lacks in this area. In this chapter, the aim is to better understand the factors that influence parents to support their child's PE at home through the following objectives.

- Explore parents' perception of the importance of primary school PE in England
- Explore parental views on play-based PE

Parental perspective will be explored through the following:

- a) parental childhood experience of PE.
- b) parental awareness of what their child learns in PE
- c) parental perception of the importance of PE
- d) parent's ideal vs reality of what child's PE lessons do.
- e) most important attitude, values and character development in PE for parents.
- f) most important skills and activities taught in PE for parents.

g) appropriateness of PE lessons and school support

h) parental satisfaction

Furthermore, though this was not part of the aim, the researcher was interested about parental satisfaction of their child's PE, and so this was analysed to explore how satisfied parents are with their child's PE lessons. This was due to parents in previous literature mentioning lack of time spent on PE being an issue (Coulter et al., 2020), and others mentioning their concern of competitiveness (Earley & Fleet, 2021).

5.2 Methods

5.2.1 Study Design

Similarly to the studies on physical activity, many papers focusing on PE either used quantitative (Lago-Ballesteros et al., 2019; Lwin et al., 2017; Mokoro et al., 2014; Telama et al., 2014; Yu, 2011) or qualitative (Ali et al., 2019; Hong et al., 2014; Singh & Gupta, 2012) data collection. This further influenced the use of a mixed methods approach, which has been explained in Chapter 3, section 3.4.2.1.

5.2.2 Methods for Quantitative Data Collection

The full details of the questionnaire and procedure can be found in Chapter 3, section 3.4.2.1.1. In this chapter the results of the PE questions will be analysed and discussed. Participant information for the questionnaire can be found in Chapter 4, section 4.2.2.1. The full process of the quantitative data analysis can be found in Chapter 2, section 4.2.2.3.

5.2.3 Methods for Qualitative Data Collection

The full explanation for the instrument and procedure of the qualitative data collection can be found in Chapter 3, section 3.4.2.2. Details regarding the participants can be found in Chapter 4, section 4.2.3.1. The full process of the qualitative data analysis can be found in Chapter 4, section 4.2.3.3, with the six-step process conducted shown in Table 4.4.

5.2.4 Integration of Quantitative and Qualitative Data

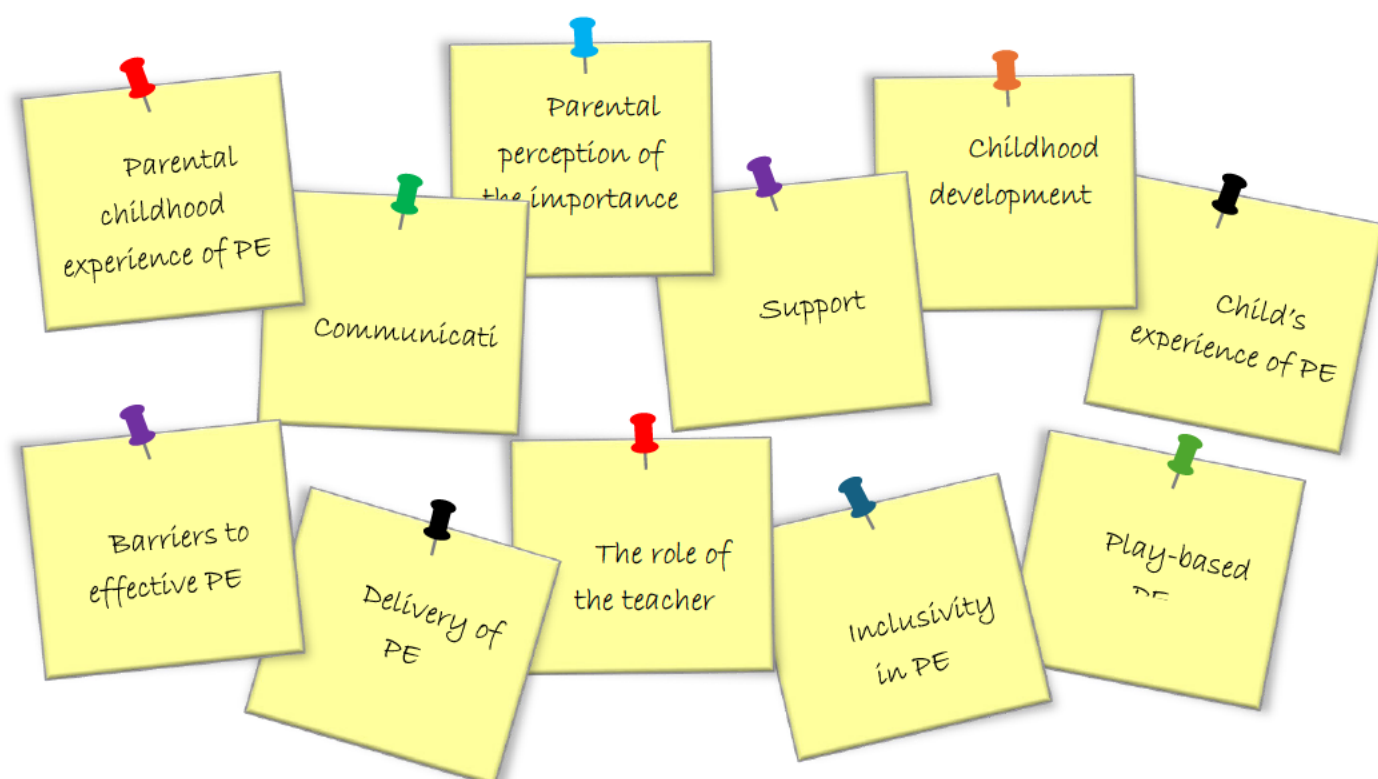
The process of the integration of the qualitative and quantitative data can be found in Chapter 4, section 4.2.4. There were several themes identified that did not explain the quantitative data; therefore, they have been included separately as additional themes.

5.3 Results

The themes from the interviews that will be mentioned in this Chapter can be seen in Figure 5.1.

Figure 5.1

Themes from parent interviews



5.3.1 Data Reduction

All the questions from the questionnaire relating to PE, which were based on a 5-point Likert scale (see Appendix 1), were subject to a factor analysis using component matrix analysis with direct oblimin rotation. The 8 questions can be seen in Table 5.1, the question “PE is a waste of time” was reversed. Despite the questionnaire being designed in a way to focus on various aspects of parental perception of the importance of PE, this factor analysis has provided a data driven method of data reduction.

Kaiser-Meyer-Olkin measure of sampling adequacy was .629, above the commonly recommended value of .6 (Pallant, 2020), and Bartlett’s test of sphericity was significant ($\chi^2(28) = 168.43, p < .001$). Using the scree plot and eigenvalues it was decided to extract three factors, which explained 64% of the variance in the data.

Table 5. 1

Factor loadings of eight questions, values below .10 were suppressed, loading in bold text indicate the component on which each question loads

	Component 1	Component 2	Component 3
Your child's school provides enough lesson time each week for PE and other physical activity?	.839		
Your child's school provides enough opportunities outside of lesson time for sport and physical activity for its pupils?	.738	-.235	
How important is physical education in your child's school, in your opinion?	.597		.312
How much does your child enjoy physical education classes at school?	.579	.455	
PE is as important as English, Maths and Science in schools		.793	.109
PE is a waste of time	.405	.706	-.277
I think PE is a worthwhile subject in school	-.189	.694	-.200
I had a good experience of PE	-.237	.370	.833

The following variables were created using an overall sum of all the relevant questions combined. Component 1 was labelled 'parental satisfaction' because of the high loading by the following items: "Your child's school provides enough lesson time each week for PE and other physical activity?"; "Your child's school provides enough opportunities outside of lesson time for sport and physical activity for its pupils?"; "How much does your child enjoy physical education classes at school?"; "How important is physical education in your child's

school, in your opinion?”. This first factor explained 28% of the variance after rotation. A high score highlights that parents were satisfied with their child’s PE lessons and school’s prioritisation of PE.

Component 2 was labelled ‘parental perception of the importance of PE’ because of the high loading by the following item: “PE is as important as English, Maths and Science in schools”; “I think PE is a worthwhile subject in school”; “PE is a waste of time”. As previously mentioned, the question “PE is a waste of time” was reversed. This second factor explained 25% of the variance after rotation. A high score in this variable indicated that parents had positive views on the importance of PE as a subject.

Component 3 focuses on ‘parental experience of PE’. This factor had one question that did not load into the other factors; “I had a good experience of PE”. This third factor explained 12% of the variance after rotation. A high score in this variable indicated that parents had a good experience of PE.

Alongside the variables from the factor analysis, additional questions that were not entered into the factor analysis due to them not having 5-point Likert scale responses will be used in the inferential statistics section. One being a child’s physical activity level, in order to understand the level of physical activity children were achieving, parents were asked ‘in the past week, how many days has your child done a total of 60 minutes or more of physical activity throughout the day, which is enough to raise their breathing rate?’. Another focuses on parent’s awareness of their child’s learning which had a yes/no response, the question was “are you aware of what your child is learning in Physical Education?”. Regarding a child’s attitude to PE, parents were asked ‘what is your child’s attitude to PE?’. For a child’s attitude to physical activity, parents were asked ‘what is your child’s attitude to physical activity?’, these latter questions were measured on a three point, negative, neutral and positive scale.

5.3.2 Parental Childhood Experience of PE

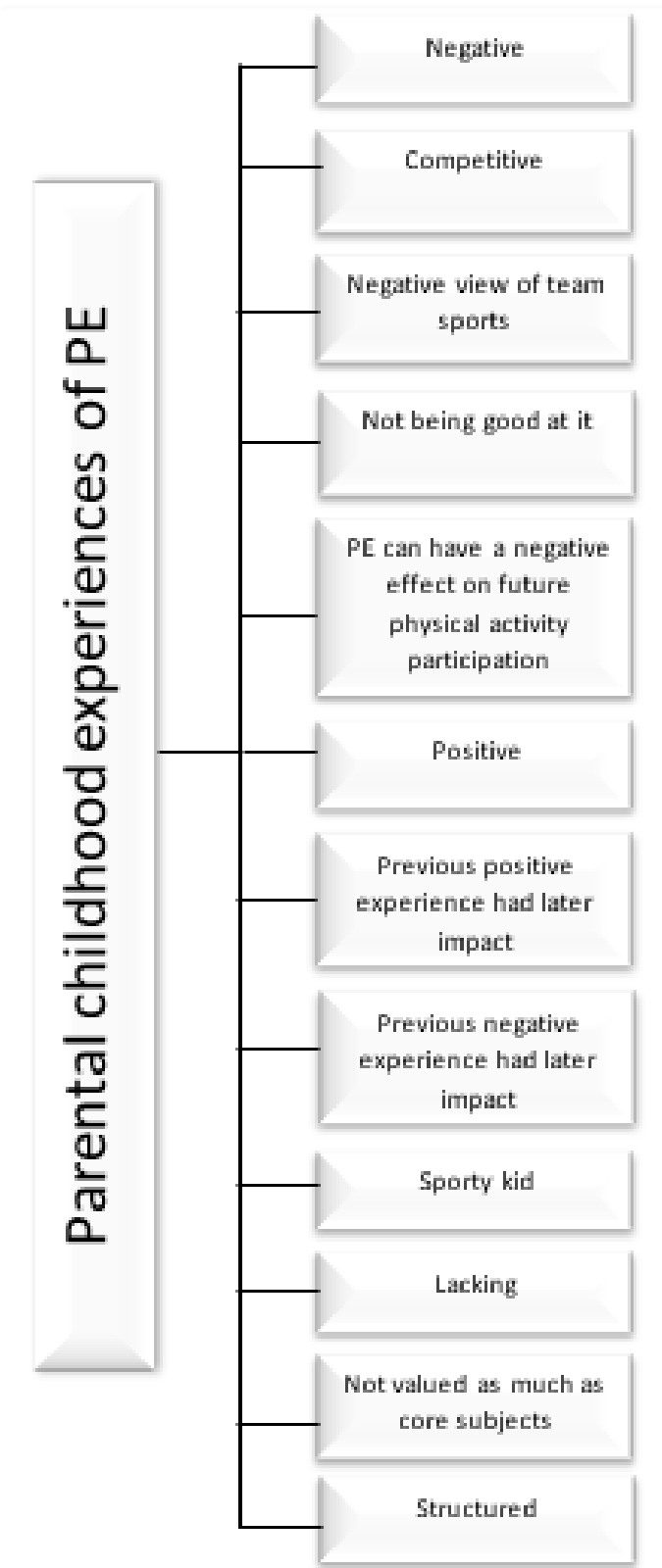
Within the questionnaire, parents were asked to answer the following statement “I had a good experience of PE”. Over half the parents (57%) agreed to this statement, while 12% neither agreed nor disagreed, and 31% of the parent’s disagreed. To determine the relationship between parental childhood experience of PE and parental perception of the importance of PE, a Spearman’s rank-order correlation was run. There was a positive relationship that was statistically significant $r(101) = .22, p = .03$. Parental childhood

experience of PE had a positive effect on their perception of the importance of PE. The better the childhood experience was, the more parents perceived PE to be important.

To further explore these experiences, in the interviews, parents were asked to describe their own experience of PE when they were in school themselves and this resulted in the theme 'parental childhood experiences of PE'. This theme can be seen in Figure 5.2, along with the subthemes that were created. While this theme does not directly explore how these experiences have affected their perception of the importance of PE, it provides insight into how PE has shaped their view of physical activity and their ability to do it.

Figure 5. 2

Parental childhood experiences of PE theme



There was a mixture of responses when parents recalled their previous experience. For a few parents, their experience was negative for various reasons, for example feeling like they were not good at PE.

Participant 6: *“I don't know really I just yeah, not being very good at it probably.”*

Lack of sporting ability resulted them in disliking PE, especially as they got older:

Participant 3: *“I was not a fast runner so if we did running you know that wouldn't be team, so that's nice but I would lose, so I didn't enjoy it I think it got worse and worse, as I got older so you know as a young kid I I didn't enjoy it, but it was not the worst thing but I would seriously dread it in high school.”*

The focus on competitiveness resulted in one parent feeling limited in their ability to explore in PE:

Participant 4: *“Oh goodness. I would say overall quite negative... So it felt very competitive. I felt that you know there was not an opportunity to kind of explore, very much it was quite limited.”*

Furthermore, team sports were not enjoyed by many, as not everyone felt that they were good at the sport and at times felt that they were not wanted on the sport teams

Participant 3: *“I hated it. I never enjoyed PE as a kid, because I was not very good at things. I was not very coordinated, and it was almost always team sports, so I would always be the one who no-one wanted on their team and who really was not... I mean fair enough honestly. I was honestly terrible.”*

More than half the parents from the interview cohort expressed a negative PE experience, with the general sentiment being they didn't feel capable of doing PE, whether it be the team sports or individual activities such as running.

As a result of these negative experiences, parents expressed that it had negative effects on their future physical activity participation as an adult. It has made them dread being active, become less confident in taking part in physical activity, and negatively affects their motivation:

Participant 2: *“It's really important because my later memories of PE haven't been very enjoyable and something to be dreaded and I don't think, I ever want them to be at the*

point that actually doing physical activity is something they don't want to be because the experience is not pleasant, because it's so important to sort of stay first and active well for, basically for physical fitness but actually think for mental wellbeing actually getting out and exercising is so incredibly important."

This was mentioned by a few participants, both from parents who had a negative and positive experience, essentially PE has affected their confidence later on in life. Those that had a bad experience continue to struggle with being physically active, whereas one parent who had a positive experience mentioned being an active person now.

However, some parents had a positive experience of PE:

Participant 5: "so yeah it was really positive initially in primary school lots of fun really enjoyed it very much involved both in school and outside of school, secondary school felt a lot more self-conscious and and so I didn't enjoy PE as much and then in Year 9 I dropped it I didn't pick it up for a GCSE option"

One reason for this positive experience was feeling like a sporty kid being able to play the sports both in school and out of school:

Participant 5: "Okay, so I when I was in primary education I actually loved PE, I was very sporty I played for the school football team in an all girls school, and I loved it and it was something that followed me outside of school so I also played Saturday football with the school team and I had a really positive experience with PE when I was in primary school."

This positive experience as a child is important, as it has resulted in continuation and enjoyment of physical activity as an adult:

Participant 7: "you know I grew up with that enjoyment and so did their dad and we're both pretty active people"

Aside from negative and positive experiences, parents also mentioned that they felt PE was lacking, there was not much of it when they were a child:

Participant 1: "I think it was lacking, I don't recall it being a big thing."

Furthermore, it was felt that PE was not valued as much as core subjects:

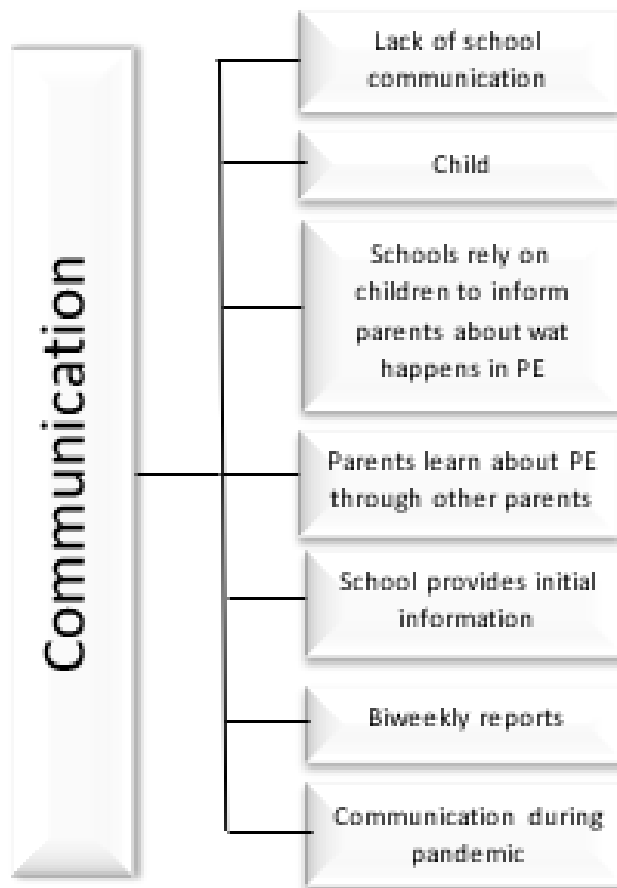
Participant 8: *“just always occurred to me that obviously he was the only PE teacher, and probably underfunded because obviously maths science we've got like 4 or 5 different teachers 6 different teachers, if one is ill you know.”*

5.3.3 Parental Awareness of What Their Child Learns in PE

To then understand what parents knew about their child's PE lessons, participants were asked whether they were aware of what their child is learning in PE (N = 103), 54% said 'yes', while 46% said 'no'. An independent sample t-test was run to determine if there was a difference in parental perception of the importance of PE based on knowing or not knowing what is going on in their child's PE lessons. There was no significant difference in terms of the perceived importance of PE between parents who were not aware of what goes on in their child's PE lessons (M=13.26, SD=1.74) compared to parents who were aware (M=13.28, SD=2.19). This was then further explored in the interviews, where an overarching theme of communication was formed, with subthemes that can be seen in Figure 5.3. Parents mentioned a number of ways in which they would find out what was happening in their child's PE lessons.

Figure 5.3

Communication theme



There are various reasons as to why the parents felt that they did not know much about what was going on in PE. Parents expressed that one reason was ‘lack of communication’. They felt that their child’s school did not communicate much about PE whether it be through their normal way of communication or through parents evening. This lack of communication was a frustration for many of the parents; for example, it was felt that when a school offers great opportunities, this should be communicated more:

Participant 1: *“don't think the schools communicate enough about what they provide I don't think they sell themselves highly enough, or give themselves enough praise for what they do.”*

The lack of importance placed on PE during parents evening in comparison to other subjects such as numeracy was also raised:

Participant 4: *“Not really, no, again if I could think about the parents consultation, it was more he's like this is what you could do to support the numeracy, this is what you*

could do to support their literacy. No, not really. They talk about getting dressed and undressed for PE because that's often quite challenging for children with my daughter's age so so that was addressed but no."

Parents expressed their willingness and desire to support PE at home by tailoring their activities to better aid what their child learns in PE; however, the lack of communication from schools about what their child does in PE hinders this support:

Participant 7: "I think it would be beneficial because maybe I could tailor what I'm doing to kind of you know, maybe if I was doing a little bit more activities that kind tied in to what she was doing in PE it might, make her or help her to enjoy PE sessions more."

When parents gained knowledge of their child's PE lessons, many expressed it was due to their child communicating this information with them. Children who were able to articulate their day and enjoyed PE happily informed their parent what they did in PE:

Participant 3: "my son's favourite is PE so he always gives us the updates about how things are going and he does need that he really needs that physical activity during the day because he really struggles to stay focused when he doesn't have a little bit of an outlet he's got lots of energy."

This becomes a problem when a child is not as communicative, as parents are then left in the dark about what is going on in the PE lessons:

Participant 3: "It just shows that the school is engaging with you and, yeah because a lot of kids parents I mean I hear this all the time from the parents their kids just don't tell them anything and they're like I cannot believe you know anything that goes on at school it's like a black hole, so I think it is nice to just know what's going on."

Aside from the child providing information, parents mentioned that they learnt about PE through other parents. Some schools also provided initial information when their child started school, although this was not mentioned by many parents. While another parent mentioned the school provided biweekly reports that included every subject including PE

As these interviews were conducted after the lockdown that was placed during the COVID-19 pandemic, parents mentioned how schools communicated about PE when their children were unable to attend school. They were provided with some information on how to

keep fit and run PE. However, after lockdown was over and schools resumed, the communication reduced to nothing:

Participant 5: “*they did during the COVID pandemic in terms of how to keep kids fit. But after that not necessarily, they they do little things about well-being.*”

To summarise, the majority of the parents mentioned their child’s school lacks in communication with regards to PE, with many of them learning about what happens in their child’s PE lessons through their child. The prime time for communication was solely during the COVID-19 pandemic; however, it appears that this communication was not sustained to the same degree.

5.3.4 Parental Perception of the Importance of PE

A Spearman’s rank-order correlation was conducted with the variables ‘parental perception of the importance of PE’ and ‘parents reporting of their child’s attitude to PE’. There was a positive relationship, however, this was not statistically significant ($r(101) = .115, p = .249$). In this instance, parental perception of the importance PE did not affect their child’s attitude to PE. To further explore factors that may influence parental perception of the importance, a linear regression was conducted. This was also explored in the interviews and can be found in Figure 5.7.

5.3.4.1 Regression For Predictors of Parental Perception of the Importance of PE

Prior to the regression analysis, assumptions tests were conducted. Residual error was seen to be independent as assessed by a Durbin-Watson test giving a value of 2.12, as this number is between 1-3 it is deemed independent (Field, 2013). Multicollinearity as assessed using collinearity tolerance and VIF (parents experience of PE, $tolerance = .96, VIF = 1.04$; awareness of what child is learning in PE, $tolerance = .96, VIF = 1.04$; parental satisfaction, $tolerance = .83, VIF = 1.21$; child’s attitude to PE, $tolerance = .85, VIF = 1.17$). As the collinearity tolerance for each variable was above .10, and VIF was less than 10, there was no evidence of multicollinearity (Pallant, 2020). There were no participants whose standardised residuals were above three standard deviations, and residues were normally distributed as assessed using a histogram and P-P plots. A regression analysis was conducted to determine whether parental perception of the importance of PE could be predicted by parental experience of PE, parental awareness of what child is learning in PE, parental satisfaction of

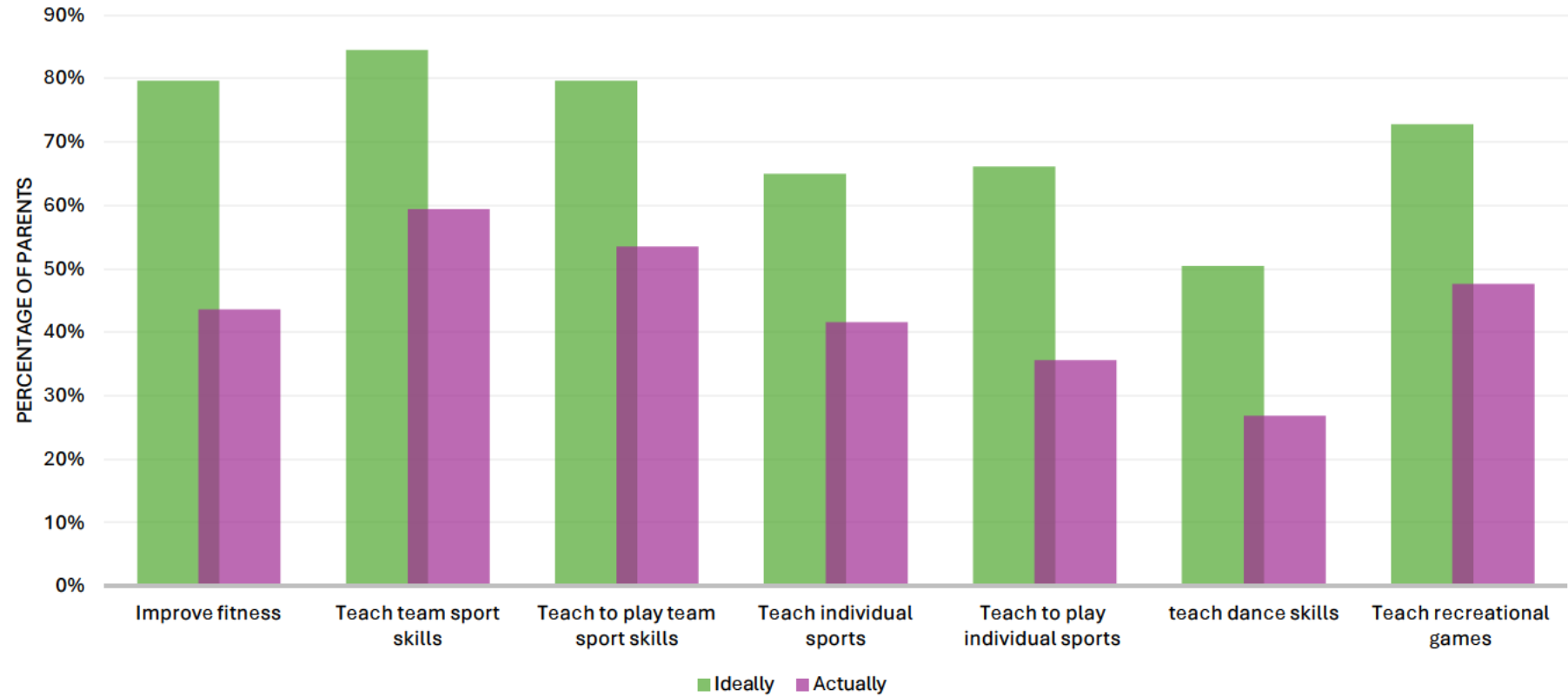
child's PE and child's attitude to PE. The results of the regression indicated that the model explained $R^2 = 8\%$ of the variance and that there were no significant predictors or parental perception of the importance of PE, $F(4,98) = 2.07, p = .09$.

5.3.5 Ideal vs Reality of What Child's PE Lessons do

Understanding what parents deem as essential for their child's PE lessons helps provide a clearer picture about their perception of the importance of PE. The following questions were not included in the factor analysis that resulted in the variable 'parental perception of the importance of PE'; however, they provide an insight into what parents do and do not want in their child's PE lessons. Parents answered questions about their feelings towards what they **ideally** felt their child's PE lessons should do and what they **actually** do. They were requested to rate several statements from strongly disagree to strongly agree; an example of these statements is, "Ideally, I think my child's PE lessons should improve fitness". Both agree and strongly agree responses were then grouped together for each statement and a percentage was taken. Figure 5.4. provides a visual comparison between what parents ideally wanted in their child's PE lessons and what they believe their child's PE lessons actually do. Improving fitness had the highest difference between the two categories (ideally and actually), while dance skills had the least difference. While 80% of parents ideally want their child's PE lessons to improve fitness, only 44% felt the lessons accomplish this.

Figure 5. 4

Graph showing ideally what their child's lesson should do vs what their child's lesson actually do



Following these questions, parents answered an open-ended question about what else they feel their child’s PE lessons **should** include. By conducting a content analysis, the answers were grouped into seven themes, with the number of responses per theme totalled, as seen in Table 5.2.

Table 5. 2

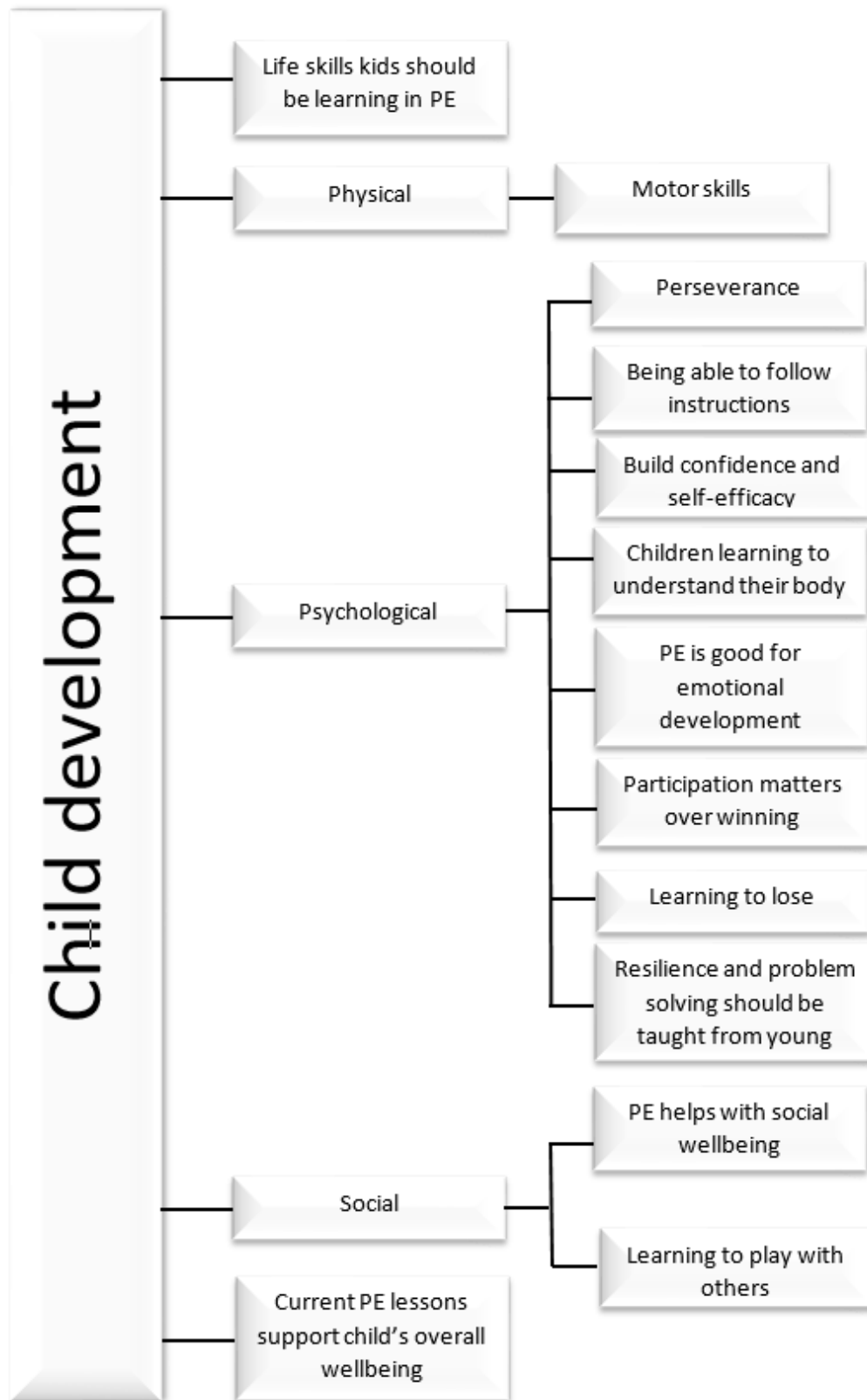
Themes from open-ended question “is there anything else you feel your child’s PE lessons should include”

Theme	Number
Wellbeing <i>(physical, psychological and social health)</i>	9
Fun	5
Life skills <i>(e.g. learning fundamental movements, water confidence)</i>	6
Sport/activities <i>(e.g. bike riding, football, martial arts)</i>	7
Teacher support <i>(e.g. being sympathetic, engaging)</i>	3
Nothing	3
Other	3

From these responses, interview questions were created to better understand how parents felt about these various aspects of their child’s PE. In the interviews, when asked about whether their child’s PE lessons supported their wellbeing and what life skills they felt their child should be learning in PE, parents mentioned factors that related to child development. Their views were split primarily into physical, psychological and social benefits as well as life skills and overall wellbeing, this can be seen in Figure 5.5.

Figure 5. 5

Child development theme



Parents felt that children should be learning life skills such as climbing in a safe and controlled environment, so that when they try these skills outside of these safe environments, there is less chance of harm. By children learning skills under supervision, they would be able to understand how to do these activities in a safe manner, building their confidence and ability to try things alone safely:

Participant 2: *“in terms of life skills how to move safely and effectively so I think it's important that you know they do you things like climbing and understanding the process in that so then because children will try and climb things actually being shown how to do that in a safe way, in a controlled environment is really valuable for them not getting hurt when they're out in the park and try things perhaps without supervision I think”*

They also mentioned that communication and team skills were important to them because these are skills that their children would use throughout life. Furthermore, learning and accepting the idea that they won't be great at everything, but it is important to do their best regardless:

Participant 6: *“accepting that you cannot be great everything, and learning how to do your best anyway, and yeah”*

The physical development PE provides was only mentioned by one parent; they essentially felt that their child's motor skills were being developed due to PE:

Participant 8: *“Yeah yeah, I think especially from like his motor skills like the the whole eye, hand to eye coordination type of things”*

On the other hand, a plethora of psychological benefits to child development was mentioned. Parents feel that learning perseverance, the ability to follow instructions whilst also learning to understand their body was important:

Participant 4: *“going back to kind of learning about your own body and living in your own body, you know, and what will work for you what you know your your lim sort of limitations as well.”*

Some parents mentioned that they felt PE was good for emotional development, and the idea of being able to control their emotions:

Participant 7: *“Yeah I think this building those skills because I think a lot of, kind of their emotional development, their self-confidence, their self-efficacy, their kind of, just belief in themselves comes from those... kind of, that foundational development.”*

The value of participation regardless of winning or losing as well as learning to lose were two key values that parents want their child to learn. An example was given from Participant 1 who described that in their child’s school, every child would receive an award or acknowledgement over the few weeks where PE was taught. These were not always based on winning but focused on other characteristics such as helping to lay the equipment out correctly. By doing so, it allows children to understand that there are various ways of winning and achieving in PE without being the ‘fastest’ or ‘strongest’. Furthermore, the mentality of losing is important, the idea of learning to lose gracefully, learning to deal with the disappointment or sadness as this is something they will experience throughout life:

Participant 3: *“it's also good... good losing... so that's something that we've so far struggled with my son. Like oh, you know, he's a bit sad if he loses but that's part of... that's part of playing a game. You know, you go and you enjoy a game and sometimes you lose. It's learning how to kind of deal with disappointment and deal with that sort of thing is also really huge.”*

Confidence and self-efficacy building were also characteristics deemed necessary to learn through PE, such as confidence in practicing skills in the park, for example, or not being afraid to try something without asking an adult first:

Participant 7: *“and increase their enjoyment of movement, increase their variation of movement and increase their self-confidence self-efficacy all of that stuff just with a really”*

Additionally, the development of problem-solving skills and building resilience, both of which are skills that children can use throughout life, were referred to by interviewees:

Participant 7: *“That kind of problem solving the way through those instructions is really important.”*

Finally, the majority of the parents felt that PE helps with their child’s social wellbeing and children should be taught to learn to play with others. It allows children to mature, while also encouraging them to not only play with others during PE, but also in the playground. These skills along with the other elements previously mentioned are all valuable, not only for child development, but for adulthood:

Participant 5: *“And I think it’s important because actually it’s quite nice that when it’s kids, you know when they’re in the playground they pick who they’re with but in PE, what’s quite nice is they’ll start to play with kids they don’t typically play with”*

Generally, most parents felt that their child’s PE lessons do support their overall wellbeing, although some felt that they could not necessarily measure psychological benefits the same way they could physical and social. In addition, more could be done to support children’s wellbeing; however, there is an understanding that schools may lack the necessary resources and support.

Participant 2: *“Yes, I do I mean I cannot necessarily pull it to psychological but I definitely see the physical and the social wellbeing in terms of how it comes through, psychological I don’t know how I could evaluate I just get the reports afterwards but very much an important part of wellbeing.”*

Overall, parents agreed that PE would be beneficial for their child’s development, and that it would help with gaining confidence, working with others, learning to follow instructions, problem solving skills as well as many more skills. This would help their child’s development psychologically, physically and socially.

5.3.6 Attitude, Values and Character Development

In the questionnaire, parents were also asked to rank from 1-3 what **attitudes, values, and character development** they felt was most important to their child’s PE lessons; this can be found in Figure 5.6. Fun and enjoyment was considered the most important attitude and value with 83% of parents ranking it from 1-3, this was followed by teamwork (65%) and liking the activity (58%). Competition that requires challenging others was deemed the least important with 7% ranking it 2nd or 3rd most important. This was also found previously in anecdotal evidence, although parents in the interviews did mention the importance of competition there was no specification of competition in terms of challenging self or challenging others.

Figure 5. 6

Graph showing most important attitudes, values and character development in PE

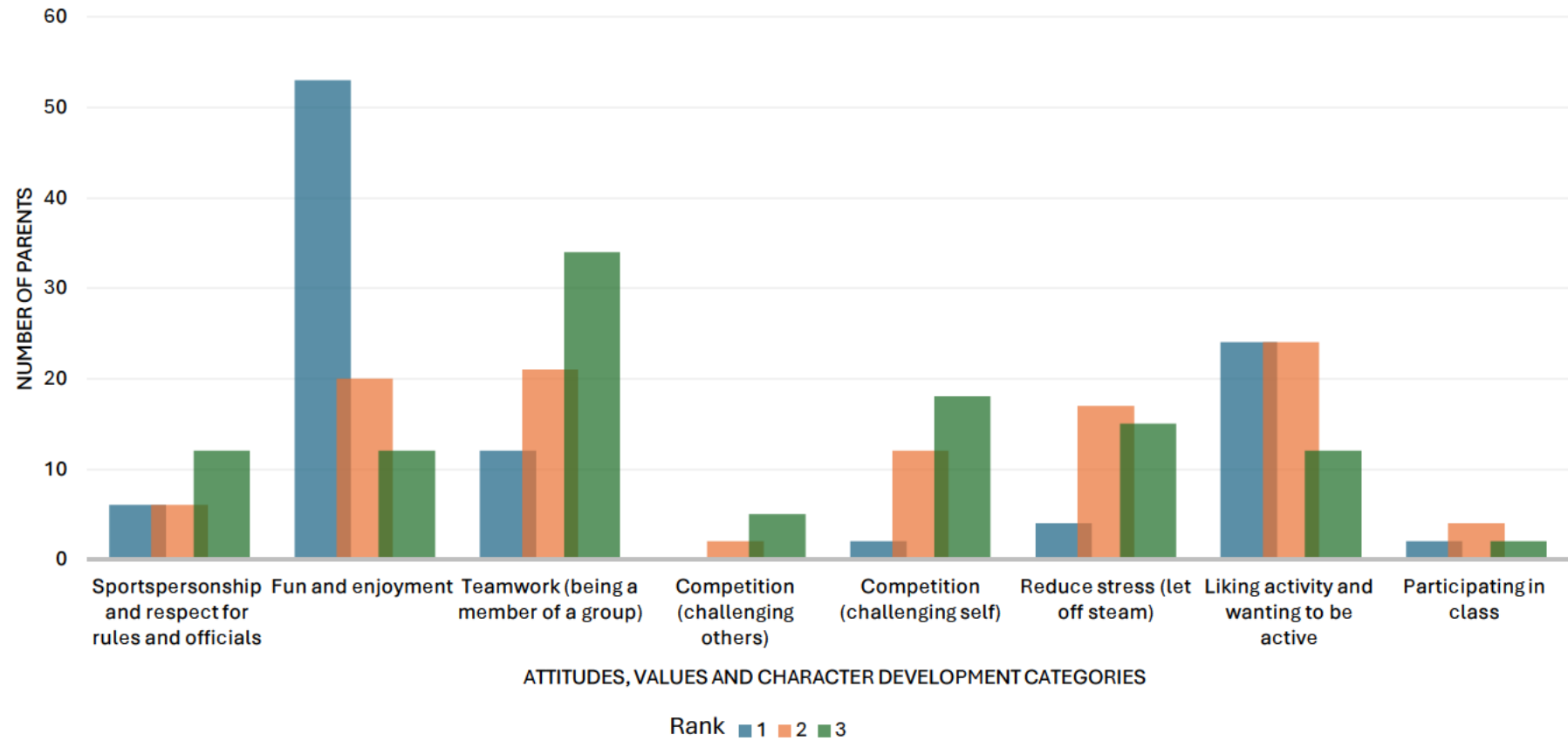
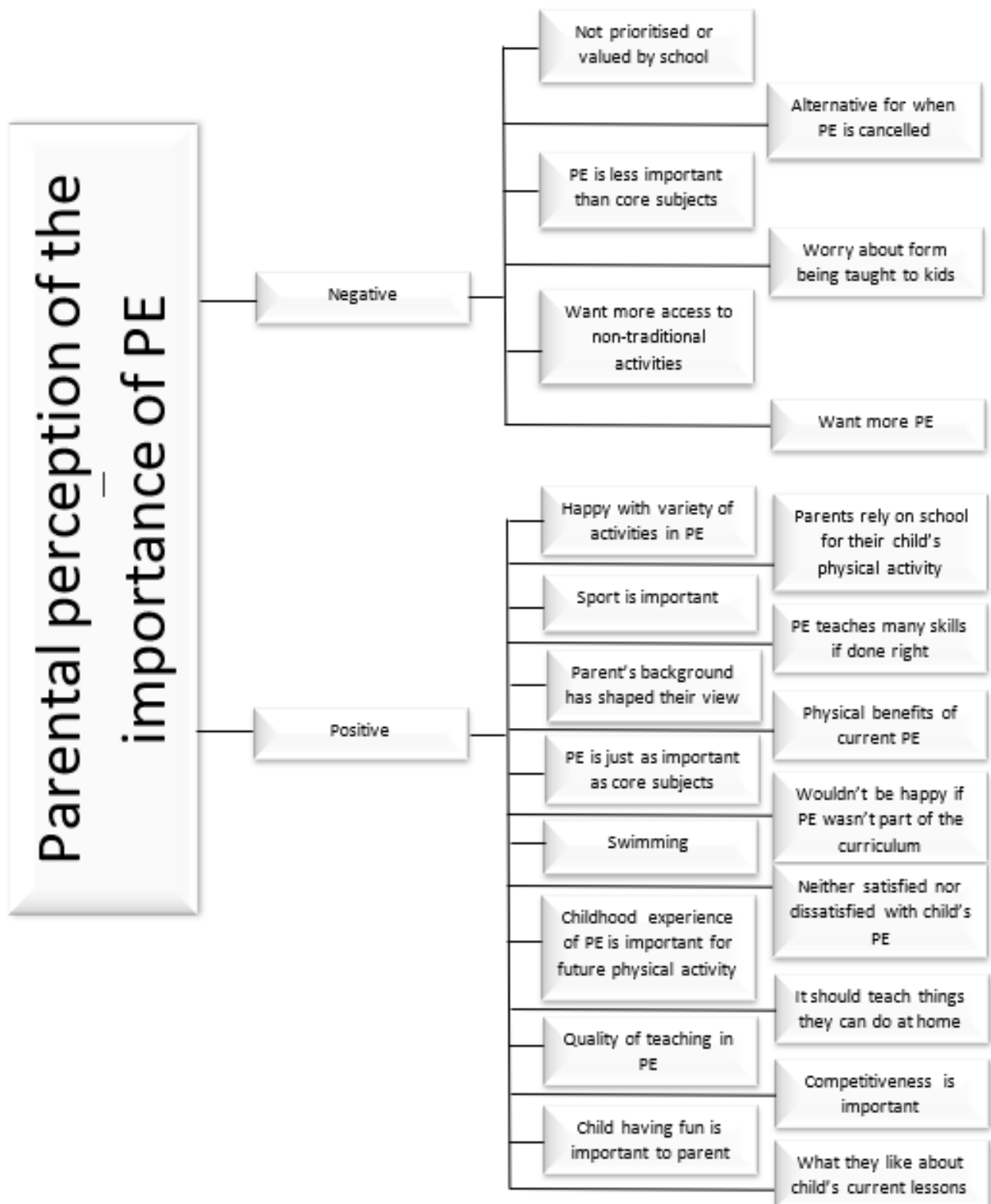


Figure 5. 7

Parental perception of the importance of PE theme



As seen in Figure 5.7, ‘child having fun is important to parent’ is a subtheme that was found for parental perception of the importance of PE. Parents’ felt that this was a significant attitude for them, as it would help their child foster a positive attitude to physical activity. If a parent enjoyed PE as a child, this attitude was also important to them for their child.

Participant 3: *“I think it's... it's really important because I think he needs to be able to grow up with a good attitude towards physical activity.”*

Parents’ also felt that learning to play with others was another attitude that was important - in essence, teamwork. This subtheme lies within the overall theme ‘Child development’, where parents expressed beliefs around physical, psychological, and social development. Parents felt that working in a team, whether it be large or small provided necessary skills to work with others:

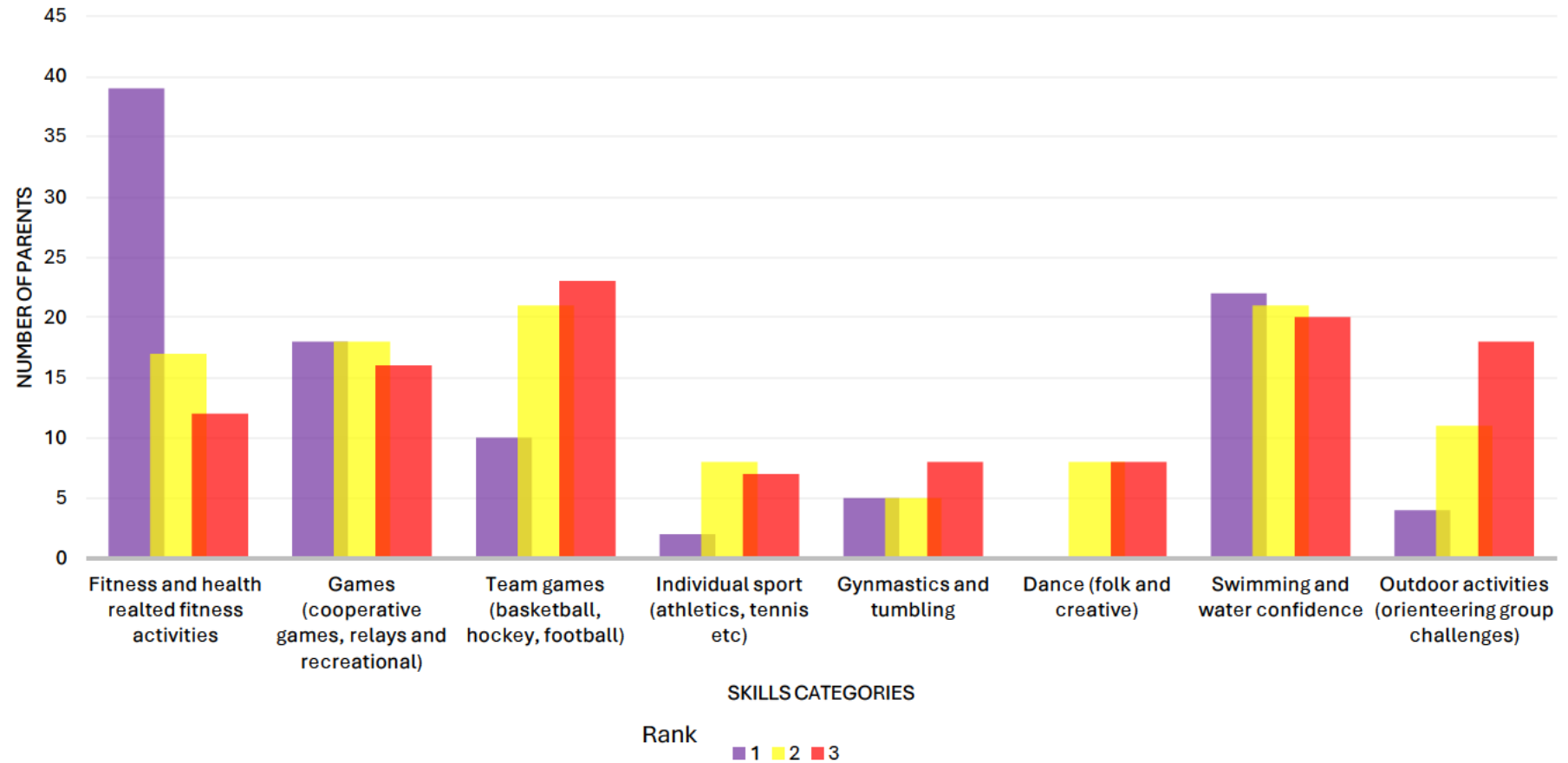
Participant 2: *“That it's very much the team-based activities so it's sort of about working together as a group it's not about, you know who's which one of you is the fastest type of thing it's very much more like doing things together and I think, that's quite valuable rather than it judging people's ability.”*

5.3.7 Skills and Activities Taught in PE

In the questionnaire, they were also asked to rank from 1-3 what **skills and activities** taught in PE were most important to the parents, this can be seen in Figure 5.8. Fitness and health related fitness activities were deemed most important (66%), followed by swimming and water confidence (61%), team games (52%) and games (51%). Dance (16%) and individual sports (17%) were deemed the least important skills and activities.

Figure 5. 8

Graph showing most important skills and activities taught in PE



Swimming was also raised in the interviews and placed within the theme previously mentioned as parental perception of the importance of PE; this can be seen in Figure 5.7. Overall, parents expressed that swimming was an essential skill to them that their child should learn, and for some, it was something they started with their child before starting school:

Participant 2: *“Well, I’m probably biased on this because I have had my children start swimming before starting school because I think It’s so important, for children to be water aware but also not afraid by it and I think the sooner you, get used to it the less intimidating is.”*

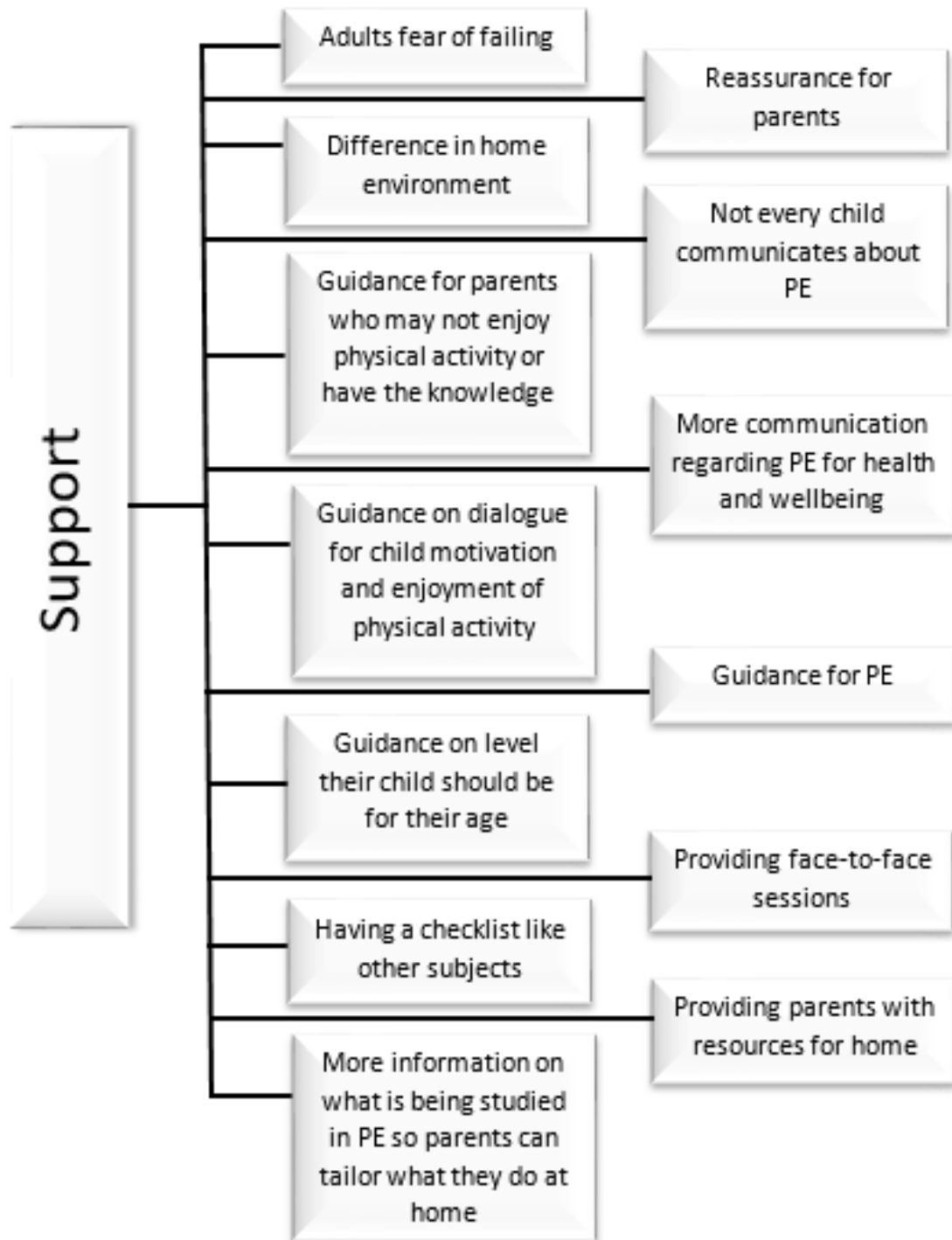
To summarise, parents felt that PE should focus more on wellbeing and being fun, while ensuring children learn a variety of skills. Their child enjoying the activity, learning how to play with others alongside activities, such as health related fitness, swimming and team games, were deemed some of the most important qualities and skills they felt their child should learn. Overall, there was more of a positive perception of the importance of PE compared to negative, with parents seeing the value in the subject while also wanting more from it.

5.3.8 Appropriateness of PE Lessons and School Support

Parents were asked whether they felt like their child’s PE lessons were appropriate for their child’s needs, 75% said ‘yes they did’ while 25% said ‘no they did not’. They were also asked whether they felt that they needed more information/support about PE, 46% said ‘yes’, 46% said ‘no’ and 9% said ‘PE was the school’s job’.

To further understand the kind of support parents would find useful, in the interviews parents were asked about support. The main question was “Does your child’s school provide information on how to support what your child does in PE at home? If so how helpful is this information?”. The overall theme along with the subthemes can be seen in Figure 5.9.

Figure 5. 9
Support theme



Overall, parents mentioned various ways in which they would like to be supported and their reasons for needing this support, one being fear of failing:

Participant 1: *“I think even as adults we’re scared of failing, especially if we don't fully understand the task to begin with”*

This, along with needing reassurance were two areas of support that emerged from the interviews:

Participant 1: *“and just the knowledge of how to do it and also the the reassurance if it doesn't work out that's okay.”*

Previously, lack of communication was deemed as a barrier, because many parents felt that the schools relied on children to relay information about PE. Because of this, parents have raised the argument that not every child communicates and thus support through communication would be useful:

Participant 7: *“So they have done little bits like that but it's more focused on how that's gonna support their like fine motor skills for handwriting and and things like that rather than how it's going to support their health and wellbeing, things like that like so I think they they do it in some aspects but could be better.”*

Alongside these resources, guidance on the dialogue used and expected attainment levels in PE would also be useful, especially for child motivation and enjoyment of physical activity:

Participant 2: *“I think I could support it but I just want some guidance on where to focus on, I suppose I don't know what, I hate to use the word normal, but I don't know should a 5 year old be able to do.”*

Furthermore, parents would like to tailor what they do at home to help with PE, and therefore providing the necessary information is important to them:

Participant 1: *“I think it's a school provided this is what we're doing in PE this term, it's all about balance and how you do balance on objects, or how things like that, I think that would be really good as a parent, because that way we can support what's going on and use the same language,”*

Concerning the resources desired, parents mentioned that face to face sessions could be useful:

Participant 7: *“So sometimes it's getting the parents in to see play based approach delivered within PE session and then helping them to kind of put themselves through*

how they can embed that kind of at home with the space that they have and things that they have at home.”

In lieu of this, parents also mentioned that having a checklist and/or example activities like they do for other subjects could make it easier for them to support PE at home:

Participant 7: “they give us you know activities to do at home to support what they're doing in numeracy, and they give us activities that they could be at home to support that phonics and literacy, or their handwriting, but they don't give us anything to support them in PE”

These resources should provide various games to be done at home or in a variety of environments. This is because parents also mentioned that due to different home environments, some did not feel as though they can support PE, while others felt that they had the appropriate environment to do so:

Participant 1: “I need a bigger area. I have a small flat I think it's space I don't have a garden, I think if I had a garden it'd be different,”

To summarise, most of the parents who completed the questionnaire felt that their child's PE lessons were appropriate for their needs. However, just under half felt they needed more information and support about PE. In the interviews, parents mentioned a variety of ways they would like to be supported, this included needing reassurance, better communication from the school, and guidance on various games they can play at home with their child.

5.3.9 Parental Satisfaction

A linear regression was then conducted to determine predictive factors of parental satisfaction. There were independent of residuals, as assessed by a Durbin-Watson statistics of 1.77, as this number is between 1-3 it is deemed independent (Field, 2013). There was a linear relationship as assessed using a scatter plot. There was no evidence of multicollinearity as assessed using correlations and VIF, (child's attitude to PE, *tolerance* = .69, *VIF* = 1.46; child's attitude to physical activity, *tolerance* = .58, *VIF* = 1.75; child's physical activity level, *tolerance* = .93, *VIF* = 1.08; child's age, *tolerance* = .90, *VIF* = 1.12; eligibility for free school meals, *tolerance* = .97, *VIF* = 1.03; awareness of what child learns in PE, *tolerance* = .92, *VIF* = 1.08, parental perception of the importance of PE, *tolerance* = .85, *VIF* = .17). As the collinearity tolerance for each variable was above .10, and VIF was less than 10, there was no evidence of multicollinearity (Pallant, 2020). There were no participant

whose standardised residuals were above three standard deviations. There was normal distribution as assessed using a histogram and P-P plots,

This linear regression was conducted to determine whether parental satisfaction with PE could be predicted by child's attitude to PE, child's attitude to physical activity, child's physical activity level, age of child, eligibility of free school meals, parental awareness of what child learns in PE and parental perception of the importance of PE, this can be seen in Table 5.3. The results of the regression indicated that the model explained $R^2 = 17\%$ of the variance and that the model was a significant predictor of parental satisfaction of PE, $F(7, 95) = 2.8, p = .02$. Child's attitude to PE had a positive contribution towards parental satisfaction, the more positive a child's attitude to PE was, the more satisfied a parent was, no other variables were significant.

Table 5. 3*Regression table for predictors of parental satisfaction of child's PE*

Parental satisfaction	B	SE B	β	95% CI		<i>p</i>
				LB	UP	
Child's attitude to PE	1.62	.65	.28	.33	2.92	.02
Child's attitude to physical activity	-.82	.93	-.11	-2.66	1.03	.38
Child's physical activity level	.06	.15	.04	-.23	.35	.67
Age of child	-.03	.14	-.02	-.30	.24	.84
Child's eligibility for free school meals	-.37	.61	-.06	-1.58	.84	.54
Parental awareness of what child learns in PE	-.85	.55	-.15	-1.94	.25	.13
Parental perception of the importance of PE	-.13	.15	-.09	-.42	.16	.37

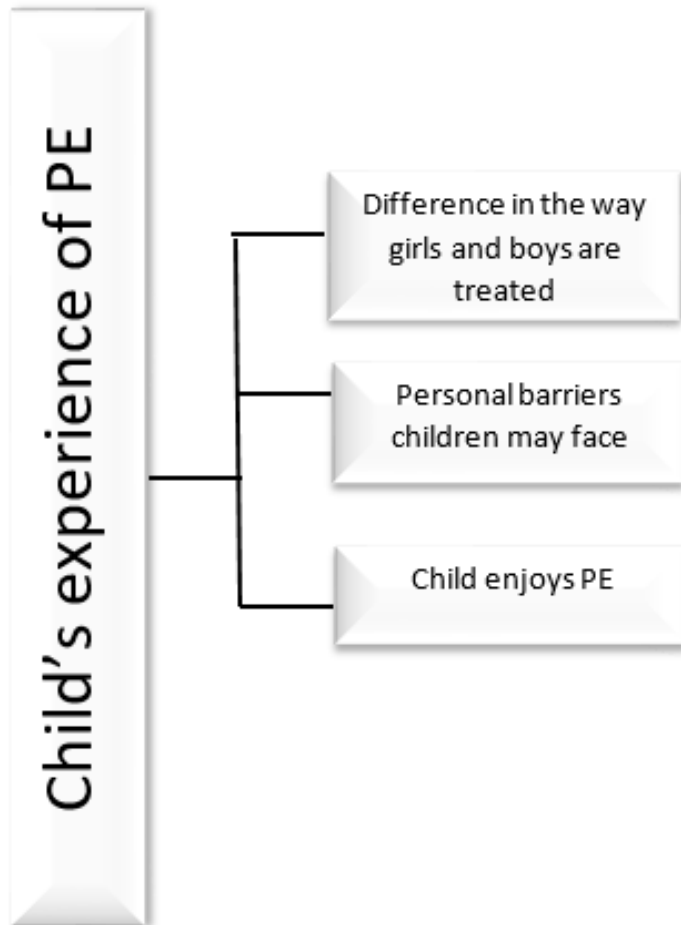
5.3.10 Additional Themes

While a few themes that came from the interviews integrated well with the questionnaire results, other themes did not. However, these themes provide further insight into how parents feel about PE as a whole and play-based PE specifically. The themes that will be explored are 'child's experience of PE', 'barriers to effective PE', 'delivery of PE', 'the role of the teacher', 'inclusivity in PE' and 'play-based PE'.

5.3.10.1 Child's Experience of PE.

Figure 5. 10

Child's experience of PE theme



Overall, most of the parents felt that their child enjoys PE, which as previously mentioned is important to parents. However, parents did mention that there seemed to be a difference in treatment between boys and girls. Two mothers of girls also mentioned personal barriers they felt their child might be facing currently: 1) weight gain, and 2) race/being a person of colour. While one mother noticed their child not engaging as much with sports due to their weight gain, the other mentioned their awareness to the fact that their child's skin colour may be a barrier in life generally and specifically to being physically active:

Participant 5: *"...my daughter has gained a little bit of weight lately and this has kind of put her off sports. It didn't make her feel like 'oh great, I'm going to do more*

exercise'. So all this kind of stuff they've taught I don't know if that necessarily correlates... so it's something that we have to continue at home "

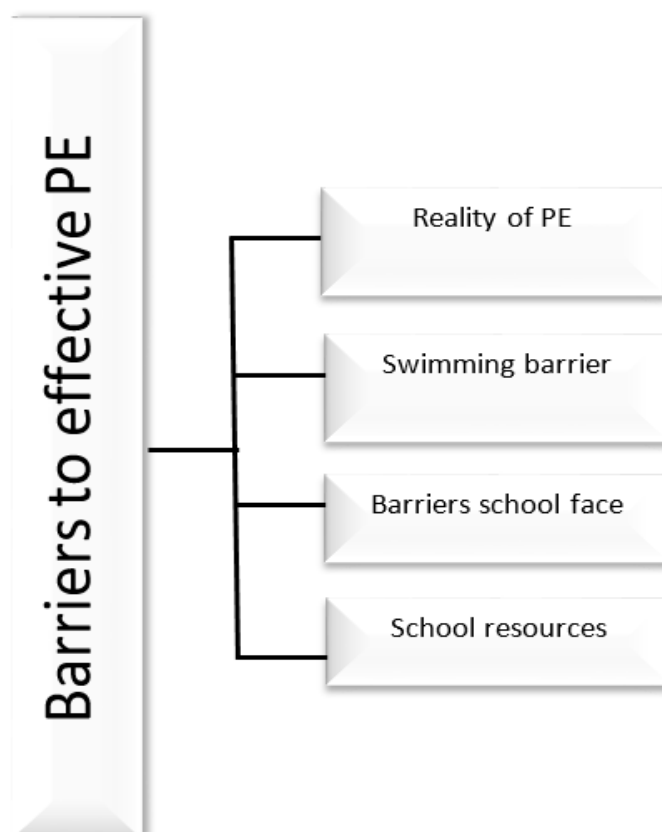
Participant 7: *"...especially with her being a girl and her being... you know, my husband's African American and you know her being, you know, a person of colour as well, everything's kind of stacked against her in life, as far as like, you know, being active... and, you know, engaging with physical activity"*

The general sentiment was that these parents' children enjoyed PE; however, there were some instances, particularly pertaining to the girls, that made their lessons less enjoyable.

5.3.10.2 Barriers to Effective PE.

Figure 5. 11

Barriers to effective PE theme



Both child development and enjoyment of PE can heavily be affected by the barriers schools may face to produce effective PE sessions. Parents are aware that schools are under

pressure to produce academic results; this does not usually include PE as a subject. This is further compounded by the time restraints they face, along with lack of funding:

Participant 6: *“...but also the way the Government run primary schools and the targets and all of the what they're expected to achieve academically at primary school now, I think that kind of means that PE ends up getting pushed to the bottom of the pile.”*

Furthermore, not all schools have the resources or facilities such as an outdoor area dedicated to PE activities, and this has been seen as a barrier to effective PE:

Participant 3: *“And if they can go outside as much as possible to, I think that's always nice. He doesn't have a great outdoor area at his school... it's all paved over. But I think that's fairly common here.”*

Swimming was previously raised as a skill many parents felt vital; however, parents do also understand that there are practical barriers schools may face with taking classes to swimming lessons at a younger age:

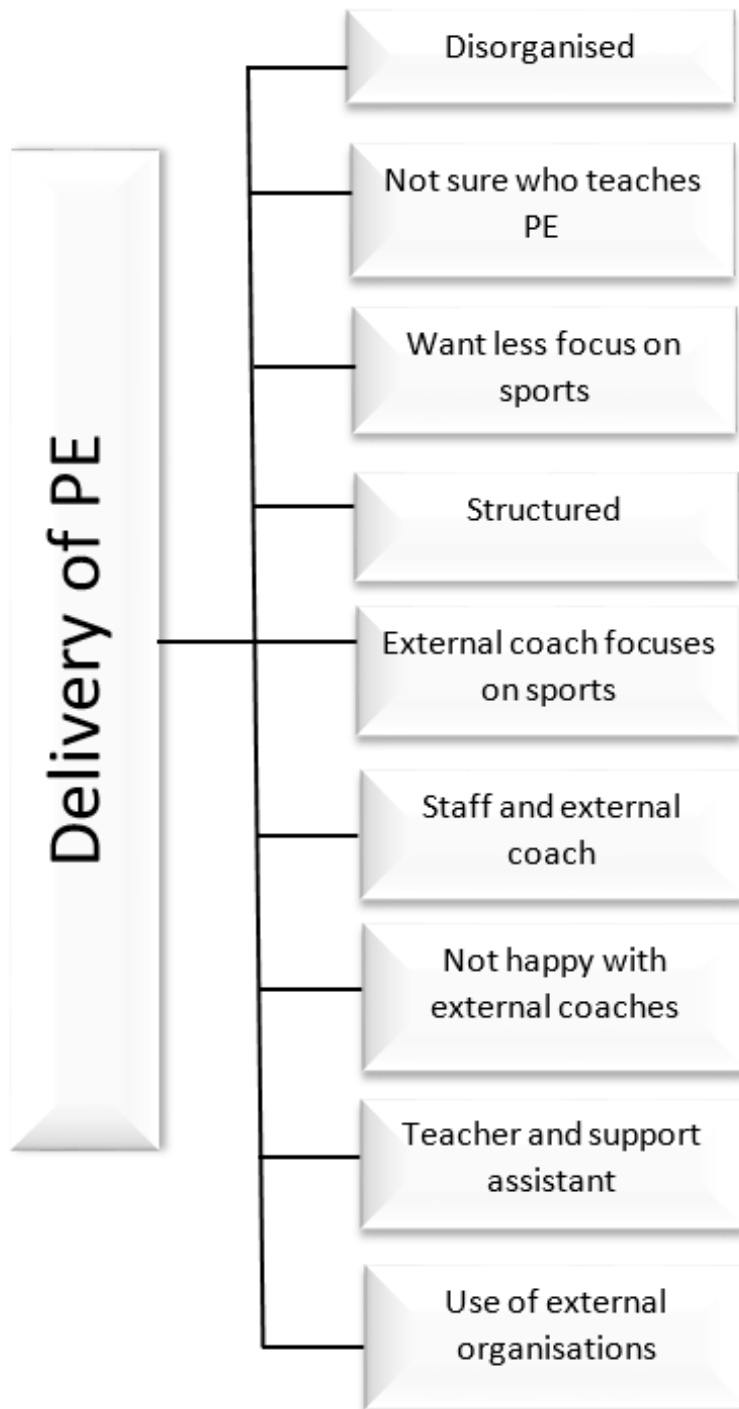
Participant 2: *“So I think it really is important from very early age. But I can see there's just a bit of a barrier with the younger age in terms of the ability to get into the appropriate clothing and all of that, and then back out of it afterwards when it's just like... there's some limitations from a practical perspective.”*

The parents were sympathetic towards the stress schools currently have with academic attainment, as well as the lack of resources their child's school has. They understand that these barriers could affect the PE lessons.

5.3.10.3 Delivery of PE.

Figure 5. 12

Delivery of PE theme



Parents had a lot to say about the delivery of PE in their child's school. While one parent felt that their child's lessons were disorganised and "all over the place", another felt that it was quite structured:

Participant 3: *"That's a good question, I think it's kinda all over the place. This is another thing where they're a little bit disorganised. So I think sometimes it's his classroom teacher, and then they've got a couple of people up there who work at the after-school club, and I think also occasionally do PE as well."*

Participant 1: *"...but when [child]'s then go back into school it's very much 'right, we're doing gymnastics this term'... 'we're doing football this term'... so now everything's got a structure"*

Some parents were also not sure who taught their child's PE lessons. While they were aware that there was not just one PE teacher, they were unsure who exactly taught all the lessons:

Participant 3: *"So he doesn't have just one PE teacher, there might be a staff member who actually is the PE person in coordinates this. I'm not really sure but, it does... it seems to change who's doing it yeah"*

Other parents mentioned that there were either specialist PE teachers or the PE teacher was the class teacher. Normally the PE lessons would be conducted with either the PE teacher alone or with the support staff:

Participant 2: *"The formal PE lessons, the dedicated PE teachers. Then the, sort of, more informal physical activity in the class, I believe, is teaching assistant, because they split the class in two. So one half will be doing indoor development activities while the other half is outside doing physical activity with I believe is the teaching assistant."*

Parents were also aware that it was a mixture of outside organisations and the school staff who taught PE. For some parents, the use of external organisations was perceived as a good thing; they felt that they were trained in dealing with little children and mentioned the thought that some PE lessons were taken by placement students. There were an array of organisations that would come in, depending on what was being taught that term:

Participant 4: *"So it's her main teacher. She's in Year 1 but I know that recently they brought someone in from Oxford United, or someone connected to Oxford United..."*

maybe it was a coach... who did sort of some very special things like a special PE lesson”

They also mentioned that the external coaches or organisations heavily focused on sports; this ranged from dance to rugby:

Participant 7: “...a contracted provider... so they come in another day, and it's a lot more kind of sport based. At least the provider one is. It's a lot more like he does football, rugby...”

However, not every parent was happy with the external coaches; they wanted less focus on sports when it came to PE. It was felt that due to sports mainly being team games, children who were not really into those sports would not feel as comfortable taking part, and so more focus on individual fitness would be better. A parent also mentioned that their child did not seem to enjoy the coach days as much as the teacher PE days, the coach sessions were very much sport dominant and not very inclusive:

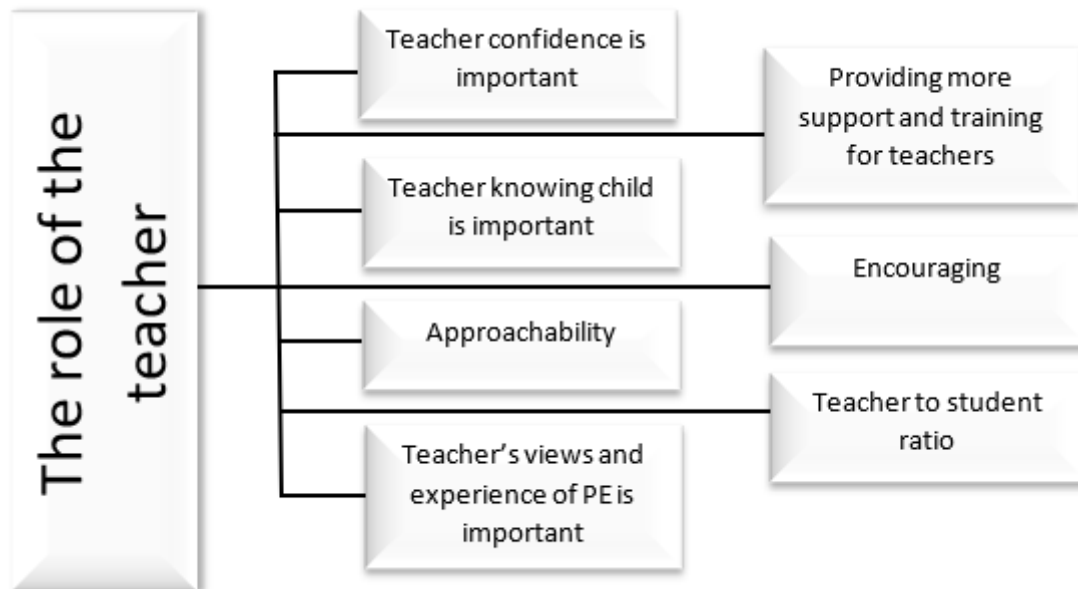
Participant 6: “I don't know how they do this... slightly less focus on team sports and on sort of individual fitness. Because then if you don't if you're not that into team sport, so you don't feel very confident doing them.”

In summary, there was a mixture in parents' knowledge regarding who delivers their child's PE lessons. While some parents did not know who delivered their child's PE lessons, others were aware that it could be an external coach or a mixture of the class teacher and external organisations. Not all parents were enthusiastic with the use of external coaches as some felt they focused heavily on sports.

5.3.10.4 The Role of the Teacher.

Figure 5. 13

The role of the teacher theme



Just as parental experience of PE has been mentioned to be significant; teachers' experience and view of PE is equally important. One participant mentioned that their parent was a teacher, and this teacher-parents experience of PE as a child and being an active person meant she enjoyed teaching PE in comparison to some of her colleagues who did not have the same experience:

Participant 7: "my mum was a teacher 30 years, and she was... she liked to... to deliver PE sessions because again she an active person, and a sport person. But like other teachers that she worked with they hated delivering PE... they didn't enjoy PE growing up, or they... you know, don't really see the value in PE so they hated delivering it,"

This experience of PE as a child or young person could then result in teachers lacking confidence in teaching PE. Building confidence could be beneficial for all teachers who teach PE:

Participant 7: "I think if teachers, if more teachers... I mean not just PE teachers, but all teachers that, you know, have the responsibility in delivering PE, were more

confident in delivering it, I think [it would be] beneficial”

It was discussed that teachers should be approachable and encouraging; they should know their students well, as this would allow them to understand a child’s limits and how to encourage them:

Participant 2: “In terms of how they encourage the children, you know, such small ones getting engaged through that, which has got to be quite hard directing 30 4 and 5 year olds, and in those types of activities. but, you know, they work with them in small groups, they really give them individual attention, and I think it’s been really well done.”

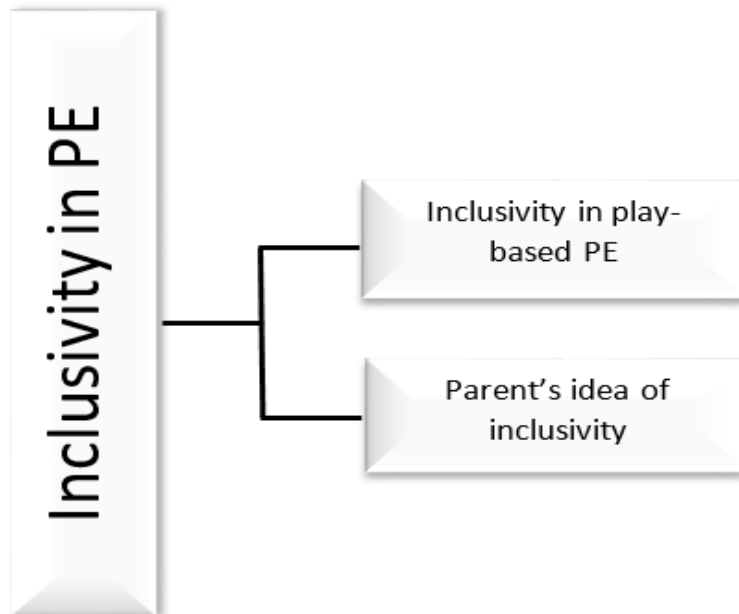
Despite the varying views parents had of teachers, there was a general agreement of limiting factors to teaching PE such as teacher-to-student ratio and their level of training. The fact that teachers need to cater to several children during PE lessons could result in the inability to be as encouraging as they would like, as they would not have the capacity to do so. Furthermore, the lack of support for further training teachers receive could also affect factors that have been mentioned above, such as confidence and approachability:

Participant 6: “,,but I do think that if you’re not into it too much, or you don't feel your very good at it, I'm just sure the teachers don't really have time to go around and sort of boost everybody up”

5.3.10.5 Inclusivity in PE.

Figure 5. 14

Inclusivity in PE theme



Inclusivity in PE was a huge theme during the interviews; the general idea of inclusivity from parents was the ability for all children, regardless of difficulties, to take part in PE in some way. Parents mainly mentioned neurodevelopmental conditions such as autism and ADHD:

Participant 1: "it's making sure everyone's included. How do you get those kids included that don't have those verbal skills? You've got autistic and non-verbal kids. How do they interact? How do they know it's safe to interact?"

An example of a game was given that would allow more children to take part in PE; this game was described for a way to include children who may struggle with loud noises:

Participant 7: "And getting other kids to take part in ways that are inclusive... so if they have like quiet games and things like that would... I don't know, they have to be as quiet as mice or something, just so that they're... they're kind of being a little bit more inclusive towards some of the kids that have those issues and challenges"

Inclusivity was also discussed when comparing play-based PE to traditional PE. When given a definition for play-based PE, parents felt that it would be more inclusive than

traditional PE currently is. PE currently can result in children comparing themselves to one another as normally everyone is doing the same sport; however, play-based PE from the parents perspective seemed to evolve with the children and what they want to do. It also allows children to explore more individually:

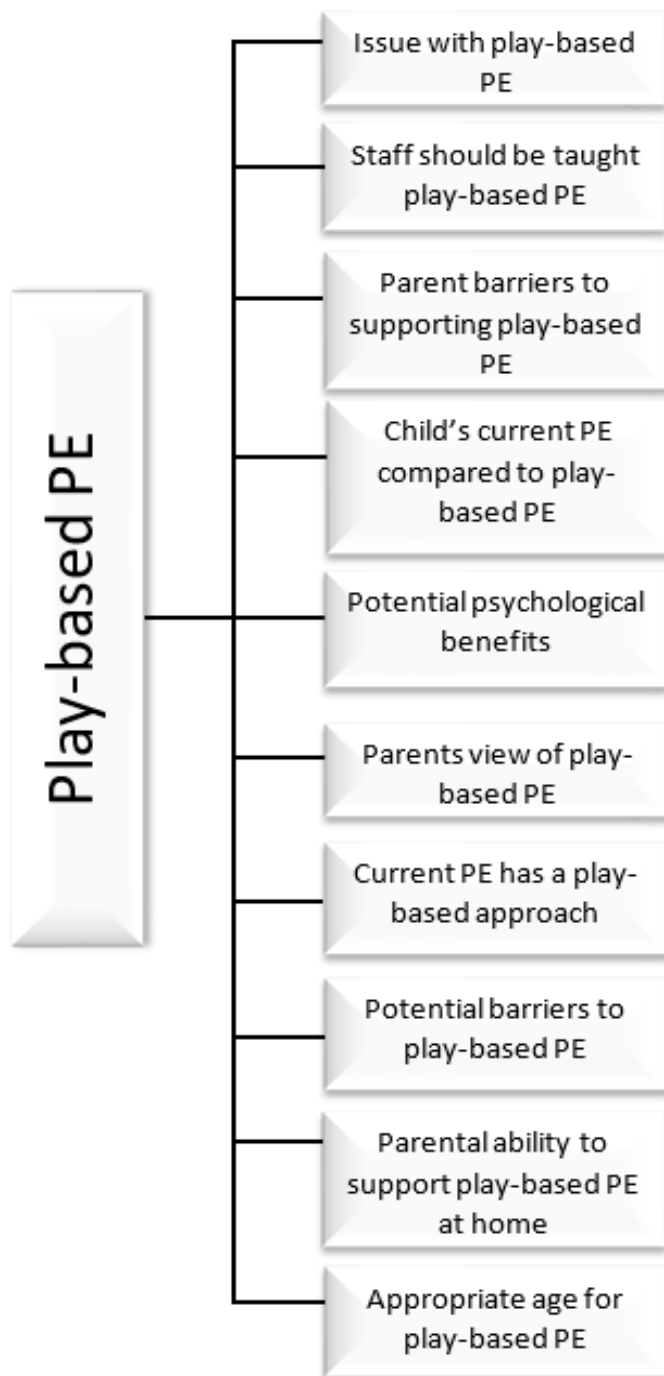
Participant 3: *“I mean to me that definition sounds a little bit more like, you know, suiting it to every person individually and sort of more of a an exploring sort of thing, which I don’t think he necessarily is doing.”*

Overall parent’s had similar views on what inclusivity meant, the idea that all children would be included regardless of any conditions they may have. They felt that play-based PE could be a way to make the subject more inclusive than the current traditional PE.

5.3.10.6 Play-based PE.

Figure 5. 15

Play-based PE theme



To explore how parents felt about play-based PE, a number of questions were asked in the interview. There was an overall sense of positivity about play-based PE. Parents felt that it

was centred around the children, their voice, and ability to play. One parent noted that play should not be given up just because children get older, while another mentioned that this form of PE could teach kids without them realising they are learning, especially for children who may not enjoy traditional sports:

Participant 5: *“So they may not be kind of pro sport culture, so it's a nice way to teach them without them realizing what you know what they're learning. In terms of negative, I cannot initially think of a negative linked to this. I think it's... positive approach to learning, for... younger students.”*

Some parents mentioned that they felt either their child's current PE lessons used the play-based approach, or the teachers tried to do so. One also discussed that they were not sure if it was integrated as part of the PE lessons, but they were aware that their child was encouraged to use their imagination through various games:

Participant 4: *“I think they're aiming to do that I'm not sure if it is completely. Yeah, I'm not sure...”*

When comparing traditional PE to play-based PE, there was an idea that traditional PE could result in children comparing themselves to one another rather than focusing on individuality and exploring movement:

Participant 2: *“...in the formal PE it's very much... they can end up comparing themselves with one another. You know, if everybody tries to do this or everybody tries to do that. And it's not necessarily as individually focused as I see the play-based one sort of evolves with what the children are doing... what they want to do.”*

Although there was an overall positive perspective of play-based PE, there were some concerns raised. Not every child has the opportunity or willingness to try different things such as different sports, and so if everything is play, the risk is that children might just not want to do it. Children may also run the risk of falling behind learning fundamental movements such as balance. Furthermore, play could take away the aspect of competitiveness that some parents feel is important, and not every parent wants their child to miss out on traditional sports. It seems that the parents had varied understanding of what play-based PE would entail differently, as one mentioned the use of screen-based activities:

Participant 5: *“Yeah I... I think it's quite positive. I'm thinking of a negative... a negative could be, you know, if it's all... if it's all play, are we kind of taking away that aspect of competitiveness that may drive more kids into PE?”*

5.3.10.6.1 Potential Barriers to Play-based PE.

They also raised potential barriers that schools may face to conducting play-based PE. This was mainly time restrictions; however, it also included the factor that teachers have a large group of children to take care of, and so helping each child individually could be difficult. In addition, with the lack of consistency in who teaches PE, lack of resources, and potential need for risk assessment, it may prove to be difficult to be consistent with play-based PE. There was also a concern that teachers not having enough knowledge on play-based PE could be a barrier, as they might find it daunting to try these different games. It was suggested that staff should be taught play-based PE:

Participant 7: "I think that's kind of a bit scary for, you know, teachers or practitioners trying to come up with that. I think just having that knowledge and awareness, like different types of games and approaches that could be included in a play-based approach, is another barrier."

However, there were psychological benefits described, such as confidence, creativity, engaging children who may not necessarily like PE or learning in general, and the idea that in comparison to traditional sports, children may feel much better about play as it is not focused on everyone being able to do one skill. This inclusivity is what parents feel could result in the psychological benefits of play-based PE:

Participant 6: "I imagine it would be really good for confidence building, because again it could be tailored different ability levels and they could feel kind of satisfied with what they'd achieved in a way they might not if they just cannothit [with] a tennis racket or something"

Parents were asked what age they felt that play-based PE was appropriate. Overall, everyone felt that it was definitely appropriate for younger children, such as Key Stage One. However, some parents had reservations about children in Key Stage Two. It is important that children are prepared for the transition into secondary school, and so, if play-based PE continues into Key Stage Two, the fear is that children will be unprepared for secondary school PE. Similarly, parents felt that as children got older, they may be more resistant to it; however, if they did it from a young age then it may be easier to adapt and tailor play-based PE for the older children.

Participant 2: "For Key Stage Two I think it might be a gradual moving towards, a formal... more formal basis by the time they hit Year 5. And definitely into Year 6 to

prepare for what's likely coming on the transition into the senior school, otherwise I think it, could be quite a nasty shock, at how PE looks when your slightly older."

To recapitulate, the general consensus is that play-based PE is overall beneficial. While parents were not sure if it was currently being conducted in their child's school, they felt that this form of PE could be better than traditional PE for their child. However, there were some concerns and potential barriers. The idea that competition would be taken away was mentioned, alongside children potentially falling behind on learning fundamental movements. It should also be taken into consideration that not every child has the opportunity to try the different sports traditional PE provides them. Parents also acknowledged that schools may face challenges when implementing this approach due to lack of resources, lack of consistency with who teaches PE and teachers potentially lacking knowledge on the approach. They also stated that at some point as the children get older, they should transition back to traditional PE, as it would prepare them for the type of PE they will experience in secondary school.

5.3.10.6.2 Supporting Play-based PE at Home.

To conclude the interviews, parents were questioned on how they felt about supporting play-based PE at home. The main barrier that parents mentioned was space; they were willing to support their child's PE at home, but not every parent felt that had the space to do so. They also mentioned time and the weather as being barriers:

Participant 3: "We just... it's that we're so pinched for time when he's home, and obviously space as well. In the winter, you cannot really go outside any more... by the time you're home it's already dark. So I think it's things that can be done indoors in a small space, because we're in a little terrace. I think that would be super if it can be sort of, you know, things that can be easily adapted to the house."

They also spoke about their ability to support this kind of PE at home. With guidance some felt they would be equipped to do so. Having access to space was also a factor; some parents have a park or open space such as a garden close by to support play-based PE at home:

Participant 7: "Yeah, I think so. I think...you know, already kind of knowing what a play-based approach is and how a play-based approach would be delivered. I feel comfortable doing it at home and making, you know, play out of activities, and, you

know, thinking about how you can make things more active. Yeah, so I feel confident, you know, whether somebody that maybe doesn't have the background or awareness, probably doesn't."

As mentioned earlier, parents like the idea of play-based PE; however, space, time, weather, and lack of guidance were barriers they perceived to potentially stop them from supporting PE at home.

5.4 Discussion

Parental perception on the importance of primary school PE in England and the idea of play-based PE has been explored. With an added focus of gaining an ethnically diverse group of participants that would be representative of the population in England. The current study's findings have been consistent with previous literature; however, this has been with a more ethnically diverse group of participants, which is novel. The findings also providing a novel insight into parental perception of play-based PE. While previous literature has focused on play-based learning, little research has explored both play-based PE and how parents feel about it.

5.4.1 Parental Perception of the Importance of PE

Parental childhood experience of PE has been deemed a factor that can affect parental perception of the importance of PE. In line with previous literature, parental childhood experience of PE had a statistically significant effect on parental perception of PE, (Lago-Ballesteros et al., 2019), with several parents in the current study stating they did not have a good experience of PE as a child. Parents also expressed that PE did not feel valued by their child's school; this was also found in previous literature (Coulter et al., 2020; Sheehy, 2006). Understanding these experiences could help shift their perception of the importance of PE; this is essential as studies have shown this can then affect their child's attitude to PE (Coulter et al, 2020), as well as affect how much importance they place on PE as a subject (Lago-Ballesteros et al., 2019). Various reasons were provided for these negative experiences, some being the focus on competitiveness and team sports, while positive experiences resulted from factors such as feeling sporty. The competitive element of PE is something that has previously been raised as a concern (Earley & Fleet, 2021; Rethink Education, 2022).

These features of PE are still prominent in primary school PE today in England, as seen in Chapter 2, although the statutory guideline for Key Stage One PE is vague; it puts focus on developing fundamental movements as well as mentioning engagement in competitive physical activity (Department for Education, 2013f). For Key Stage Two, a heavier focus is placed on competitive games. This could raise concerns that current PE lessons could negatively affect children today, in the same way PE lessons affected some of these parents. Children who do not fit the 'sporty' stereotype may not feel like they can do a sport or are wanted in team sports, they may also be picked last for teams which can negatively impact them (Cardinal et al., 2013). These negative experiences could then result in these children not wanting to continue physical activity into adulthood, as seen by some of the parents, and the findings from Chapter 4 that enjoyment of physical activity predicts the amount of physical activity undertaken.

Parents want their child's PE lessons to improve fitness, teach sport skills and teach to play team sport skills. They also deemed fun and teamwork as the most important attitudes and values PE should develop, which has been found in previous literature (Coulter et al., 2020). Both were further mentioned in the interviews, parents unanimously felt that their child having fun was the most important thing to them. This was because they were aware that the experiences their child has now in PE could later on affect their physical activity behaviour as an adult (Coulter et al., 2020; Telama et al., 2005). Fitness and health related activities and swimming were the highest skills and activities ranked by parents. Swimming was repeatedly mentioned in the open-ended responses from what parents felt that their child's PE lessons should do. This was further spoken about in the interviews with parents, where they were asked what life skills they thought their child should be learning in PE. Despite the interview question and follow up questions not mentioning swimming, parents clearly expressed that swimming was very important to them, as it is a life skill. While parents understood the barrier schools may face with PE and swimming, i.e., lack of time or practicality, they made it clear that it was of importance to them because it was a crucial skill.

Generally, parents felt that PE could have a positive effect on their child's overall wellbeing. They felt that it was important that PE taught children various skills. With children learning the concept of losing, participation and perseverance, it would build a child's confidence, self-efficacy, and problem-solving skills as well as build resilience. They felt that these characteristics were important for a child to learn; along with life skills such as teamwork, communication and acceptance that they will not be great at everything but the

importance of doing their best and trying regardless. PE is a great setting to teach life skills (Goudas, 2010), these are all skills that help build a foundation for children, for them to use throughout their childhood and into their adulthood. However, the apprehension that a child's gender, weight or skin colour could be a barrier to them enjoying PE is understandable. Due to PE focusing on the body, there is a potential risk for body image issues to be developed and in girls this issue has been associated with the desire to be thinner (Kerner et al., 2018). Furthermore, in the last few years, Sport England have found that girls are less likely to be active (Sport England, 2022, 2023a, 2024). Additionally, the rise and publicity of racial issues in recent years, both globally and specifically in the UK, could explain why parents may be more conscious of their child's race and how their child may be treated, both inside and outside of school, due to the colour of their skin.

5.4.2 Communication

Although parents expressed their desires for what PE should teach and overall felt that PE could be positive, there was a clear lack of knowledge on what their child was learning. This knowledge is necessary and can affect parental perception of the importance of PE. The results illustrate the need for better communication from schools regarding PE as found in previous literature (Coulter et al., 2020), with an alarming number of parents (46%) expressing their lack of awareness of what happens in their child's PE lessons. This lack of communication from schools was a great concern for numerous parents, similar to previous literature, resulting in many of them gaining information from their child, if they were fortunate enough to have a child that spoke about PE (Sheehy, 2006, 2011). As a result, the reliance schools have on children informing the parents about their PE lessons could be a huge reason as to why many parents are left in the dark about PE. Especially for parents of children who are very young, as they may not be able to articulate their day very well. On occasion parents would gain information through other parents, if schools provided initial packs explaining how PE would be conducted or through biweekly reports. However, these were fewer common methods of communication. It has been noted that during the pandemic and lockdown, schools did provide guidance for parents, showing that they can do so, however, this level of communication was shortly stopped once children were back in school. As previously suggested, the lack of communication could be letting parent's know that PE is not important or valued by the school (Sheehy, 2006).

Schools have the ability to communicate about PE should they wish to, and parents are willing to support their child's PE at home; however, 46% felt that they needed more information and support about PE. This was further highlighted in the interviews, where parents mentioned the need for guidance in various aspects, one being dialogue. This is an area that has been previously identified as important (Griffin et al., 2015); teachers have raised the need for consistency in the message children receive at home and in school. Parents also repeatedly mentioned resources being needed, as this would allow them to support PE at home physically. For example, providing games or exercises for parents to do at home with their child could allow parents to provide support in the form of modelling; doing something active with their child (Welk et al., 2003). Both modelling and motivational support have been found to be important factors for child physical activity (Zecevic et al., 2010). Thus, helping parents' model physical activity in the form of activities related to their child's PE, and helping them motivate their child through dialogue as suggested by parents, could help them support their child's PE and in turn physical activity. A conclusion could be made that by providing parents with better supporting tools for PE, this could have a positive effect on their child's learning in PE, as previous literature has found parental involvement in child's education can positively affect learning (Fan & Chen, 2001; Green et al., 2007).

5.4.3 Delivery of PE

The lack of communication has also meant that not every parent knew who delivered their child's PE lessons. It was either the class teacher with help, a specialised PE teacher or two days split between the class teacher and outside organisations. Informing parents about who is delivering PE and what is being done, could help parents feel less like their child's PE is disorganised and all over the place. However, the inconsistency and lack of awareness from parents is understandable, as there has been a rise in the amount of schools using external coaches (Blair & Capel, 2011; Callanan et al., 2015; Griggs, 2018; Smith, 2015). There was a mixed response about the use of external organisations; while some parents felt they were great, other parents felt that they focused heavily on sport, and this was an issue. The concern with PE being sport specific is not just of these parents, others feel that it has the potential to lack inclusivity (O'Connor et al., 2012). With parents previously speaking about their experience and some stating they were not a "sporty" child and did not enjoy sports, it is understandable why this would be an issue for them. As this could result in their child not enjoying both PE and physical activity long term.

Several factors can affect how PE is taught, one being the teachers. Previous experience of PE is a core factor that can affect how people feel about PE, this has been found for both parents and children. Thus, it could be argued that it is similar for teachers. As previously mentioned, one parent disclosed that their mother was a teacher. This parent expressed that their teacher-parent (mother) attributed their desire to teach PE to their positive childhood experience of PE and mentioned that their colleagues were the same, except they had a negative experience. These experiences and lack of wanting to teach PE could also result in teachers being less confident and approachable, which were two things' parents wanted in their child's teacher. The current situation with regards to teachers, their low confidence, and limited knowledge in the subject is of great concern for the future of primary PE (Lawless et al., 2020), this will be further discussed in the next chapter. Teacher confidence could also be affected by the use of external coaches; it has been suggested this could result in long-term effects of de-skilling teachers whose confidence is already weakened (Keay & Spence, 2012). This will be further discussed in Chapter 6, which explores teachers' views of PE.

This, however, is not the only factor to delivering PE; teacher to student ratio (Martlew et al., 2011) along with level of training can be barriers to teaching PE in the most effective way. Parents felt that teachers were not receiving as much support; this is in line with previous literature that has suggested teachers in the UK are not provided with much training (Elliot et al., 2013; Griggs & Ward, 2012; Harris et al., 2011). Research dating back over three decades all reiterate the same view: the time available for PE in primary initial teacher training (ITT/ITE) courses in England is very discouraging (Caldecott et al., 2006; Carney & Armstrong, 1996; Harris et al., 2012).

5.4.4 *Play-based PE*

Play-based PE as a whole was received well by parents; they felt positively about the use of it as it was centred around the children, allowing children to learn without feeling like they are learning. This would allow their voices to be heard, and should be included in the curriculum as it would allow for children to be directly involved with their learning (Fisette, 2013). The use of games to encourage imagination, and focusing on individuality rather than comparison amongst one another, was also liked by parents. Similar to previous literature such as Ali et al. (2019), parents felt that play-based learning would have various benefits such as learning to play with others, emotional control, developing problem solving skills, and the physical benefits mentioned in '*Figure 5.5: Child development theme*'

However, it seemed that the parents had a varied view of what play-based PE would include; while one parent felt that it would cause children to fall behind on learning fundamental movements, another felt that it could include the use of screen-based activities. They also mentioned that it could take away the aspect of competitiveness and some wanted their child to not miss out on playing traditional sports. This could be addressed through providing parents with more information on the approach, through better communication between the school and parents. As mentioned in '*Figure 5.3: Communication theme*', parents do not receive much information from their child's school about PE, and as literature has suggested, teachers should be proactive and responsible in communicating regularly with parents, as a means to address perceptions and increase the current status of PE (Sheehy, 2011).

When considering the school, parents felt that time restrictions, as well as lack of resources and knowledge could be barriers. However, there were many psychological benefits they felt that would come from play-based PE, such as confidence, creativity and engaging children who normally would not engage (Khalil et al., 2022; Klein & Beach, 2023; Koukourikos et al., 2015; Wilson, 2020). In this Chapter, for Key Stage One, overall, everyone felt that play-based PE would be great for them; however, for Key Stage Two there were some reservations. Key Stage Two starts preparing children for secondary school, and so there needs to be integration of what PE would look like in secondary school in order to prepare them.

The main barriers parents felt towards supporting play-based PE at home were space, time and resources. Parents overall were happy to support play-based PE at home, but like previously mentioned they require support from the school. This could be in the form of communicating what is being done during the term, as well as resources that parents can use at home. These resources need to be accessible and feasible for parents who may have a small indoor space, a lack of outdoor environment such as a park, a lack of knowledge on what to do, and for parents who may not enjoy being physically active themselves.

Despite these potential barriers and varied understanding of play-based PE, parents felt that based on the definition provided to them, play-based PE would be inclusive (Klein & Beach, 2023; Wilson, 2020). Inclusivity was a topic that was heavily discussed during the interviews, it was something they felt was important. Their idea of inclusivity was the ability for *all* children to take part in PE. They felt that PE as it is currently could result in comparison between the children (Jefferson-Buchanan, 2011), whereas play-based PE could

be more open and evolve with the children by allowing them to explore more individually. Providing children with the freedom and autonomy to decide what to do and how to do it (Cheung, 2018). It is understandable why this would be important to parents, not only because of their experience of PE as a child and how it has affected them during adulthood, but also, because for parents what matters the most is their child having fun. As a result, having a more inclusive form of PE is deemed more beneficial for many children. These parents expressed that for children who may have difficulties the current method of teaching PE may not be as inclusive for them.

5.5 Conclusion

To conclude, various factors can affect how important parents think PE is. Parental experience of PE was found to affect their view. Overall, parents felt that PE could positively affect their child's wellbeing, while teaching them many important skills such as teamwork and problem solving. They are also willing to support their child's PE at home; however, the lack of communication from schools is a barrier. With parents mainly learning what their child does in PE through their child, their understanding of what happens is limited. Furthermore, parents would like to have support from the school, whether it be through a checklist, or resources with activities to do at home, similar to what they receive for the core subjects. This lack of communication has also resulted in parent's being unaware or unsure of who is running their child's lessons. When focusing specifically on play-based PE, inclusivity was regularly mentioned; parents felt that this approach to PE would allow all children to take part. Thus, overall, it was positively accepted, however, not all parents understood exactly what this form of PE would entail, and so it is important that information be provided to them about it. Furthermore, parents felt that space, time and resources would be barriers for them to support this kind of PE at home. As a result, the next phase of this PhD will be an intervention, using a play-based PE programme to provide parents with a resource to use at home to support their child's play-based PE lessons (Chapters 7-8).

**Chapter Six: The confidence of
primary school teachers and teaching
assistants in England in
teaching/supporting Physical Education
and their receptiveness to Play-Based
PE.**

6.1 Introduction

Teachers play a large role in how much students enjoy PE; thus understanding their confidence level in teaching this subject is necessary, as PE has the potential to influence physical activity behaviours in children (Coulter et al., 2020). As previously mentioned in Chapter 1, the physical activity behaviours learnt in childhood can follow into adulthood (Telama et al., 2005; Trudeau et al., 2004). Additionally, primary school PE has the potential to support children's overall development and be essential for promoting physical activity, particularly for children from less affluent areas (Crotti et al., 2021; Morgan & Bourke, 2008). Most importantly, children who do not enjoy PE are less likely to lead an active lifestyle or realise the health benefits associated with physical activity (Cairney et al., 2012). For these reasons, understanding what contributes to primary school teachers' confidence in teaching PE is crucial.

6.1.1 *Teacher Confidence*

Teachers in the UK have expressed anxiety and negative perceptions about teaching PE, particularly lacking in confidence to teach activities such as gymnastics and dance, as well as assessment issues and progression in PE (Harris et al., 2011). PE subject leads have also expressed uncertainty about UK generalist classroom teacher's subject knowledge and confidence in teaching PE (Jones & Green, 2015). These subject leads felt that limits in confidence and knowledge were important, because of how challenging it is to be good at teaching PE, they also suggested that teaching PE might be difficult if the teacher was not very sporty (Jones & Green, 2015). Implying that teachers who take part in sports will feel more confident in teaching PE. However, not all studies based in the UK have found that teachers lack confidence in teaching PE. Randall (2020) found that pre-service teachers have high levels of confidence, with them being most confident in aspects relating to knowledge of health and fitness, and subject aims, while being least confident in aspects related to swimming and the National Curriculum (Randall, 2020). This study had 175 final year primary ITE students complete an online survey using the professional knowledge model (PMK) for primary PE. The PMK was developed with the PE Expert Subject Advisory Group (created by the DfE) in England to assess the confidence of primary pre-service teachers in teaching PE (Randall, 2020). This study highlights the idea that some teachers might struggle with teaching particular aspects of PE (e.g. a specific sport) but are confident in teaching

other parts. Yet, considering that an area this cohort were least confident in was the National Curriculum, this raises concern as the curriculum is what is used to teach PE across England.

Nonetheless, the lack of confidence that the majority of studies previously found is not solely an issue with primary PE in the UK; these concerns have also been expressed in Australia (Morgan & Bourke, 2008). Roughly 75% of respondents in this study expressed feeling anxious teaching certain PE activities, and the perception of the level of skills needed to be taught in specific sports such as gymnastics (Morgan & Bourke, 2008). This would suggest, like Jones & Green (2015), that a teacher's sporting ability would affect their confidence in teaching PE, because sports and PE have become synonymous.

It has been highlighted that the lack of confidence is an issue of deficiency in subject-specific knowledge (Duncombe et al., 2018; Jones & Green, 2015; Sloan, 2010). This is no surprise as many schools in the UK and in other countries use generalist primary teachers - responsible for teaching all subjects - to deliver primary PE (Brennan et al., 2023). With generalist teachers having several subjects they need to become experts on to teach effectively, PE subject leads have recognised how difficult it would be to develop the kind of practical knowledge needed to teach PE (Jones & Green, 2015). Raising the question of whether generalist teachers should be teaching PE, given how important this subject is for long term physical activity behaviour in children. Nonetheless, lack of subject specific knowledge is due to a larger systemic issue; the lack of value placed on PE in the National Curriculum, which a) directly affects time dedicated to PE in teacher training courses and b) the use of external coaches for PE in primary schools across England.

6.1.2 The National Curriculum

To recap from Chapter 2, the hierarchy within the curriculum, specifically having PE as a foundation subject, could lead to the de-prioritisation and de-valuing of the subject in many areas (Duncombe et al., 2018; Lawless et al., 2020). Table 2.4 provided a visual representation between the difference in guidance provided for mathematics, English and science (32-86 pages) compared to PE (3 pages). Ultimately, foundation subjects are usually side-lined and limited with the time given to them, and children are normally removed from subjects like PE for additional support for core subjects (Harris, 2018; Hooper et al., 2023). This lack of curriculum detail and therefore value for PE, could create a sense of insignificance of the subject in comparison to the core subjects for both teachers and schools. It could also affect the level of time dedicated to PE in teacher training courses.

6.1.3 *Teacher Training*

Many studies have attributed the lack of teacher confidence in teaching PE to the lack of training and preparation received (Duncombe et al., 2018; Harris et al., 2012; Mcveagh et al., 2022). Trainee teacher students have felt their programme inadequately prepared them to teach PE (Elliot et al., 2013; Harris et al., 2011). However, this is not a recent issue, the concern regarding the time dedicated to PE in teacher training courses in England spans over three decades (Caldecott et al., 2006; Carney & Armstrong, 1996; Harris et al., 2012; Mcveagh et al., 2022). The quality of teacher education is not only linked to lack of confidence, but also lack of subject knowledge (Morgan & Hansen, 2008). Randall (2023) used an online questionnaire to explore the experience of preservice teachers' (PST) in learning to teach primary school education in England. This study had 625 participants, all of whom were enrolled on a programme that would lead to being recommended to be awarded Qualified Teacher Status (QTS), including both generalist students and specialist students. Results showed that they faced barriers to teaching and learning PE. They frequently had no opportunity to teach, with some feeling that specialist students were favoured over generalist students and many citing mentoring as a barrier (Randall, 2023). Thus again, raising the question for who should be teaching PE, but also how can teachers be better supported in teaching PE.

6.1.4 *The Use of Coaches for PE*

This is where the PE and Sport Premium for primary school comes into play. As discussed in Chapter 1, the idea of this Premium was to support children meeting the physical activity guidelines and to support the 'Childhood Obesity' plan (Department for Education, 2023b). The DfE states that schools must use this funding "to make additional and sustainable improvements to the PE, sport and physical activity they provide" (Department for Education, 2023b). However, this funding should not be used to employ coaches to replace teachers during PPA time (Long et al., 2023). In spite of these guidelines, many primary schools have used this funding to source coaches for PPA time (Blair & Capel, 2011; Griggs, 2018; Jones & Green, 2015; Smith, 2015). It has been suggested that the increase of both coaches and specialist teachers by schools was to upskill class teachers by working alongside them rather than for their replacement (Callanan et al., 2015). However, in some schools, using specialist coaches has resulted in teachers being absent during PE, regardless of when the subject is delivered (Smith, 2015). Furthermore, teachers have also expressed that the use

of external coaches removes them from the responsibility of teaching PE (Mcveagh et al., 2022). However, the use of external providers for PE is not solely a UK solution, it is widely used internationally, with reasons being access to experts, equipment and facilities (Spittle et al., 2022).

Not only can coaches be used for their sporting expertise, but they are also a cheaper way to cover PPA, and many generalist teachers are willing to substitute PE lessons for PPA time (Jones & Green, 2015). This allows teachers to focus on academic achievements and the core subjects (Blair & Capel, 2011). However, despite the apparent benefits of using sports coaches, a number of PE subject leads have expressed their reservations, including the relationship between students and coaches (Jones & Green, 2015). Recruiting coaches can also deprive generalist teachers of the opportunity to strengthen their rapport with pupils, and de-skilling teachers whose confidence is already weakened when teaching PE (Jones & Green, 2015; Keay & Spence, 2012). Additionally, some pre-service teachers have expressed that they were unable to teach PE due to the PPA time being set during PE lessons (Randall, 2023).

With these concerns, it is key to understand the meaning of PE for students who are studying to become teachers. McEvelly (2022) conducted a study based in England on the meaning of PE to Bachelor of Science (BSc) PE students, and their views and experiences of outsourcing PE. They found that these students felt that either specialist PE teachers or external providers, with these providers either taking the class or working with the generalist class teacher, should teach PE. For the generalist teacher, there was little or no support in the idea of them teaching PE on their own, as the majority may not have the expertise deemed required. Participants also considered PE as an educational space where sport was the subject matter, and healthy lifestyle was an assumed outcome of the subject (McEvelly, 2022). With the lack of confidence teachers currently have with teaching PE, alongside the number of teachers who now do not teach PE because of outsourcing coaches, it should be of no surprise that mentoring has become a barrier.

6.1.5 School Support

Despite all the concerns raised above, that are still present in primary school PE, teachers have reported willingness and commitment to addressing these in order to improve the quality of the PE they deliver in school (Mcveagh et al., 2022). This positive attitude towards PE is important, because the issues relating to teacher training can be exacerbated by the

teacher's perception of PE, particularly if they have a negative attitude towards the subject and question the value of it (Morgan & Hansen, 2008).

Unfortunately, it is not just about the attitude teachers may have towards PE: it is also about the attitude the school has towards PE and the value they place on it. The use of external coaches suggests that PE is not important; it has therefore been criticised that headteachers have used the Premium to outsource primary PE, rather than upskill and train existing staff (Jones & Green, 2015). Furthermore, the attention the senior management team gives to PE and the value schools place on PE seem to relate, as seen in the time and resources allocated and dedicated to PE (Elliot et al., 2013). When exploring the value placed on PE by key stakeholders based in England (e.g. PE subject leads and teachers), participants expressed that PE was undermined within their school (Hooper et al., 2023). Children would be removed from PE for the core subjects, and PE facilities would be taken to support other activities such as examinations. Ultimately this led to participants considering how valued PE was in their school, and, more importantly, how much of a priority PE was (Hooper et al., 2023).

6.1.6 Aims

Therefore, the aim is to understand the factors that influence teachers' and teaching assistants' confidence in teaching/supporting PE. To achieve this aim, the following objectives were set:

- Explore teachers' and teaching assistants' perceptions of PE and whether this affects their confidence in teaching/supporting PE.
- Explore the effects of education and training on teachers' and teaching assistants' confidence in teaching/supporting PE.
- Explore the effect of school support on teachers' and teaching assistants' confidence in teaching/supporting PE.
- Explore the effect of teachers' and teaching assistants' physical activity level on confidence to teach/support PE.
- Explore how receptive primary school teachers and teaching assistants are to the idea of play-based PE.

6.2 Methods

6.2.1 Study Design

As explained in Chapter 3, section 3.1.1, a mixed methods explanatory sequential design was intended to be used. However, due to low number of responses, no interviews were conducted.

6.2.2 Participants

Participants were contacted and recruited through several methods: social media, word of mouth and schools. As the study was based in England, participants had to be a teacher or teaching assistant working in a primary school in England. There were no exclusion criteria on the type of school they worked in. An advert was created and circulated containing all the information about the study and how to participate. A total of 30 participants took part in the questionnaire, with 23 being teachers and 7 being teaching assistants. Table 6.1 provides the characteristics of these participants, along with information on year group/s taught or supported.

Table 6. 1*Characteristics of study population*

	N	%
Staff		
Teacher	23	77
Teaching assistant	7	23
School		
State	28	93
Private	2	7
Exclusive for SEND Children		
Yes	1	3
No	29	97
Undergraduate degree		
Yes	26	87
No	4	13
Teacher training degree completion year		
1985 - 1995	5	22
1996 - 2005	2	9
2006 - 2015	7	30
2016 - 2021	9	39
Teacher PE coordinator		
Yes	2	9
No	21	92
Class taught		
Reception	2	9
Year 1	1	4
Year 2	2	9
Year 3	5	22
Year 4	3	13
Year 5	3	13
Year 6	4	17
Other	3	13
Teaching assistant (TA) Class taught		
Year 1	1	14
Year 2	1	14
Year 3	1	14
Year 4	1	14
Other	3	43

6.2.3 Instrument and Procedure

The instrument and procedure can be found in Chapter 3, section 3.1.1.1, and the full questionnaire can be seen in Appendix 4.

6.2.4 Analysis

A theory driven method of data reduction was used, this was due to both the construction of the questionnaire being based on previous literature and the small sample size. Cronbach's alpha was used for this purpose, with a value at over above 0.7 taken as an acceptable level of reliability. All simple relationships were explored using non-parametric Spearman's correlation coefficients. Independent sample t-tests (or non-parametric equivalent) were conducted to determine the presence of group differences. All statistical tests were conducted using SPSS 25 and an alpha value of 0.05 was used to determine significance. Open-ended responses were analysed using content analysis.

6.3 Results

6.3.1 Data reduction

6.3.1.1 Confidence

Questions relating to fun and interactive PE lessons, and inclusive PE lessons were worded slightly different for teachers and TAs. Therefore, in order to assess confidence, the teachers' and TAs' responses were put together to create one variable for inclusivity and another for fun and interactive. 'How well equipped do you feel to teach a fun and interactive PE lesson?' (T) & 'How well equipped do you feel to teach and/or support a fun and interactive PE lesson?' (TA) were grouped into one variable. 'How well equipped do you feel to teach an inclusive PE lesson?' (T) & 'How well equipped do you feel to teach and/or support an inclusive PE lesson?' (TA) were grouped into another variable. Then a reliability analysis with the two new variables and the question 'Regardless of the training, how confident do you feel about delivering PE to meet the government guidelines' was carried out. Cronbach's alpha showed these questions to reach acceptable reliability, $\alpha = .907$, ($N=28$), therefore the questions were grouped into one variable using the mean, 'confidence'.

6.3.1.2 Help Seeking

The following questions based on teachers' confidence in help seeking were put into a Cronbach Alpha to determine whether they could be put together, "I feel confident to ask for help with delivery of PE" & "I feel confident to ask for help with planning PE", $\alpha = .877$, ($N=23$). Following this, these two questions were then grouped with the following question that was specific to TAs "I feel confident to ask for help in supporting children doing PE". This was so that the new variable 'confidence in help seeking' included responses from both teachers and TAs, ($N=30$). All three questions were on a 5-point Likert scale, strongly disagree – strongly agree.

6.3.1.3 Training

Participants were asked whether they received training for PE, with a Yes/No answer. Teachers were asked, "Have you received formal training for PE?", while teaching assistants were asked "Have you received any training for PE?". A new variable training for PE was created using these responses from both teachers and teaching assistants.

6.1.3.4 Teaching Inclusive PE

Participants were also asked about teaching or supporting inclusive PE lessons, with responses being on a 5-point Likert scale (not equipped – very well equipped). Teachers were asked "How well equipped do you feel to teach an inclusive PE lesson?", and teaching assistants were asked "How well equipped do you feel to teach and or/support an inclusive PE lesson?". A new variable inclusive PE was created using these responses from both teachers and teaching assistants.

6.1.3.5 Degree Question

All participants were also asked "Did you complete an undergraduate degree, if so, what was the title?" with the response choices being *Yes, please specify/No*. The open-ended answers for this question were grouped into those that said they had a sports degree and those that did not.

6.1.3.6 Descriptive Questions

The following questions were answered by both teachers and TAs, and focused on training qualifications, external coaches and confidence. All results were used for descriptive purposes, 'Are you required to do refresher training courses or INSET which focuses solely on PE?' – *Yes/No*, 'Regardless of the training, how confident do you feel about delivery PE to

meet the government guidelines?’ – *5-point Likert scale, Not confident – very confident.*

Teachers were separately asked about their PGCE with the following question, ‘How well supported do you feel from your PGCE in regard to teaching PE?’, *5-point Likert scale, Not supported – very well supported.* Both teachers and TAs were asked about the use of external coaches for PE with the following question ‘Does your school invite external coaches for PE’, *Yes/No.* This question was used in a t-test analysis with the variable confidence.

6.3.2 Results

6.3.2.1 Training Qualifications, External Coaches and Confidence.

The following questions are from the qualification, training and experiences section. When asked about the requirement to complete refresher training courses or INSET days focusing on PE, 67% mentioned they were not required to do so. Additionally, when participants were asked about teaching or supporting inclusive PE, 53% indicated they either did not feel very well equipped or did not feel equipped at all. Of the 21 teachers, 29% did not feel supported, or very well supported from their PGCE in regard to teaching PE, 33% felt somewhat supported and 38% felt supported or very well supported.

Regardless of training received, of the 28 participants who responded, 61% of them felt either very confident or confident in delivering PE in order to meet Government guidelines, with many elaborating using an open-ended response. The open-text responses, shown in Table 6.2, were grouped based on the 5-point Likert scale responses (i.e. 5 - very confident; 4 - confident; 3 - somewhat confident). The open-ended responses are only from those who scored very confident, confident or somewhat confident, as no one who was either not very confident or not confident wrote anything.

Table 6. 2

Content analysis of open-ended responses to “Regardless of the training, how confident do you feel about delivering PE to meet the government guidelines. Please elaborate on your answer”

Likert scale response	No. of participants	Open ended responses
Very confident	5	<ul style="list-style-type: none"> ➤ Experience research - 1 ➤ Part of networks & take as much relevant CPD as can - 1 ➤ Training & developing curriculum based on AfPE & government guidelines etc - 1 ➤ Follow curriculum - 1 ➤ Passion for sport - 1
Confident	10	<ul style="list-style-type: none"> ➤ CPD/s – 3 ➤ Scheme/plan linked to government curriculum – 2 ➤ Experience – 2 ➤ Degree – 2 ➤ Less time devoted to developing innovative PE lessons due to hierarchy of subjects and intensive nature of curriculum – 1
Somewhat confident	9	<ul style="list-style-type: none"> ➤ Lack of training/ guidance - 5 ➤ School has specialist PE teacher so hasn’t taught PE -1 ➤ Only delivers 45min PE, the rest is done by school coach - 1 ➤ Only assist during lessons - 1 ➤ 2 PE schemes in 3 years, difficult to get your head around - 1

Three independent T tests were conducted between the variable confidence and the following, use of sports coaches, having a sports degree, and training in PE. The first one was to determine group differences in confidence level between those who work at schools that do (N = 19) compared to those who do not (N = 11) invite external coaches for PE. There was no significant difference in confidence level whether external coaches were or were not invited for PE, $t(28) = -.37, p = .71$, despite those who did not invite external coaches (M=3.81, SD = 1) feeling more confident than those who did (M= 3.69, SD: 0.1). Similarly, there was no significant difference in confidence level based on having a sports degree (N=5) or not having a sports degree (N=25), $t(28) = 1.95, p = .06$, despite those having a sports

degree ($M= 4.40$, $SD = .55$) feeling more confident compared to those who did not have a sports degree ($M= 3.61$, $SD = .87$). Likewise, there was no significant difference in confidence level between those who have ($N=19$) and have not ($N=11$) received training for PE, $t(28) = 1.96$, $p = .06$, despite those that have received training ($M= 3.96$, $SD: .88$) feeling more confident compared to those that have not ($M=3.35$, $SD= .73$).

In spite of there not being a statistical difference in confidence level-based on training, whether through a degree or formal training, the open-ended responses explored in Table 6.2 suggest that training could be linked to confidence level. Furthermore, both questions on training having a p value of .06 suggests that should there have been a higher number of participants, a significant difference may have been found. Additionally, the number of participants in the sports degree group ($N=5$) compared to non-sports degree ($N=25$) was heavily unbalanced with one group having a small number of participants.

6.3.2.2 Physical Activity Level and Confidence.

A Spearman's rank-order correlation was conducted with the variable confidence and the question 'how would you describe yourself', ($r_s(28) = .552$, $p = .002$). There was a positive correlation, suggesting that physically active teachers and teaching assistants are more confident in teaching/supporting PE.

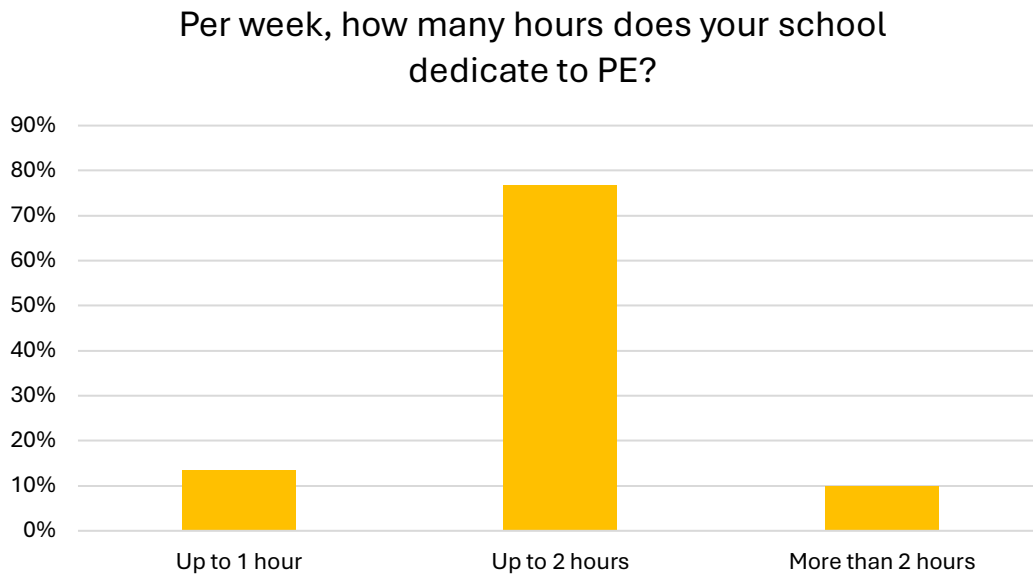
6.3.2.3 School's Attitude, School Support and Confidence.

A Spearman's rank-order correlation was also conducted with the variable confidence and the question 'the school I work with supports me with PE', there was a positive correlation ($r_s(28) = .680$, $p < .001$). Additionally, a Spearman's rank-order correlation was also conducted with the variable help seeking confidence and the question 'the school I work with supports me with PE', there was a positive correlation ($r_s(28) = .474$, $p = .008$).

Participants were questioned on competition and sports within their schools, with over half strongly agreeing or agreeing that their school encourages competition in their PE sessions (67%) and focuses on sports (57%). They were also asked whether their school invites external coaches for PE, 63% said 'yes they did'. Additional questions relating to the curriculum were also asked, one being how many hours a week is dedicated to PE in their school, with the majority saying up to 2 hours (Figure 6.1).

Figure 6. 1

Hours per week dedicated to PE



Participants were also asked whether they felt that PE in their school met the current curriculum guidelines (Figure 6.2) and if they felt it was pushed by their school as an important part of the curriculum (Figure 6.3). Just under half (47%) of the participants strongly felt PE met the curriculum as well as their school viewing PE as important (47%). However, only 20% felt that PE was pushed by the government as an important part of the curriculum (Figure 6.4).

Figure 6. 2

Schools meeting current curriculum guidance for PE

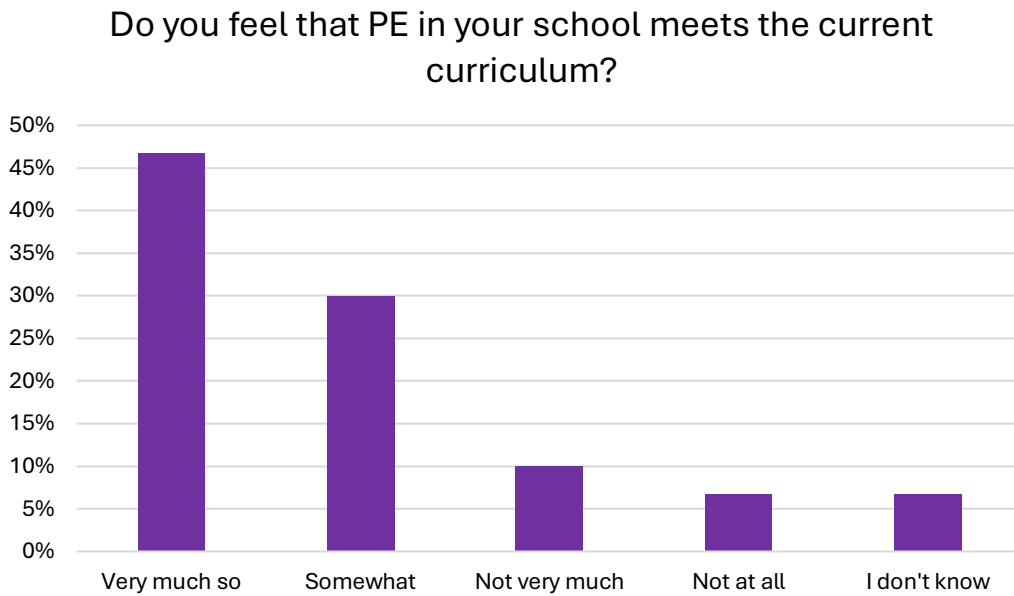


Figure 6. 3

Graph showing PE being pushed by the school as important

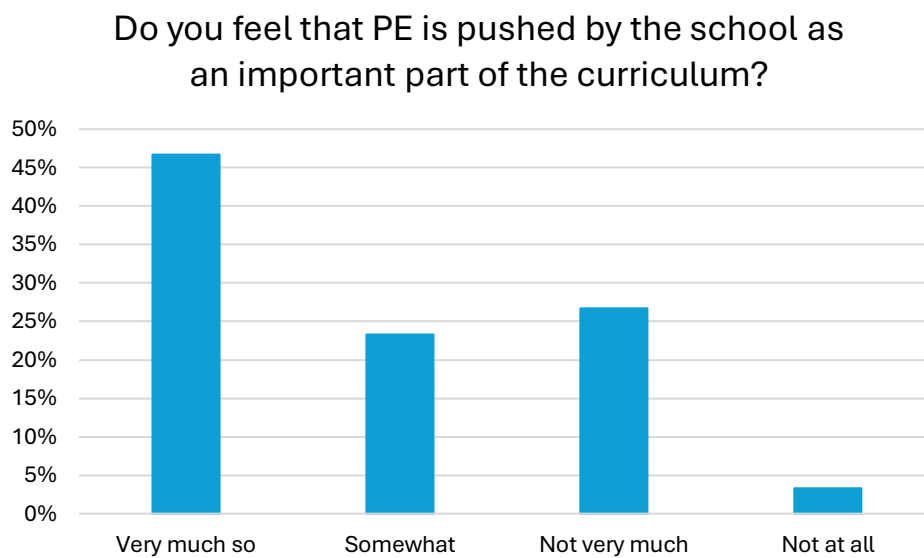
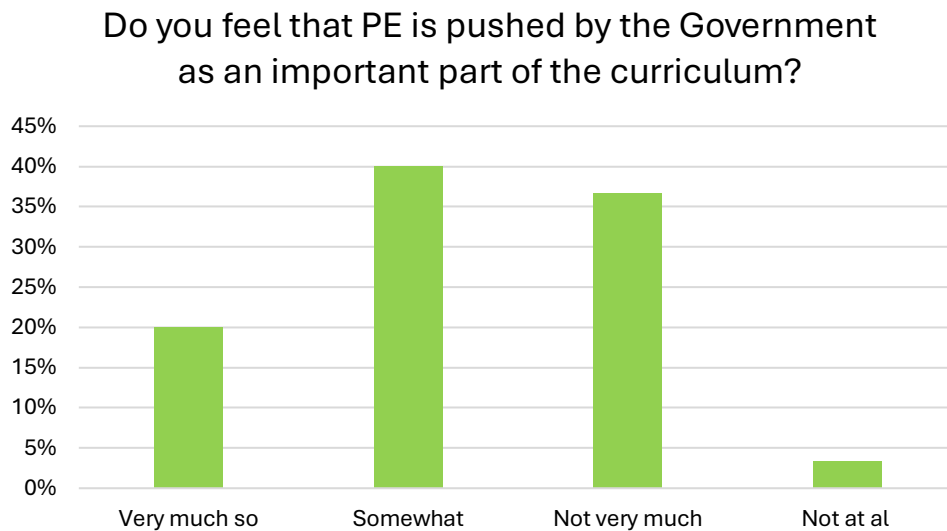


Figure 6. 4

Graph showing perceptions on government portrayal of PE as an important part of the curriculum



6.3.2.4 Perception of the Importance of PE as a Subject and Physical Activity.

Despite this, the participants had a positive view of PE, the following responses are a combination of strongly agree and agree. All participants were also asked to add comments to further explain their answers relating to their personal views on PE and physical activity. The responses were grouped into the following categories, ‘helps with academic performance’, ‘wellbeing’, ‘importance of parental involvement’ and ‘other’.

All of the participants felt that PE is an important part of the curriculum; 100% also felt that PE is important for children’s wellbeing. There were four comments relating to wellbeing; for example, the participants felt that:

P20: “Physical wellness improves mental health and will allow pupils to focus/reduce restlessness”

P28: “A child’s attitude towards PE or any exercise comes from home and how much they do outside of school too. If children are given the opportunity to release their energy through PE they will have more focus in other subjects. It also releases endorphins which contribute to children's self-esteem”.

Furthermore 87% felt that PE is as important as English, mathematics and science. Participants were also asked whether they agreed that it did not matter if a child participates in PE, 90% responded that they either strongly disagreed or disagreed with this statement.

They were also asked their views on sports and competition; just over half (53%) strongly agreed or agreed that PE should encourage sports, while only 7% agreed that the PE sessions in their school are really for sporty children. When questioned about their view on competition, the statements 'PE sessions in my school encourage competition' and 'PE should encourage competitiveness', were positively correlated ($r_{s28} = .387, p = .035$).

Regarding the benefits of physical activity, 90% of the participants believed that physical activity benefits children's academic performance. With three comments relating to academic performance, participants expressed that they have read studies on this: for example:

P12: *"I have read some studies that show children who practice more exercise has a better academic performance. Why? Because the exercise helps to warm up areas related to memory, concentration and attention."*

They also mentioned the mental health impact and how this relates to academic areas, arguing that *"PE contributes to good mental health which directly impacts academic areas of schooling"*. In addition, the majority (87%) also agreed that parental involvement in PE is important in children's physical activity. Three comments were left to further explain this, mainly expressing the link between parental involvement and child participation, as exemplified below:

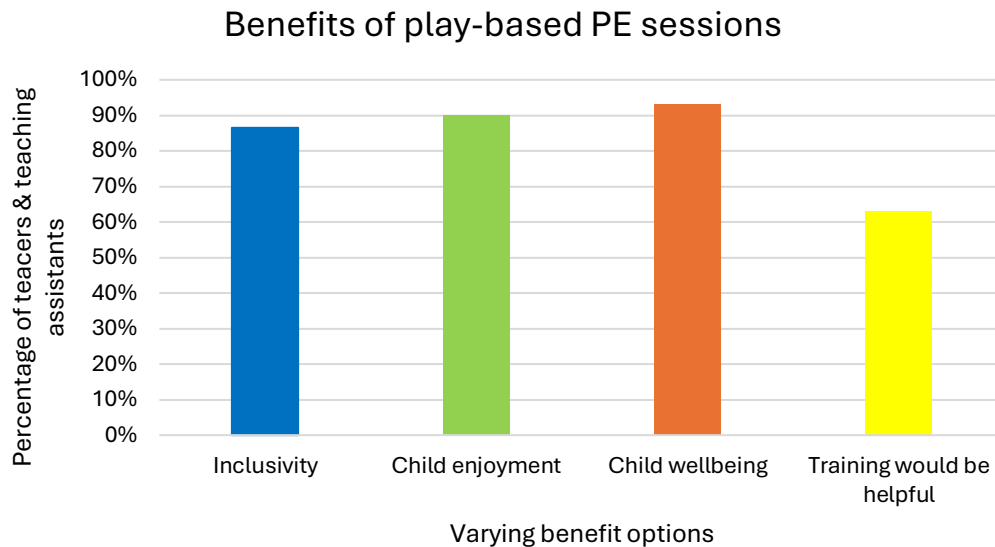
P1: *"Parents act as a role model to their children. If the parents are seen being active the child may want to be active too."* and P17: *"We see a direct link between parental involvement in PE and child participation in PE. We've set up an adult run club at school and the effect that has on pupils seeing their parents exercise is incredible! Concentration levels increase post run sessions we do on the run track."*

6.3.2.5 Play-based PE

Just over 60% of the participants felt that training on play-based PE would be beneficial, and collectively over 80% felt that play-based PE sessions would be inclusive, benefit child wellbeing, and children would enjoy it (Figure 6.5).

Figure 6. 5

Graph showing response to play-based PE questions (very beneficial and beneficial)



Lastly, participants were asked an open-ended question on what barriers they see that could prevent them from play-based PE. Seven participants stated they had no barriers to teaching PE in this way and two mentioned they already taught PE in a play-based way. However, one participant expressed that they currently followed a scheme, and this was a barrier for them, although the type of scheme was not mentioned. The National Curriculum was also mentioned as a barrier by one participant.

Additionally, nine participants stated several resources being barriers for them, with many of the participants listing numerous resources within their text response. As a result, the individual resources were tallied based on how many participants wrote them in their response, with equipment being the biggest potential barrier.

- Equipment (7)
- Space (4)
- Staff (shortage and confidence) (3)
- Time (2)
- Finance for training staff (2)

Of those nine individuals, one also mentioned “*behaviour management*” as a potential barrier for them. Additionally, one participant mentioned that the “*children’s perception of*

PE” would be a potential barrier for them. Another mentioned how “*chaotic it would look to school leaders walking past*” as a barrier for them.

6.4 Discussion

This chapter sought out to explore what affects the confidence of teachers when teaching PE, as well as their receptiveness to play-based PE. The results suggest that use of external coaches, having a sports degree and training for PE were not factors that affect confidence, however, self-description of physical activity and school support were. Additionally, over half of participants felt that training on play-based PE would be beneficial and most felt that play-based PE sessions would be inclusive, benefit child wellbeing, and that children would enjoy this form of PE.

6.4.1 Training Qualifications, External coaches, Physical Activity and Confidence

In previous literature, just under half of participants felt that their teacher training programme did not adequately prepare them to teach PE (Elliot et al., 2013; Harris et al., 2011). Teacher training courses have also been criticised for not providing sufficient preparation for teachers to teach effective inclusive PE lessons (Sharma & Sokal, 2015). This criticism is still a concern, in the study discussed in this chapter 53% of teachers and teaching assistants indicated they did not feel equipped in teaching or supporting inclusive PE. However, only 29% of the teachers did not feel supported by their PGCE regarding PE, suggesting that the previous concerns of lack of training and preparation were not an issue for this cohort (Duncombe et al., 2018; Harris et al., 2012; Mcveagh et al., 2022). Though, given these results, the type of support teachers feel they receive from their PGCE could be explored further, as a number of teachers did not feel equipped to teach inclusive PE, despite only a few stating they did not feel supported from their PGCE training. Those that were confident in teaching PE to meet the government guidelines mentioned that experience, their degree, passion for sport and having CPD were the reasons for their confidence. This would suggest they potentially had enough subject knowledge to teach PE, which has been linked to higher confidence in teaching PE (Morgan & Hansen, 2008). On the other hand, those that were somewhat confident mentioned that the lack of training/guidance and only delivering one PE lesson as reasons for their confidence level. Therefore, it could be argued that training has some influence on confidence in teaching PE, despite the correlations for degree and confidence, and formal training and confidence, not being statistically significant.

The open-ended responses also suggest that views of sport could affect confidence, which has previously been implied as a reason for reduced confidence in teaching PE (Jones & Green, 2015). Given that the curriculum involves children learning sports such as gymnastics, teachers have expressed anxiety towards teaching activities, like this due to the level of skill needed (Morgan & Bourke, 2008). While participants in the current study were not asked about sports directly, they were questioned on their physical activity level. The results showed a positive correlation between physical activity level and confidence, suggesting that those who see themselves as more physically active are more confident in teaching PE. This is important because their physical activity level could also influence their perception of PE and their perceived ability to teach PE (Morgan & Bourke, 2008). If they do not enjoy being physically active, it could be assumed that they would be less confident in teaching a subject that requires physical activity. As generalist teachers are responsible for teaching all subjects in primary school (Brennan et al., 2023), they may reluctantly teach the subject, in comparison to PE specialist teachers. Thus, having specialist PE teachers conduct PE lessons may be more beneficial, and they would have chosen to specialise in this field due to their enjoyment of physical activity and PE.

6.4.2 School's Attitude and Support

Those who were confident in seeking help felt that their school was supportive, and 47% of participants strongly felt that PE met the curriculum in their school and that their school viewed PE as important. They felt this despite 63% saying that their school invites external coaches to deliver PE, which raises the question of what they perceive as their school viewing PE as an important subject. Although, it is important to remember that many schools now use external coaches for PE, both in the UK and internationally (Blair & Capel, 2011; Griggs, 2018; Jones & Green, 2015; Smith, 2015; Spittle et al., 2022). Therefore, this could be seen as schools prioritising PE and viewing it as an important subject, with some suggesting that the reason behind using coaches is due to access to experts, equipment and facilities (Spittle et al., 2022). Additionally, previous literature has suggested that PE is normally where teachers use their PPA time (Blair & Capel, 2011; Randall, 2023), therefore it could be assumed that this is the case with a number of participants in the current study given the high usage of coaches. Thus, having the potential to indicate the value placed on PE by the school and teachers, however this was not asked.

Nonetheless, one aspect that was explored in more detail was training, in the form of refresher courses or INSET days focusing on PE, and 67% of the participants said they were not required to do so. Again, nearly half (47%) of those that took part felt that their school viewed PE as important, despite over half (67%) also stating that they were not required to do further training for PE. It is difficult to understand what these staff members perceive as viewing PE as important, but as mentioned above, an argument that could be explored is that paying for external coaches could be seen by staff as placing importance on PE. Given that PE has become about sports, and that 57% of the participants stated that their school focuses on sports, it could be argued that, to these teachers, inviting coaches is more appropriate and shows that the school views PE as important. Furthermore, the use of external coaches removes the responsibility of teaching PE from the teachers (Mcveagh et al., 2022). Additionally, the majority (80%) of staff felt that PE was not being pushed as an important part of the curriculum. Though not directly asked about the National Curriculum or the sports Premium, based on previous literature it could be argued that this response is due to the National Curriculum and value placed on PE (Duncombe et al., 2018; Lawless et al., 2020).

6.4.3 Perception of the Importance of PE as a Subject and Physical Activity

There was a unanimous agreement that PE is an important part of the curriculum and important for children's wellbeing. With the majority also viewing PE as important as English, mathematics and science, and stating that they did not agree with the statement that it did not matter if a child participates in PE. These results suggest that this group of participants view PE as important, however, this does not necessarily equate to them valuing and prioritising PE. Just over half also agreed or strongly agreed that PE should encourage sports, this would also lend as a potential reason for the use of external coaches. Regarding physical activity, nearly all participants believed that physical activity benefits children's academic performance and agreed that parental involvement in PE is important for children's physical activity. This has also been found in other studies that suggest parental involvement can positively affect their child's learning, with teachers also expressing the need for more support from parents (Fan & Chen, 2001; Green et al., 2007; Griffin et al., 2015).

6.4.4 Play-based PE

Overall, the participants were receptive to the idea of play-based PE. Over half felt that training in play-based PE would be beneficial, and collectively the majority felt that PE sessions using play-based PE would be inclusive, benefit child wellbeing and would be

enjoyable. These results are positive and reinforce the previous literature that suggest play-based PE would be inclusive and fun (Jefferson-Buchanan, 2022; Klein & Beach, 2023). However, several resources were seen as barriers, these included equipment, space, and finance for training, two of which could be supported using the sports Premium. The National Curriculum was also seen as an issue, however, five participants mentioned that their current PE lessons followed a play-based approach.

6.4.5 Limitations

Firstly, the number of participants is quite low, although this is a study based across England, the small participant number makes it difficult to generalise the results. The perception of PE being viewed as important could have been further explored in this thesis by asking more questions on a) whether children are taken out of PE for other subjects, b) the resources provided for PE and c) time allocated to PE in comparison to the core subjects and if the sport Premium was used for training them (Elliot et al., 2013; Hooper et al., 2023; Jones & Green, 2015). In addition, questions on the lack of curriculum detail for PE could have been asked in the questionnaire, as lack of guidance could create a sense of insignificance of the subject in comparison to the core subjects for both teachers and schools.

6.5 Conclusion

To conclude, while the literature on teacher perspectives of play-based PE in England is still growing, the results provide novel insight into how teachers in England view play-based PE and any barriers they may face in implementing it. Participants had a positive perception of PE and were receptive to the concept of play-based PE, with over half of the participants believing that training in play-based PE would be beneficial. Though most factors did not affect confidence, teacher confidence did correlate with support from their school, suggesting that ensuring a school is on board with a concept such as play-based PE would be important, not only for teacher confidence but also implementation. These results have been used to create an intervention using play-based PE, where teachers and TAs are provided with a CPD and asked to implement play-based PE. This will be discussed in the next chapter

Chapter Seven: The Accessibility and Feasibility of Play-Based Pedagogy for PE: Pre-intervention Data

7.1 Introduction

This chapter discusses the pre-intervention quantitative data from the final study. Chapters 8 will follow with post-intervention qualitative data. This chapter introduces the study and outlines the aims for both Chapters 7 and 8. The method section describes the design and execution of the intervention, and recruitment of participants for both Chapters 7 and 8. Finally, conclusions will be drawn relating to the aim and objective for this chapter.

The overall message from parents and teachers in Chapters 4, 5 and 6 was that they want support with PE, and that they felt positively about play-based PE. Parents expressed the need for resources and guidance from the school to help them support their child's PE at home (Figure 5.9: Support theme), as well as communication providing insight into what their child is learning (Figure 5.3: Communication theme). Some teachers required more training, with 29% not feeling supported or very well supported from their PGCE regarding teaching PE. Furthermore, 53% of the teachers and TAs did not feel very well equipped or did not feel equipped at all to teach and/or support an inclusive PE lesson.

As mentioned in Chapter 6, just over 60% of the teachers and TA's felt that receiving training on play-based PE would be beneficial, with over 80% collectively agreeing that play-based PE sessions would be inclusive, beneficial to children's wellbeing and that children would enjoy it. However, the barriers they were concerned about included space, equipment, time, finance for training, and staff shortage. Parents had similar views; in terms of benefits, they felt that this type of PE is centred around child's voice and their ability to play (Figure 5.15: Play-based PE theme). They also agreed that play-based PE seems to be more inclusive than traditional PE (Figure 5.14: Inclusivity in PE theme). However, parents also highlighted a potential barrier to this form of PE being taught was teachers not having enough knowledge, and so staff should be taught about play-based PE (Figure 5.15: Play-based PE theme). They also discussed that, for them, barriers that could prevent them from supporting this form of PE at home could be space and time. These results were then used to identify the facilitators and barriers parents, teachers and TAs are facing, and to create an intervention.

7.1.1 *Teacher Interventions*

When considering research focusing on teacher's perceptions and attitudes towards delivery of inclusive PE, motivation was a factor that explained the variation in the teacher's intentions to implement inclusive PE (Tristani et al., 2022). This study applied the Capability, Opportunity, Motivation-Behaviour (COM-B) framework (discussed in Chapter 3, section

3.4.4.1) to investigate what influences teacher's intentions with implementing inclusive PE. Alongside motivation, psychological capability and social opportunity were also deemed important factors. Tristani et al (2022) suggest that interventions should support teachers with their psychological capability (e.g. knowledge, decision making), social opportunity (e.g. social influence) through creating communities of practice, and motivation (e.g. professional role and identity belief about capability). Teachers who recognised key stakeholders (e.g. parents, colleagues, headteachers) endorsement of inclusive education increase their intentions to implement this pedagogical practice (Yan & Sin, 2014). This is regardless of their personal attitude towards inclusive education. Furthermore, social influence from professionally significant individuals (e.g. curriculum leaders, colleagues) and peer mentorship are significant factors that are likely to influence the motivation of teachers to implement inclusive PE (Tristani et al., 2022).

Knowledge in particular has been deemed to play a meaningful role with inclusive PE, with a lack of knowledge often being mentioned as a major factor in relation to poor implementation of inclusive teaching practices (Morley et al., 2005; Wang et al., 2015). Teacher training courses do not provide sufficient information or preparation to carry out effective inclusive PE lessons (Sharma & Sokal, 2015). Particularly when focusing on creating an inclusive environment for children with SEN, teachers have mentioned the inadequate levels of support provided by their training and school (Coates, 2012; Morley et al., 2005; Vickerman & Coates, 2009; Wang et al., 2015). In an England-based study, more than three-quarters of PE teachers and just under half of final year trainees specified that their teacher training was failing/failed to prepare them to work with children with SEN in schools (Vickerman & Coates, 2009). Similarly, in China, teachers have attempted to create a warm and positive environment for children with SEN to learn, however, few actually modified their instructions to meet the needs, interests and abilities of these students (Wang et al., 2015). This was not found to be surprising by the researcher, as most of the teachers had not received any professional training on how to adapt their PE lessons, and lacked the professional knowledge (Wang et al., 2015).

Similar results have also been found in studies focusing on implementation of physically active learning (PAL), (Daly-Smith et al., 2021). PAL refers to adopting a physically active approach across the curriculum. Though it is not the same as play-based PE, the barriers that teachers mention within this meta-analysis can be used to understand potential barriers to play-based PE. This meta-synthesis that explored behaviours promoting the adoption and

implementation of PAL among primary school teachers also found several themes that were similar to the results from Chapter 4 (Daly-Smith et al., 2021).

Teachers' belief in their capability affected their adoption and implementation of PAL, with this belief being influenced by their confidence and attitude towards PAL. Teachers' confidence was seen as essential to improving the implementation of PAL (Daly-Smith et al., 2021). Particularly, their capacity to both deliver PAL as well as manage their students' behaviour (Routen et al., 2018). However, one study focusing on headteachers' perception of implementing PAL, found that change overload was mentioned to be a reason for not adopting PAL (Skage & Dyrstad, 2019). Both perceived pressures from other school projects and lack of motivation from teachers to conduct new change initiatives seemed to influence the headteachers in this study (Skage & Dyrstad, 2019).

Lack of training was also a key barrier to implementing PAL, alongside concerns surrounding how to fully integrate PAL lessons into the current timetables (Daly-Smith et al., 2021). An intervention study found that when given training, even if minimal (one hour), teachers expressed that this initial training was helpful in expanding their understanding of the program for the intervention (Goh et al., 2017). However, this study had a 'hands on' approach, with the first author being on site daily to provide mentoring to the teachers during the 8 week intervention (Goh et al., 2017). Furthermore, teachers' ability to make the best of the resources, with issues such as time, environment and school finance, directly influenced the quality of PAL (Daly-Smith et al., 2021). The whole school approach was also mentioned as influencing the adoption and implementation of PAL, despite this being beyond the control of the teachers. Aspects of this approach include "senior leaders support for PAL culture" and "teamwork and collaboration" (Daly-Smith et al., 2021; Routen et al., 2018). Additionally, external factors such as policy and parental influence can change the whole school's use of PAL (Daly-Smith et al., 2021).

Teacher interventions have also focused on improving physical literacy in primary schools through PE. One study found that their physical literacy PE approach effectively improved teacher-led PE and physical literacy opportunities for the students (Telford et al., 2021). As this study focused on teacher support and professional development, it is unclear whether the approach they used for physical literacy development was a play-based or non-linear approach to PE. This randomised cluster-based trial had a PE physical literacy coach attend seven schools on average weekly for one year (33 weeks), while the other schools were a control group. The role of the coach was to professionally develop and support classroom

teachers in teaching PE in a way that creates opportunity for development of physical literacy inside and outside of the school environment. Teachers and principals that experienced the PE physical literacy approach expressed their new appreciation for the role of PE and sport in their school. This study also found that the intervention was suited to be implemented in a state-based public education system. The researchers stated that the initial engagement from the coach with the principals was strategically important, this included a clear explanation of the benefits of the approach to satisfy the Health and PE curriculum. This initial engagement contributed to gaining the support from the principals to drive the program in the school (Telford et al., 2021). While the results of Telford et al.'s (2021) study is promising, the level of involvement from the coach bears the question of how replicable and realistic this intervention is for other schools. However, this approach has also been used in other interventions; for example, Goh et al. (2017) had a researcher onsite daily, providing teachers with mentoring during the intervention. Mahar et al. (2006) informed teachers which week their class would be assessed or observed; despite the researchers not having regular involvement in the sessions, the teachers were aware they would be assessed at one point. Knowing they would be observed could have influenced whether teachers applied the intervention. Again, the replicability of these interventions is a cause for question. The challenges of large-scale implementation are particularly complex. For example, if these interventions were to be implemented in all primary schools (~ 1843) across London at once, it would be difficult for a PE physical literacy coach to attend every school weekly for a year, have a researcher mentor teacher across all schools, or assess at least one session in each school.

7.1.2 PE-CPD

One way to support teachers with PE is by providing general CPD courses. PE-CPD has only been discussed by few studies which have attempted to systematically link them with teacher or pupil outcomes, however, within these studies the term CPD is used broadly (Armour et al., 2017). One study looked into the effects of community of practice on PE teachers and their student's knowledge on health-related fitness pedagogical content (Hunuk et al., 2013). This study found that teacher participation in the community of practice altered their pedagogy by focusing on the needs of their students and increased their engagement in PE (Hunuk et al., 2013). Another study looked into Health Related Exercise-CPD for secondary school PE teachers and found they do not feel that this type of professional development is readily available (Alfrey et al., 2012). Furthermore, the relationship teachers

have with others in the field e.g. colleagues, can affect how they view Health Related Exercise, and their narrow understanding could limit their engagement with the CPD (Alfrey et al., 2012). A longitudinal and randomised controlled trial study found that perceived physical literacy, motivation and enjoyment of physical activity was significantly higher in students who were taught by a teacher who consistently attended an eight-month CPD programme that was based on Health-based PE (Sum et al., 2022). Though the studies discussed do not focus on CPDs for play-based PE, given the potential benefits they have shown, providing teachers with CPDs specific to play-based PE could provide the guidance and support needed to teach play-based PE. This could also support teachers in feeling more confident to teach inclusive PE.

However, it has been argued that the effectiveness of a CPD may not be able to be captured using a single set of measurements, regardless of whether it is a randomised control study or not, unless it is focusing on skill learning tasks or information-giving activities (Armour et al., 2017). Instead, a PE-CPD is deemed effective if it nourishes teachers curiosity, creativity and regards them as continuous learners (Armour et al., 2017). This suggests that measuring the effectiveness of a CPD over time might prove to be better. In addition, more interaction and active participation during CPD has been requested by teachers (Aelterman et al., 2013). This study developed PE training for teachers, with teachers. It is also expected that the CPD will be applicable and relevant, as well as the course being delivered by an individual who understands the world of teaching (Aelterman et al., 2013). To summarise, while teacher confidence is a key aspect in implementation of a programme, other factors such as school support, training and parents can also have an effect. Based on the literature discussed in this section, providing information/educational material and training are both components that can influence the effectiveness of an intervention.

7.1.3 School and Family-based Interventions

Parental involvement has also been mentioned as an influencing factor in CYP participation of physical activity, this has been discussed in Chapters 2 and 4. Parents' encouragement, support and perceived value of PE are all aspects that the school have no control over, but are factors that teachers feel affect CYP participation in PE and physical activity (Moore, Edmondson, et al., 2023). Family influence on prevention of participation in physical activity have also been mentioned by young people as a barrier to physical activity (Moore, Vernon, et al., 2023). Similarly, in a study on children aged 9-12 years and cycling, children's cycling frequency was determined by parent cycling frequency, child automatic

motivation to cycle, and access to a helmet (Bishop et al., 2024). With parents' cycling behaviour being the strongest influence. Based on these results, it has been proposed that interventions that focus on increasing child and parental habitual cycling behaviour and improving attitudes towards cycling, would be effective for behaviour change (Bishop et al., 2024).

Furthermore, interventions that are aimed at the family unit are likely to have an impact on the whole family (Gruber & Haldeman, 2009). However, most interventions that have focused on increasing children's physical activity are solely school based (Gruber & Haldeman, 2009; Salmon et al., 2007; Van Sluijs et al., 2007). With the majority of school and classroom based physical activity interventions focusing on increasing physical activity alongside academic performance, classroom behaviour, and cognitive function (Donnelly et al., 2017; Grieco et al., 2009; Mahar et al., 2006; Tomporowski et al., 2008; Watson et al., 2017)

Despite this, the few family-based physical activity interventions conducted have demonstrated a positive impact on the health of children and adolescents (Solomon-Moore et al., 2017). Salmon et al. (2007) reviewed 90 studies, 42 involving children (aged 4-12), 25 with adolescents (aged 13-19) and nine across the age range. Of these studies, the majority were school based interventions (57), and only 9 were family interventions, eight of which were based on children. One study provided parents with a free fun pack (resource) and found a positive statistical outcome, this resource contained games, posters, children's health quiz, brochures and a growth chart (Cookson et al., 2000). Another study conducted over 3 years also found a positive association which was statistically significant (Sääkslahti et al., 2004). Three other studies also found a positive trend, though not statistically significant (Beech et al., 2003; Robinson et al., 2003; Story et al., 2003).

In a systematic review of controlled trials, more evidence was found for the effectiveness of physical activity interventions among young people in comparison to children (Van Sluijs et al., 2007). This was due to the studies in young people being of higher quality and having larger sample sizes. The review focused on children and adolescents aged ≤ 18 years and found that of the few studies focusing on home interventions, there was no significant positive results. However, an increase in studies on school-based interventions that include parental involvement are showing strong effectiveness in young people (Van Sluijs et al.,

2007). For children, the evidence is still inconclusive, therefore the recommendation for future research is to focus on involvement of parents in interventions (Van Sluijs et al., 2007).

Despite the inconsistencies in the significance of parental involvement in interventions, parents have a key role in supporting and influencing their child's decisions towards physical activity; therefore, it is important to understand the support they require. Khanom et al. (2020) focused on recommendations from parents to support physical activity. These parents provided suggestions to the researchers on what could be done to help encourage families to be physically active. The suggestions were put into three categories: a) information sharing; b) existing services extension; and c) community activities. An example for a) is health professionals raising awareness through pre to post-natal networks, an example of b) is using school and community facilities after schooling hours, and an example for c) is physical activity fundraising activities for charities (Khanom et al., 2020). Given that parents have mentioned accessibility to outdoor areas, safety of the outdoor environment, time, lack of information, and difficulty when having multiple children as well as many other factors as barriers (Bentley et al., 2012; Khanom et al., 2020), focusing on providing support in some of these areas should be key. While every barrier cannot be worked on, one area that can be focused on is lack of information, another area is accessibility to outdoor areas.

7.1.4 Key Stage One

Chapters 5 and 6 focused on understanding parental and teacher perspectives of PE throughout primary school, however the intervention study focuses on Key Stage One (ages 5-7 years). This age group was selected due to the literature suggesting that physical activity behaviours between the ages of 9 and 18 significantly predict later adult physical activity (Telama et al., 2005). Furthermore, research suggests that physical activity levels decrease in children between the ages of 6 and 15 years (Cooper et al., 2015; Jago et al., 2020; Jago et al., 2017a; Nader et al., 2008). In addition, a UK-based longitudinal study has suggested that the decline generally starts by age 7 (Farooq et al., 2018,) and Sport England found that only 53% of primary school children in years 1-2 (ages 5-7) met the recommended guidelines for physical activity in the academic year 2023-2024 (Sport England, 2024). The lowest level (41%) of physical activity were recorded in years 3-4 (ages 7-9), and by years 5-6 (ages 9-11) only 46% of children met the guidelines (Sport England, 2024). Similar numbers have also been found in previous years by Sport England, with years 3-4 consistently having the lowest level of physical activity (Sport England, 2022, 2023a). Putting the focus on children aged 5-

7 ensures that their physical activity behaviours are being targeted before the suggested age of physical activity decline. It also allows for their behaviours and attitudes towards PE and therefore physical activity to be shaped in a positive manner during a critical period.

7.1.5 Aims

The aim is to assess the acceptability and feasibility of a play-based PE programme in Key Stage One lessons (ages 5-7). To achieve this aim two objectives were set, the first objective will be discussed in this chapter:

- Objective 1: To explore parents' and teachers' attitudes towards play-based PE pre-intervention using the COM-B framework.

The second objective will be discussed in Chapter 8.

7.2 Methods

7.2.1 Study Design

The study design for the intervention can be found in the methodology chapter (Chapter 3), section 3.4.4. In addition, in section 3.4.4.1 the COM-B framework was discussed.

7.2.1.1 The PlayUp Club Booklet

Details about the PlayUp Club booklet can be found in Chapter 3, section 3.4.4.2. The full booklet can be seen in Appendix 11 booklet.

7.2.1.2 Ecological Validity

Discussed surrounding the ecological validity of the intervention study can be found in Chapter 3, section 3.4.4.3

7.2.1.3 Outline of Intervention

The full outline of the intervention can be found in Chapter 3, section 3.4.4.4. A visual representation of this outline is shown in Chapter 3, Figure 3.3.

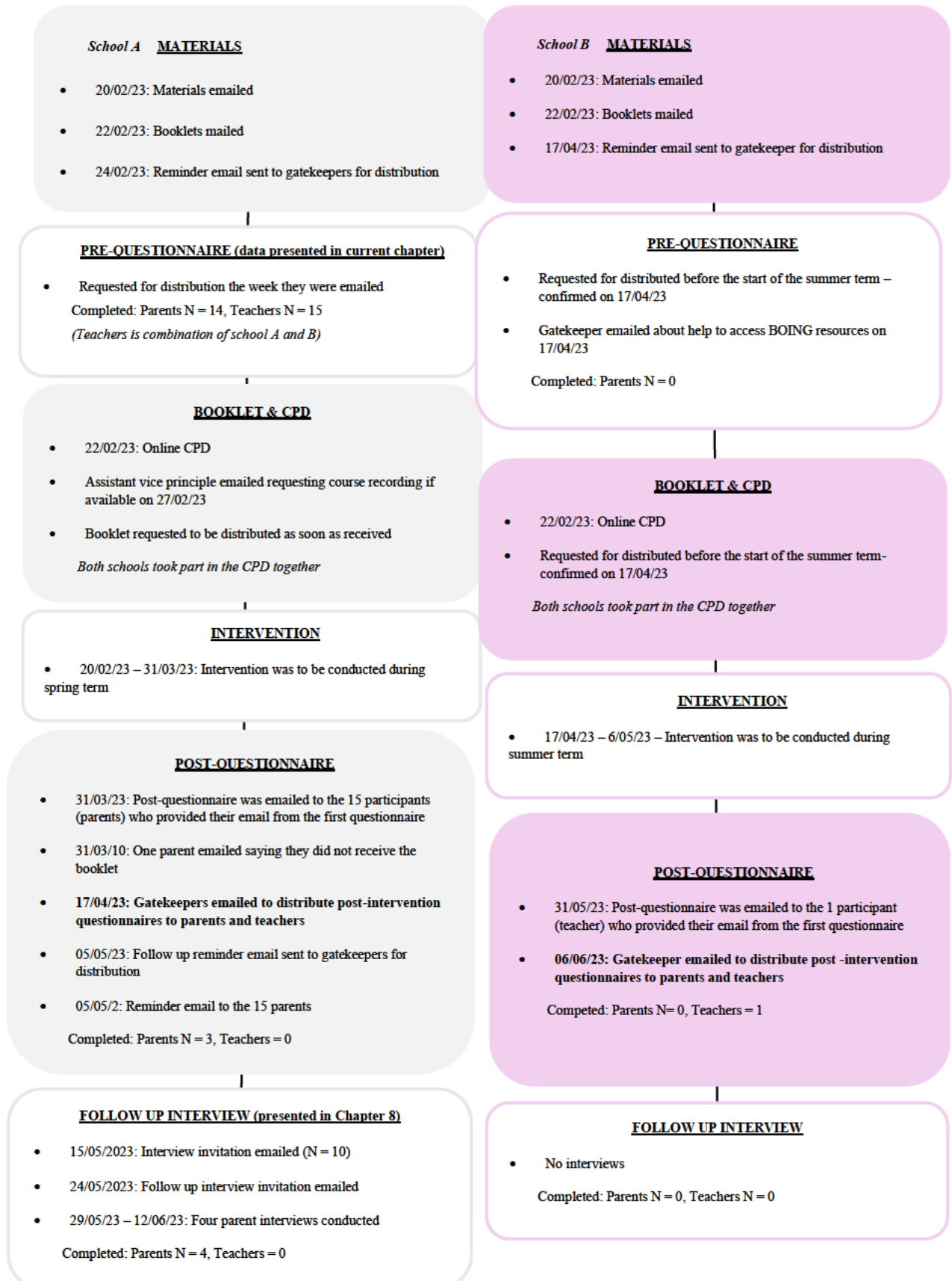
7.2.2 Timeline and Indication of Data Collected

The steps shown in the visual outline of the intervention study (Figure 3.3) were followed for both school A and B, with the interventions scheduled in different terms, as shown in Figure 7.1. The number of teachers who completed the pre-questionnaire is indicated under school A. Both schools took part in the CPD together therefore I have been unable to separate participants by their school. Due to a lack of engagement with the post - questionnaire,

additional emails were sent to the gatekeepers from both schools to distribute the second questionnaire to all parents and staff. However, despite these efforts, a paucity of data remained with no parent data from school B and only three parents and one teacher completing the post-questionnaire from school A. Due to the lack of data for the second questionnaire no pre- to post- comparisons were made. While Figure 7.1 provides a timeline and dates for data collection throughout the intervention, only the data from the pre-questionnaires will be presented in this chapter.

Figure 7. 1

Timeline and indication of data collected for study in school A and B



7.2.3 Participants: Parents

A total of 14 parents completed the pre-questionnaire, and three completed the post questionnaire. These participants were all from school A, with the majority being aged between 35-44 and White, full demographic characteristics can be seen in Table 7.1.

Table 7. 1

Parent demographic questions

	N
Ethnicity	
White	11
Indian	1
Any other ethnic group	1
Any other mix/multiple ethnic background	1
Child gender identity	
Boy	9
Girl	5
Free school meal eligibility	
Yes	2
No	11
No answer	1

Mean age = 38, age range 25-54 years

7.2.3.1 Parent Questionnaire

Details of the parent questionnaire can be found in Chapter 3, section 3.4.4.5.1, with examples of the questions shown in Table 3.2.

7.2.4 Participants: Teachers

A total of 15 teachers from both schools completed the pre intervention questionnaire, one teacher from school B completed the post intervention questionnaire. Most participants were

women, year group taught and years of experience teaching varied. Table 7.2 provides full demographic and teaching characteristics.

Table 7. 2

Teacher demographic questions

	N
Gender identity	
Woman	14
Man	0
Non-Binary	1
Year group taught	
Reception	2
Year 1	4
Year 2	4
Year 3	1
Year 4	0
Year 5	3
Year 6	1
Years of teaching experience	
NQT (0-1 years)	3
1-3 years	3
4-6 years	2
7-9 years	6
10 years +	

Mean age 34, age range 25-34 years

7.2.4.1 Teacher Questionnaire

Details of the teacher questionnaire can be found in Chapter 3, section 3.4.4.5.2, with examples of the questions shown in Table 3.3.

7.2.5 Data analysis

Repeated measures ANOVA was used to compare the mean scores between the COM-B components. As questions were separated based on the COM-B components, the questions for each component were grouped together using their mean, creating the following variables: physical capability, psychological capability, social opportunity, physical opportunity, reflective motivation and automatic motivation. Additionally, for the teacher data, the confidence questions were grouped together using their mean to create the variable confidence. All simple relationships were explored using non-parametric Spearman's correlation coefficients. All statistical tests were conducted using SPSS 25 and an alpha value of 0.05 was used to determine significance.

7.3 Results

Originally, the aim was to compare results between the pre and post intervention questionnaires to investigate whether there was any change in these factors for either the teachers or parents. However, due to a paucity of data and inability to complete statistical analysis, the data from the post intervention questionnaires were not used.

7.3.1 Parents

To begin, a Spearman's rank-order was conducted between the two questions on child physical activity behaviour; there was no correlation between them ($r(14) = .452, p = .105$). As a result, the physical activity behaviour question focusing on physical activity throughout the week will be used in correlations. This is due to it being most representative of the government guidelines. Moving forward, this question will be referred to as child physical activity behaviour.

7.3.1.1 Physical Activity.

A repeated measures ANOVA was conducted, the Mauchly's test indicated the assumption of sphericity had been violated $\chi^2(14) = 31.56, p = .005$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .498$). The results show that there were significant differences between the COM-B components, $F(2.49, 32.38 = 8.81), p < .001$. An adjustment for multiple comparisons was conducted using a

Bonferroni correction. Post hoc tests revealed that participants were significantly more likely to report a high level of reflective motivation than having the social opportunity ($p = .044$) to support their child in physical activity. They were also significantly more likely to have psychological capability than social opportunity ($p = .011$) to support their child in physical activity. Furthermore, parents felt they had more psychological capability than physical opportunity ($p = .027$) to support their child in physical activity.

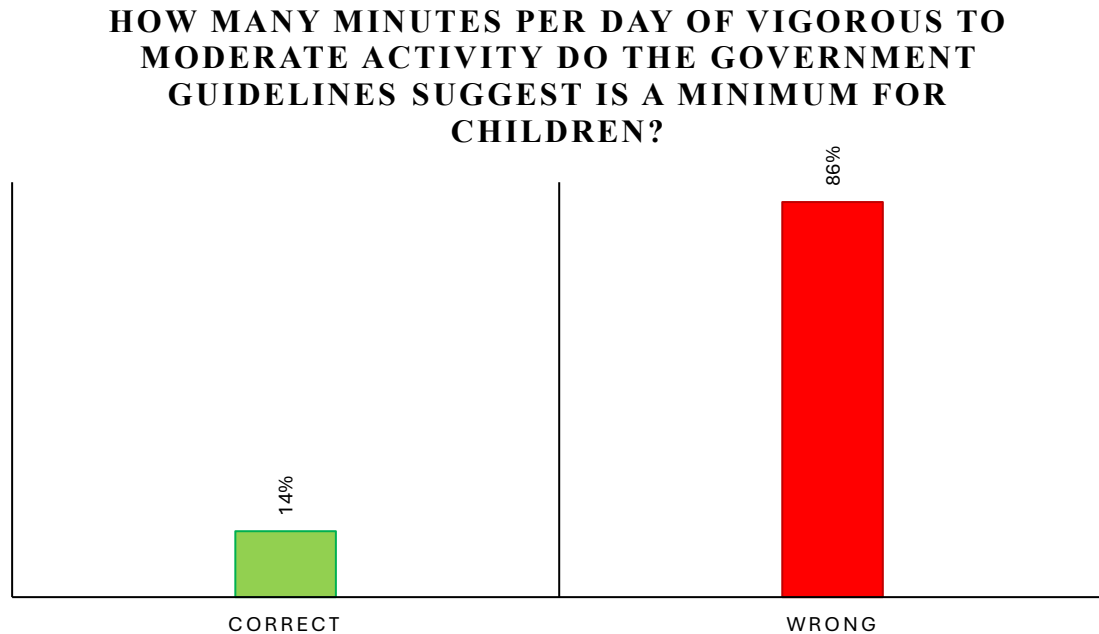
A Spearman's rank-order correlation was then conducted with the physical activity COM-B components and the child physical activity behaviour question. There was a positive correlation between reflective motivation and child physical activity behaviour ($r(14) = .634$, $p = .015$). When parents perceive their reflective motivation in supporting their child's physical activity to be high, this is related to a higher child physical activity level. Similarly, there was a positive correlation between physical capability and child physical activity behaviour ($r(14) = .662$, $p = .010$). When parents perceive their physical capability in supporting their child's physical activity to be high, this is related to a higher child physical activity level.

7.3.1.1.1 Knowledge of Government Guidelines.

Parents were also asked how many minutes per day of vigorous to moderate activity do the government guidelines suggest is a minimum for children. As seen in Figure 7.2, only 14% of parents selected the correct answer.

Figure 7. 2

Graph showing parental response to government guideline question

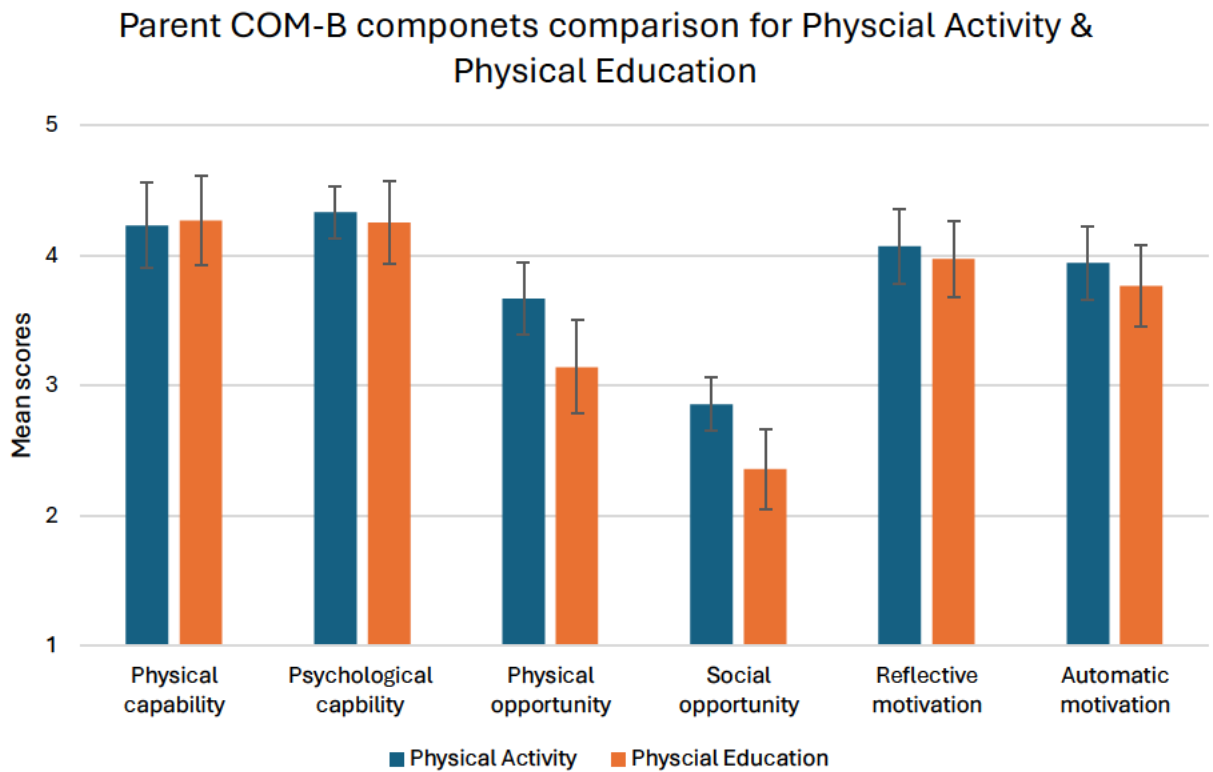


7.3.1.2 Physical Education.

A repeated measures ANOVA was conducted, the Mauchly's test indicated the assumption of sphericity had been violated $\chi^2(14) = 50.35, p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .402$). The results show that there were significant differences between the COM-B components, $F(2.01, 24.14) = 10.34, p = .001$). An adjustment for multiple comparisons was conducted using a Bonferroni correction. Post hoc tests revealed that participants were significantly more likely to report a high level of reflective motivation than having the physical opportunity ($p = .005$) and social opportunity ($p = .049$) to support their child's PE. Participants were also significantly more likely to have psychological capability than physical opportunity ($p = .042$) or social opportunity ($p = .041$) to support their child's PE. The results also indicate that they were significantly more likely to have physical capability than social opportunity ($p = .046$) to support their child's PE. A graph showing comparison between these PE results and the physical activity focused COM-B results can be seen in Figure 7.3.

Figure 7.3

Comparison of ANOVA analysis for parent COM-B responses for both PE and physical activity



When comparing between physical activity and PE, see Figure 7.3, parents reported having more capability and motivation in comparison to opportunity for both. They felt neutral about their opportunity to support their child’s physical activity, however, for PE they fell under neutral (mean score under 3), suggesting they feel they have less opportunity to support their child’s PE lessons.

A Spearman’s rank-order correlation was then conducted with the PE COM-B components and the child physical activity behaviour question. There was a positive correlation between physical capability and child physical activity behaviour ($r(13) = .728, p = .005$). Similar to the physical activity COM-B components, when parents perceive their physical capability to supporting their child’s PE to be high, this increases their child’s physical activity level.

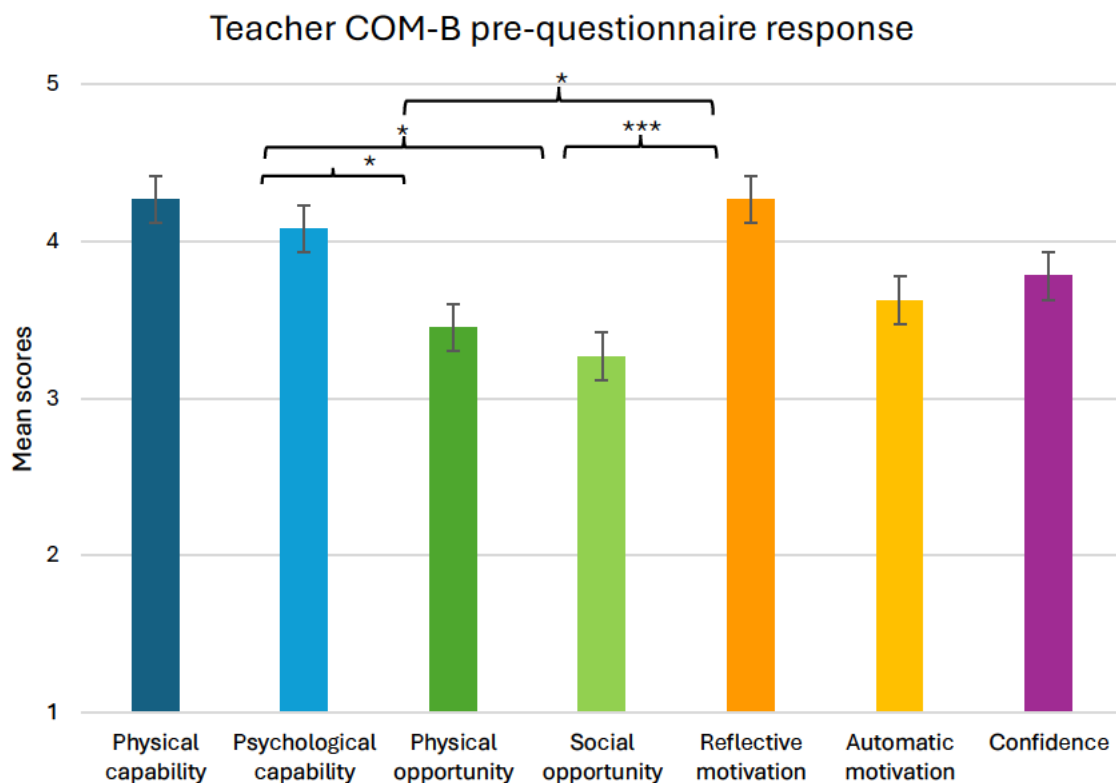
7.3.2 Teachers

A repeated measures ANOVA was conducted, the Mauchly’s test indicated the assumption of sphericity had been violated $\chi^2(14) = 25.08, p = .037$, therefore degrees of

freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = .56$). The results show that there were significant differences between the COM-B components, $F(2.82, 39.44) = 6.06, p = .002$. An adjustment for multiple comparisons was done using a Bonferroni correction. Post hoc tests revealed that participants were significantly more likely to report a high reflective motivation compared to having the physical opportunity ($p = .039$) or social opportunity to deliver high quality PE ($p < .001$). Participants were also significantly more likely to feel they have psychological capability compared to physical opportunity ($p = .030$) or social opportunity ($p = 0.012$) to deliver high quality PE. These results can be seen in a graph in Figure 7.4.

Figure 7. 4

Graph showing teacher COM-B pre-questionnaire ANOVA analysis



Aside from the statistical differences mentioned above, when looking at Figure 7.4 teachers felt either neutral or positive about their capabilities, opportunities, motivation and confidence to teach high quality PE lessons. To understand what COM-B components correlate with confidence a Spearman's rank-order correlation was conducted. There was a

positive correlation between reflective motivation and confidence ($r(15) = .523, p = .045$), as well as psychological capability and confidence ($r(15) = .735, p = .002$).

7.4 Discussion

In this discussion section both parents and teachers' results will be explored further and compared to previous literature. Although the results are able to answer the objective, it is important to know that the aim of this study cannot be fully answered by the data, due to no pre and post comparison.

7.4.1 Parents

7.4.1.1 Physical Activity

When thinking about physical activity, parents were significantly more likely to report a high level of reflective motivation and psychological capability than social opportunity in terms of supporting their child's physical activity level. They also felt they had more psychological capability than physical opportunity. From these results, it could be assumed that psychological capability is not a barrier for the parents when supporting their child's physical activity. However, when asked about the government guidelines for children's physical activity, only 14% answered correctly. These results are similar to what was found in Chapter 4, with 29% answering correctly, despite there being a difference in participant numbers in Chapter 4 compared to Chapter 7 (103 vs 14) and ethnic diversity (38% vs 21%). This has also been found in previous literature (Corder et al., 2012; Sawyer et al., 2014). Therefore, it is important to question what kind of knowledge / information parent's feel is important to know regarding their child's physical activity level.

As mentioned in Chapter 4, parents who do not have a baseline to judge their child's activity levels against, end up using other measures such as their child's weight to assess their physical activity level and needs (Bentley et al., 2012). Furthermore, parents tend to overestimate their child's physical activity level (Corder et al., 2010, 2012; Hesketh et al., 2013). This could become an issue, as parents may be less inclined to encourage physical activity, or take part in interventions to promote it if they are overestimating their child's physical activity levels and are unaware of the guidelines (Hesketh et al., 2013). The literature also shows a positive correlation between parent and child physical activity (Bishop et al., 2024; Gustafson & Rhodes, 2006; Trudeau et al., 2004), so it is no surprise that a positive correlation was found between parent's perceived physical capability and their

child's general physical activity. While physical capability does not directly translate to physical activity behaviour, it shows that parents feel physically fit to take part in physical activity with their child.

Overall, parents feel they have the motivation and knowledge to support their child's physical activity but feel they do not have the social opportunity. The questions asked focused on school, government, and family and friend's support; therefore, parents feel they are lacking in support in these areas. They also feel they are physically able to support their child but lacked the physical opportunity, with the questions focusing on time, activity guidance, space at home, money, equipment and suitable places. Physical opportunity was also an area that Chapter 4 focused on, with time, close enough services / environments and money being the top three barriers for parents in that study. This has also been found in previous literature, where cost, time and lack of a safe outdoor environment were barriers parents reported with physical activity engagement (Bentley et al., 2012).

7.4.1.2 PE

Similarly, parents were significantly more likely to report a high level of reflective motivation and psychological capability than physical and social opportunity when supporting their child's PE. In addition, they felt more physically capable of supporting their child's PE over having the social opportunity. For physical opportunity parents were asked on their time and having the right activity guidance and equipment to effectively support their child's PE. Social opportunity questions focused on support from the other parent, school providing information on child's PE and school providing activities to do at home. When asked specifically about awareness of what happens in their child's PE lessons, 45% of parents in Chapter 5 stated they were unaware. With many also heavily relying on their child for information on their PE lesson due to the lack of communication from the school, as found in previous literature (Sheehy, 2006, 2011). This would suggest that the social opportunity barriers parents faced in Chapter 5, were also an issue for parents in the current chapter. Though, parents in Chapter 5 mentioned they gained information through other parents on occasion.

Given the questions asked for social opportunity, the booklet provided would have potentially positively affected this component, as parents would have been provided information about their child's PE and given activities to do at home. Furthermore, the weekly prompts that were intended to support the communication between parents and the

school would have further supported their social opportunity. Communication from schools is a barrier that parents in Chapter 5 and previous literature have found (Coulter et al., 2020). Having this line of communication has also been deemed important by teachers, who have stated they feel the message children receive from home and school needs to be consistent (Griffin et al., 2015). The booklet would have also been activity guidance, having the potential to support parents' physical opportunity. Providing parents with games or exercise to do at home with their child could help parents support their child in the form of modelling; doing something active with their child (Welk et al., 2003). Unfortunately, due to very little post-intervention questionnaire data, it is unclear whether this was the case, however, this will be explored further in Chapter 8, with the post intervention qualitative data from four parents.

7.4.2 Teacher

The results show that these teachers were more likely to feel reflective motivation and have psychological capability compared to physical and social opportunity to deliver high quality PE. Previous literature suggests that having the knowledge can be an important factor in implementing inclusive teaching practices (Morley et al., 2005; Wang et al., 2015). Equally, studies show that social opportunity is also a major factor, the opinions and endorsement of key stakeholders can affect teachers intentions and motivation to implement inclusive PE (Tristani et al., 2022; Yan & Sin, 2014). From the results of the pre-intervention questionnaire, it could be suggested that despite teachers feeling motivated to teach high quality PE lessons and believing they have the right knowledge to do so, they do not feel much support in helping them achieve high quality PE lessons. This support could be from the headteacher, colleagues, the government, or parents; however, unfortunately the exact source of this lack of support cannot be determined. Teachers also seemed to feel neutral about their confidence level in teaching high quality PE, which differs to the results from Chapter 6, where 53% did not feel equipped in teaching or supporting inclusive PE. However, previous literature suggests this difference could be based on what aspect of PE teachers feel confident to teach, although this was not explored in the questionnaires for Chapters 6 or 7. Primary school teachers in New Zealand who expressed being confident in teaching PE, were mostly confident in teaching a limited amount of it, mainly the areas that focused on sport skills and fitness (Dyson et al., 2018). Additionally, the majority of teachers in another study expressed feeling anxious about teaching PE activities such as gymnastics due to their perception of the level of skill needed to teach it (Harris et al., 2011; Morgan &

Bourke, 2008). Pre-service teachers have also been found to be more confident in aspects of PE relating to their knowledge of health and fitness, compared to the National Curriculum (Randall, 2020). Had the teachers in both Chapters 6 and 7 been questioned on what aspect of the National Curriculum for PE they were confident teaching, this could have been explored. Based on the curriculum, teachers could be confident in teaching basic movements such as running, jumping, throwing for example, but not confident in teaching flexibility development.

Given that opportunity seemed to be a factor that the teachers felt less positive about, for these teachers an intervention focusing on restriction (use of rules), environmental restructuring (change of physical or social), modelling (provide someone as an example) and enablement (reducing barriers to increase opportunity) would be useful. Modelling and enablement are areas which may have been addressed with the CPD; unfortunately, whether teachers felt the CPD supported these factors cannot be determined in the current study. The structure of the intervention attempted to address these potential opportunity barriers by a) providing teachers with a CPD instructor that they could contact and seek more support from, and b) ensuring that the headteachers of the schools were on board with this change in PE.

When viewing these results, it is important to take into consideration that the teachers were from two schools from the Southwest of England, in comparison to the teachers from Chapter 6, which were from across England. Therefore, it is possible that the teachers from these two schools feel more psychologically capable to teach high quality PE in comparison to other schools. Furthermore, people's perceptions of high-quality PE could differ; this would have been explored during the focus groups/interviews.

In essence, both teachers and parents in the intervention study felt that they needed more social opportunity (e.g. social support) alongside physical opportunity (e.g. physical resources and time). The intervention was designed to provide support in both aspects for parents and teachers. Parents were provided with a physical booklet that also included the BOING website, which is full of more resources, and were meant to have weekly prompts (communication) from teachers. Teachers were provided with a CPD, this also included the BOING website as a resource, as well as access to the CPD instructor and BOING support team should they have had any questions / needed more help. This intervention focused on aspects that previous literature has suggested to affect behaviour change for teachers, providing information / resources, training, and the parents (Boumans et al., 2022; Daly-

Smith et al., 2021; Kelly et al., 2018; Williams & French, 2011). This intervention also focused on areas that parents expressed were barrier to them.

7.4.3 Limitations

A limitation is that parents who took part more than likely are parents that feel PE is important, this is something Bishop et al. (2024) found with their study on cycling. There were also some recruitment difficulties, both with parents and teachers, however this was accepted due to the ‘hand off’ approach taken. Unlike studies done in a laboratory, studies done in a school environment can have various challenges due to the unpredictable setting and conditions that cannot be controlled (Taylor & Owen, 2021). Therefore, controlling environmental variables in the context of educational research could reduce how generalisable the findings would be (Chezan et al., 2022; Ledford et al., 2016). Staff members could also be seen as a challenge, particularly because staff members may be cautious of researchers they have never seen or met before, therefore having a member of staff they trust introduce the research project could lead to increased receptiveness (Taylor & Owen, 2021). In this case the gatekeepers introducing the study to the staff was an appropriate method for this intervention. However, the gatekeepers were not provided with additional information for their staff, they were just asked to send out the adverts. This could be one reason for the lack of participation; the gatekeepers could have been given a PowerPoint or document to use to discuss the intervention with their staff. While the intention of this intervention was to have a ‘hands-off’ approach due to the focus being on the usability and ecological validity of the intervention, providing the gatekeepers with additional information could have been useful. In addition, the lack of involvement with the teachers from the researcher could have been another reason for the lack of engagement from parents, as teachers can provide useful information on how their school approaches parent communication (Taylor & Owen, 2021).

On the other hand, schools and teachers may not understand the value of their input, regardless of whether it is positive or negative, and this could be why they did not take part. If the researcher had attended the schools and the sessions, similar to the coach in the Telford et al. (2021) study, there is a possibility that more teachers would have completed the post questionnaire data and taken part in the interviews. Teachers may have understood the value of their input more had the researcher been heavily involved and created rapport with them. Therefore, successful results similar to Telford et al. (2021) could have been achieved.

However, this level of involvement would not have been realistic for future schools and would have called into question the ecological validity of the study. Lastly, the CPD and printed booklets were provided to schools and parents for free, this is not something that would normally happen, and so despite the study overall having good ecological validity and potential for replicability, the cost of the CPD could be a reason why schools in the future would not implement play-based PE through BOING.

7.5 Conclusion

To conclude, the results mirrored what was found in Chapters 4, 5 and 6; both parents and teachers felt they needed more physical and social opportunities. However, despite the intervention aiming to aid in these areas, it is unclear how well it worked. With minimal post questionnaire data from both teachers and parents, there is no opportunity to explore and compare the before and after results. Fortunately, post intervention interviews were conducted with parents, and this will be discussed in Chapter 8. While the data collected hasn't allowed for pre and post intervention comparison, the interviews provide insight into the usability of the resource provided, communication between the school and parents, and any challenges faced with the intervention. The information gained from these interviews will allow for identification of what went well, and what issues were faced, both of which future interventions of this nature can use.

Chapter Eight: The Accessibility and Feasibility of Play-Based Pedagogy for PE: Post-intervention Data

8.1 Introduction

This chapter follows on from Chapter 7, with a focus on the follow up interviews conducted with the parents. The results from Chapter 5 suggested that lack of communication and support provided from schools were barriers preventing parents from supporting their child's PE lessons at home. Similarly, results from Chapter 7 suggest that parents feel they are struggling with physical and social opportunities more than the other COM-B components. There will be a discussion surrounding the potential similarity and differences between the results in this chapter and Chapter 5, which focused on parental perspective of PE and barriers they faced to supporting their child's PE lessons at home.

This chapter will also address parental perspective on the play-based PE intervention, as this lacks in previous literature; the majority of interventions that are school-based focus on physical activity (Gruber & Haldeman, 2009; Salmon et al., 2007; Van Sluijs et al., 2007). These interventions also focus on the outcomes being increased physical activity alongside academic performance, classroom behaviour, and cognitive function (Donnelly et al., 2017; Grieco et al., 2009; Mahar et al., 2006; Tomporowski et al., 2008; Watson et al., 2017). Few interventions focus on supporting parents with PE, and many interventions are either school-based or family focused, with minimal interventions using both to support both parents and teachers with PE.

Therefore, in this chapter, the second objective will be discussed to further explore the aim specified in Chapter 7.

- Objective 2: To explore parents' and teachers' attitudes towards play-based PE post-intervention using the COM-B framework.

8.2 Methods

8.2.1 Study Design

The study design for the intervention can be found in the methodology chapter (Chapter 3), section 3.4.4. In addition, in section 3.4.4.1 the COM-B framework was discussed.

8.2.2 *Timeline and Indication of Data Collected*

The full intervention timeline and data collection period can be found in Chapter 7, Figure 7.1.

8.2.3 *Participants*

Upon completion of the pre-questionnaire, participants were given the option to provide their email if they were interested in taking part in the post intervention interviews. A total of 10 parents from school A showed interest in being interviewed; they were all emailed an interview invitation, and those that did not respond were sent a follow-up email. In total four parents took part; the demographic data was provided during the questionnaires and can be seen in Table 8.1. The full timeline can be seen in Chapter 7, Figure 7.1. However, no teachers showed interest in being interviewed, thus there is no post intervention follow up interview data from teachers from either school.

Table 8. 1

Parent demographic questions from questionnaire

	Participant 1	Participant 2	Participant 3	Participant 4
Relationship with child	Mother	Mother	Mother	Mother
Parent age	45	35	37	38
Parent ethnicity	White	White	White	White
Child gender	Boy	Girl	Boy	Boy

8.2.4 *Instruments and Procedures*

The details of the interview guide used and how the interviews were conducted can be found in Chapter 3, section 3.4.5.1. The full interview guide can be seen in Appendix 7.

8.2.5 *Data Analysis*

Similar to the data in Chapter 4 and 5, the data presented in this chapter was examined using thematic analysis. The full explanation of this analysis can be found in Chapter 4, section 4.2.3.3, with Braun & Clarke's (2021) six-step process to reflexive thematic analysis in Table 4.4. Due to the use of the COM-B framework, the COM-B components were used as themes. Once the transcripts were coded (phase 2), similar codes were then grouped into the COM-B components and other potential themes. After the first few phases (1-3) were completed by the researcher, the codes and themes were provided to both supervisors, one who has previously used the COM-B framework, and the other who is an experienced qualitative researcher. In doing so, this allowed for continued discussion and reflection around the codes and themes, ensuring that the right codes were within the COM-B components, whilst also discussing codes that were in an 'other' category, to see whether they would fit best in the current themes or in a theme of their own outside 'other'.

Reflexive statement

When analysing the first study (Chapters 4 and 5), it was mentioned that both interests and previous experiences influenced questions asked and the analysis process. However, during the analysis the results from the previous study were already known. Furthermore, the lack of parental engagement with the post questionnaire from school A, and no engagement from school B in the pre-questionnaire, was known prior to the interviews. This knowledge would have influenced any follow-up questions asked in the interview that were not pre-written prompts.

The data analysis was conducted post-intervention, with an emphasis placed on exploring the challenges in delivering interventions, and whether the intervention had provided support for the barriers mentioned by parents in Chapter 5. As mentioned, codes and themes were shared and discussed with others to ensure that they were all explored and categorised correctly, however, I was the one who read all the transcriptions and created the codes to begin with. Thus, the codes and initial themes outside of the COM-B components provided to others would have been influenced by my knowledge of the data from Chapter 4.

8.3 Results

Table 8. 2

Themes from the parent interviews

Theme	Subtheme
Physical capability	<ul style="list-style-type: none"> • Physical fitness
Psychological capability	<ul style="list-style-type: none"> • Appropriateness of activity for child’s age • Parent’s career • Struggled despite knowledge of importance of physical activity • Parent’s confidence
Motivation	<ul style="list-style-type: none"> • Booklet helped with motivation • Child enjoyment is important • Organisation • Parent’s willingness • Thinking outside the box
Physical opportunity	<ul style="list-style-type: none"> • Resources • Space • Time
Social opportunity	<ul style="list-style-type: none"> • Family • School communication • Schools value of PE
Parental opinion on PE	<ul style="list-style-type: none"> • Barrier’s school may face • Child communication about PE • Competitiveness • Fun is important • Parents suggestions for PE • Positives of play-based PE • What PE and physical activity can teach
Booklet recommendations	<ul style="list-style-type: none"> • Accessibility • Booklet use • Usefulness • When and how to receive booklet

8.3.1 Capability

All four parents felt that their physical fitness was not an issue for supporting their children’s participation in the intervention. Generally, there was no indication that physical capability would prevent these parents from being physically active with their child.

However, despite having the physical ability to be active with their child, one parent mentioned that they struggled with understanding the appropriate difficulty level for their child's age.

P4: *"Yeah, I think anything that like shows what he's doing at school and how we could help would be great... when I was teaching PE I was teaching like Year 5, Year 6. So I've got no idea what... child in Year one's supposed to be able to do."*

When asked whether they felt that, outside of school time, as a parent they encourage being physically active, one parent (P2) mentioned that they do believe they do so. This was because they work as a researcher in a similar field, and so they are more conscious and aware of the importance of physical activity. Another parent said something similar; however, instead of being a researcher, they are trained as a primary school teacher and used to teach primary PE:

P4: *"I think, I think it would help because it's like... I mean...I'm a teacher, and I trained in primary so I actually used to teach PE in primary a long, long time ago...but even with those skills like, I've probably got more skills than most parents in terms of like knowing what to do."*

However, despite having the knowledge of the importance of physical activity due to their job, Parent 2 mentioned they still found it difficult to put the knowledge into practice

P2: *"I feel like I'm a very aware person in terms of, what's important for children's physical activity, but still despite that... it's just like just very hard to have actually put this into practice."*

In contrast, one parent mentioned they were confident when it came to activities such as sports because physical activity outside of the house was something they were confident in. However, when it came to tailoring their activities to support PE, the booklet helped with changing what was normally done at home:

P3: *"But at home, yeah, I don't think I do do that much sort of PE type activity so yeah it did make difference... I changed what I would normally do at home that was physically active by using the booklet."*

8.3.2 Motivation

The booklet provided fresh ideas which helped motivate one parent to try new ways of being physically active at home with their child. This parent also mentioned how much their child enjoyed the games:

P3: *“Yeah, it did. Yeah, it just gave me some fresh ideas really and it was really fun. My son in particular, with the dragon one he just really really enjoyed that, he was just giggling loads.”*

However, finding time to read and learn about how the games work, what equipment is needed, and finding suitable space requires a lot of organising; this was something parents felt made it difficult to use the booklets:

P3: *“I think probably the only frustration was ‘oh, let's play one of these games’, and then needing to sort of scan through... through a few pages to find a game that was going to be suitable for where we were, and what we had. But that's really only a sort of initial challenge, because then once I was familiar, then I, you know, didn't have to do that again.”*

Despite organisation being a barrier for parents, generally the parents seemed keen on supporting their child's PE at home regardless of their use of the booklet. The same could not be said for their children though, with one parent expressing that, despite their enthusiasm towards trying the new games from the booklet, their child was not interested:

P4: *“...my son is very stubborn, and I was sort of all enthusiastic and like ‘Hey, look we've got this’... you know, ‘we've got this thing from your school, we can play this’, and he was like, ‘no I didn't want to play that’, and he was not very enthusiastic about it... But I think, like, play-based PE is something that I definitely support, regardless of whether my child was enjoying it because I can... I can see the value in it”.*

Parents also mentioned that they struggle with thinking of ideas when it comes to physical activity; as a result, they fall back on activities their child suggests:

P3: *“...so most the time he wants to play football in the kitchen. So, I was just thinking about how, you know, he's always suggesting that. So, I would either say yes or no to that. But I maybe I haven't been motivated enough to say, well, what about if we do this other thing?”*

One parent suggested that having the games from the booklet would have helped them

with motivation to play with their child; however, this parent only received one page of the booklet that included one game:

P4: *“But then when we get to the park, he's playing on the play equipment, you know, while I sit and talk to someone like sometimes I'll get involved but yeah, having those games would have like really helped, I think, to motivate.”*

8.3.3 Opportunity

8.3.3.1 Physical Opportunity

Based on the results from Chapter 5, parents in the current chapter were provided with a booklet full of games. This resource was to be used to help them support their child's PE at home. From the interviews, the overall consensus was that having a resource that tells you what to do would help the parents when being physically active with their child.

P1: *“Yeah, I know my friend's kids have come home with different activities and yeah, see I've loved it. So it's yeah to have that resources that would be great.”*

Furthermore, communication from the school would help with connecting the home resource with what is going on during PE (as identified in Chapter 5). Therefore, teachers were provided with weekly prompts to send out to parents to encourage the use of the booklet. With the idea that this communication would in turn encourage a conversation about PE between the parent and child, potentially resulting in the child teaching their parent games they played during PE:

P2: *“And if, like, you know, we kind of got this as a resource and I'm like, ‘okay, brilliant there's a resource there’. And then it gets put to the pile... at the bottom of the pile. But if we were getting a message that was like from the teacher on and the app... ..this week on the PE lesson we play Dragon Lands. That would kind of make like pop into your mind and be like, ‘oh, ask the kid about that’. And ‘did they enjoy that this week?’. And yeah, I think it would encourage us all..., we could play it at home.”*

While other parents spoke more about physical resources that included game ideas, one parent spoke about their imaginative use of objects around the house to play a game from the booklet. For the most part, parents felt that they had the space required, with one mentioning a park close by, that has various sporting facilities and another explaining that during good weather they spend time gardening, cycling or going for a walk.

Although, it was also mentioned that some of the games from the booklet seemed to require a more spacious area, such as a park. Despite the games in the booklet being picked for any amount of space, this parent did not feel that this was the case:

P3: *“Yeah and then some of the other ones which were, which needed a bigger space, which were for in the park.”*

Based on the interviews, it became clear that some of the parents work full-time, or have shared custody of their child, and thus time was a difficult barrier to overcome. Furthermore, despite one parent believing that prompts from the school would have helped with connecting home and school, the multiple demands in life as mentioned above, along with finding time would still have made using the booklet difficult. Nonetheless, regardless of how motivated a parent can be, their child’s enthusiasm towards something can determine whether it is done or not. While one parent mentioned that originally their child was interested in the booklet, this quite quickly disappeared. Another parent expressed that their child’s stubbornness and lack of motivation towards the page they received made it difficult to try the game:

P4: *“I think just my son's motivation and stubbornness, and also sometimes he's quite funny about like, if this is a school thing like you know, that's for school, and I don't want to talk to you about it. I think because like when you're so little, your parents basically control everything in your life, I think you kind of feels like school's his way, his place away from us. So sometimes he can be a bit funny, and he's like no, I don't want to do that, that's the school thing”*

8.3.3.2 Social Opportunity

In terms of findings in relation to ‘social opportunity’, the impact of familial circumstances was deemed to be important by participants. On the one hand, participants stated that having older siblings can encourage younger children to be active, as they can play with each other, and the young child could be exposed to various types of sports and activities. On the other hand, having a younger sibling can make playing games difficult, particularly when it requires a parent to learn and set up the game, as the young child could disrupt the parent. Furthermore, having children of different ages and at different stages in development could prove difficult for parents when wanting to encourage physical activity as they are having to cater to different needs:

P2: *“So just like kind of... like, tricky aged younger sibling who... who will dominate everything and come and get involved in everything. And... and basically, I think in my*

mind I'm just like... I know it will stop being fun within 2 seconds because she would come in and just start like, yeah, not follow... she cannot follow the rules, she won't understand. So it's these like this moment in time of two quite different needs that which have sort of balancing at home."

P3: *"Yeah, I think the only other one is, my younger child. So she joined in, which was fine, but she's too young to understand the like the rules or the process. So it just, we got a bit derailed when she was around as well."*

School communication regarding PE was also an important factor. There were parents that did not seem to know what their child did during PE, both during this intervention and generally. It is unclear why this is the case, but some parents expressed that they receive minimal to no communication regarding PE from the school:

P1: *"...to be honest, I don't really know what they do for physical education at school."*

P2: *"I don't know, we haven't had any sense from the teachers and from the school that they've been doing this. So that's not to say that they haven't, it is to say that the communication is not there, that they've been... on what's been going on."*

Despite all efforts to encourage communication between the school and parents, all four parents made it clear that they did not receive any prompts and were not made aware of any prompts that they should have received. It is unclear why this was the case as the gatekeepers were provided with fully written weekly prompts via email; it was up to the gatekeepers to disperse this to the teachers and inform them of the need to send out these weekly prompts.

Communication between parents and schools is important, one parent expressed that being provided with the information about play-based PE could have helped them ask their child more tailored questions about PE, what games their child played and therefore allowed for replication of the games at home or in the park:

P3: *"...that would have just helped me to talk with my child more and find out. you know, well 'What games did he like'?... 'Can we play these in the park, or at home?'... and he could teach me how to do it. Yeah, so just that really knowing... knowing what's happening in the classes."*

The lack of communication also resulted in there being no link between the booklet and PE at school for the parents:

P2: *“It hasn't made a difference, sadly, which is just a shame, you know. Like I said, basically we just got sort of sent this home and then there's been no follow up, and no kind of no linking together and no communication on what they're doing.”*

One reason why the absence of communication was an issue, is because it then forced parents to rely on their child to tell them what was happening. However, a parent did mention that due to their child's teacher being unwell, there were numerous supply teachers. This could have affected the likelihood of the play-based PE sessions being conducted:

P1: *“Yeah, I think unfortunately his teacher's not been well, so they've had a lot of supply teachers and I think everything has changed a lot...like, you know, book changing and homework. So, it's not being the best of terms with that consistency.”*

Moreover, of the four parents interviewed, one mentioned they did not receive the full booklet; instead, they received a sheet with one game:

P4: *“So I don't know whether I got the right booklet from school or the whole booklet because I got... from school I got like a sheet and it had it had one game with lots of different options. And that's not what I was expecting.”*

This parent felt that the booklet would have been useful for them and would have provided them with a variety of games to try with their child:

P4: *“Yeah, definitely, because I was, when he said like ‘oh I don't want do that game’, you know it would have been really nice to, you know, like to look through the booklet... I mean, like, okay, ‘we don't like that one, what should we do instead?’.”*

Following on from the discussion of minimal to no communication, many of the parents did state that having reminders would have been useful. One reason being that reminders would have helped the parents understand that the booklet was provided to be used in parallel with what was going on during PE. Another reason suggested was that resources and reminders would also allow for parents who like to schedule their week to include time to play these games and support their child's PE:

P4: *“...I always plan with my son what we're going to do so that he's not just sitting and watching Youtube all the time, which is what he'd preferred to do. So he has a little timetable, so if the school who were sending prompt saying like, try this game, try this game, you know, we could have gone ‘okay we're going to try this game this week’,*

where you know which day should we put it on. And yeah... so they would have been really helpful.”

8.3.4 Parental Opinions of PE

Parents also discussed their opinions on PE as a whole, and despite the issues mentioned with regards to ‘social opportunity’, they did express their understanding for the difficulties schools can face when it comes to PE. One parent in particular, was really worried about the lack of PE being done in their child’s school. This parent expressed that there are a few parents who collectively would like to speak to the school due to PE being cancelled weekly for reasons such as punishment for bad behaviour or bad weather:

P1: “...there's quite a few of us that we felt like we need to actually speak to them, the head now. It's getting ridiculous. Like, every week cancelling PE because of either bad weather or there was something... they were naughty or something.”

Another parent also mentioned that their child informs them that PE is cancelled often or does not happen much; however, this parent felt that due to this information coming from their 5–6-year-old child it could be unreliable. Again, this lack of PE sends the message that PE is not prioritised in this school:

P2: “No, again, I really don't want to criticize them. They're brilliant and they're working so hard with so many challenges. But I wouldn't say it's a priority for them. And then they have like really great space. But yeah, again, it will probably just depend on the class teacher and when they have to have but yeah.”

When questioned about suggestions they may have for schools to help approach parents, one parent spoke about the fact that in reality, the prioritisation of PE at a school level then trickles down to the community, and children:

P2: “So I feel like I get a sense that... that you just get such a mix back and it just really depends on whether it's a prioritization for a school or not...and then, if it is a prioritisation for the school, it really seems to trickle down and through into a community, and into children, and into them then wanting to like be doing things. And that's a really hard thing to be, like trying to tackle.”

Amongst the four parents, only one parent said their child tells them what happens during PE. The others expressed they have no idea, with one parent mentioning that the only time their child tells them about PE is when it is not on:

P2: *“I don't know what she does, and we don't get told what she does. I might find out if it was indoors or outdoors. But I get nothing from her.”*

When focusing on competition in PE, it was mentioned that, while it is important, the type of competitiveness elicited should really be against yourself rather than the whole class:

P4 *“But yeah, I think that is just about making it fun. And I think the kind of, the competition element needs to be almost like against yourself or like as a whole class...as someone who like really really enjoys being active, but doesn't particularly enjoy like team sports or anything like that, because I kind of feel like I'm like letting my team down, if I'm not very good.”*

Ultimately, parents felt that fun was very important, as it is a great way to encourage children to be active. With one parent suggesting that PE should have a diverse number of activities, to encourage children like hers who are not competitive, or physically capable:

P2: *“I guess, thinking of my child, and for PE at school, it just has to be based in, like, a diversity of, like, things that you can do that would encourage a child like her, who's not very physically capable and is not competitive, to finding ways that she can enjoy being active.”*

All four parents had positive things to say about the idea of play-based PE, this was not based on the intervention, but the idea of the intervention and the booklets provided to them. There were mentions of it being more enjoyable for children who do not like sports or competition. Furthermore, it was argued to feel inclusive:

P1: *“it just feels like everyone's inclusive, included in that so they won't have that person feeling left out or is there if they... like he's very competitive and I don't think he needs encouraging in that department. So I think this sounds like a really welcomed... a much needed thing in the school right now.”*

In summary, parents expressed that fun was an important factor for them with PE, with the addition of competition, but through games rather than through sports. Ultimately, this group of parents like the idea of play-based PE because of its inclusive aspect, with one parent further expressing that physical activity can help with psychological child development through teaching persistence and resilience.

8.3.5 Booklet Recommendations

Attention now turns to specific recommendations made from parents on the usability of the booklet. Some important points were made about the accessibility of the booklet; while it was created with some of these factors in mind, the ideas and adjustments suggested are important with regards to language and space considerations:

P4: "I think maybe just like thinking about things you can do with less space, and like no equipment.... maybe like thinking about things that are like on... I don't know, like little postcards or diagrams, or something. Like, I know that a lot there are a lot of parents in my son's class who don't speak English and, yeah, a lot of parents who have like really different family setups or... yeah, so it'd be like making it as simple as possible,"

Generally, the booklet was not used much. This was for various reasons, one being the fact that some children have extracurricular activities and so for them the parent did not feel the necessity to use the booklet. With one parent expressing that if they were financially unable to provide their child with these external activities, then they would use the booklet to be more proactive with their child's physical activity. They also mentioned that had this been during lockdown, where their child was restricted in what they could do externally, then something like this booklet would have been really useful:

P2: "If there was restrictions in place that meant that like we weren't getting that in other places, I would turn to this straight away. But yeah, right now it just feels like she's getting enough from other... other sort of places."

There was one parent who used a few games from the booklet; this parent played games 'Dragons Land' and 'GO GO Gold'. Their child really enjoyed both games, and the parent felt that Dragons Land in particular was great, because it could be done at home:

P3: "So the first game we played was the dragon eggs one, and that was a hit, that was really popular. So we played that quite a few times, and that was good because we could just do it at home. You know just sort of an impromptu game basically we could just kind of do that with... with different things."

However, they felt like some games such as Laser Web, required more space and so they were unable to do the game. Despite using the booklet initially, since the last questionnaire which was sent just after their child's last session of what was to be play-based PE, they did not use the booklet. This would have been around two months before this interview, and so

while the booklet was used short term, it was not used as a resource with this parent long term.

Overall, parents felt that the booklet was useful as it was encouraging, and one parent in particular was happy that there was someone taking an interest in their child's physical activity. Another parent expressed that the fact that the booklet and games felt doable was a positive for them, as they were able to play the games with just them and their child:

P4: "You can just do it, you know..., that was what was really, really good about it actually, because he's an only child as well. So yeah, it was nice to just be like, 'okay, if it's just me and you, we can still do this'."

One parent (P3) suggested having one booklet for the year to provide the parents with information on what will be done for that year. Two parents (P1 & P2) suggested that one per term would be useful, with the final parent (P4) expressing that this would mimic homework booklets they receive for other subjects:

P4: "Yeah so he gets a homework booklet per term and it says, like, you know... this is Week 1... this is Week 2... this is Week 3. And I think, yeah, having something like that for physical activity, it'd be great."

Another parent highlighted that they would want consistency whenever BOING was being used in PE; they felt that it was more about parents knowing they can then link what they do at home with what their child is learning:

P2: "So whether they did it weekly, or whether they did it for one term in a year, or whether they played one BOING game every term or every few weeks... whatever it was frequency wise, I just think it'd be really helpful to be told about that as a parent, if we want this like kind of joined-up, doing at home, doing it at school, thing."

Where most parents focused on the frequency of receiving booklets, one parent highlighted that rather than it being on paper, the resources could be sent to parents through the existing apps schools use to communicate with parents.

8.4 Discussion

In this discussion, the focus will be on exploring whether providing parents with information/guidance on their child's PE would enable them to support their child's PE at home. There will be conversation around the parents' capability, opportunity and motivation towards supporting PE, but also their views on PE as a subject and on the booklet, they were

provided. Each COM-B component will be discussed individually, drawing on the results presented in this chapter, previous literature and similarities found from Chapter 5.

8.4.1 Capability

Similar to results in Chapters 4 and 7, physical fitness was not a barrier for the parents. Interestingly, there was a mixture of responses in relation to psychological capabilities; two parents currently have or previously had a career that would provide them with the knowledge needed for physical activity and PE. One parent who was previously a primary school teacher felt they did not know the appropriate level of difficulty for their child's age. While another parent who conducted research in this field felt that despite having this knowledge, other barriers were more difficult to overcome. This could lend to an argument that despite having the right knowledge and psychological tools, other aspects such as motivation, physical, and social opportunity could play a much bigger role. As mentioned in Chapter 7, barriers such as money, time and environment were highlighted by parents in two UK-based studies (Bentley et al., 2012; Khanom et al., 2020)

Confidence was also seen as an issue; while there is confidence in supporting sports, tailoring physical activity towards PE is not something that is thought about or done naturally. It could also be argued that confidence could be affected by past experiences of PE, as this factor affects not only their views on the importance of PE for their child (Lago-Ballesteros et al., 2019), but a negative experience could result in negative feelings towards physical activity later in life (Cardinal et al., 2013). Furthermore, the literature on physical activity suggests that parental physical activity is associated with child physical activity level (Jago et al., 2017c). Given the assumed physical demands of supporting PE, it could be suggested that a parent's own feelings towards physical activity, and physical activity level, can affect their confidence in supporting PE. The parents in the current chapter felt that they had no fitness barriers; however, this may not be the case for all parents.

Despite the lack of confidence, having a resource such as the booklet can help with this. A parent mentioned that they normally would not tailor activities done at home with PE, and so the booklet helped them change their normal activities at home. The reason for this lack of focus on PE activities at home could be for many reasons, including lack of value placed on PE, lack of knowledge, and lack of communication about PE from schools, these are all factors raised throughout the interviews. Furthermore, parents are more likely to ask their

child about what they learnt in other subjects (e.g. core subjects) compared to PE (Alcántara-Porcuna et al., 2021), suggesting that for some parents PE is not a priority.

8.4.2 Motivation

Overall, for one parent the booklet really helped with motivation and providing new ideas, again suggesting that for some parents this resource may be very useful. Another parent mentioned that they thought the booklet idea was great and would have helped had they received it in full. It is unclear why they did not receive the full booklet; however, this goes to the communication issues between parents and schools. It also creates a question as to how engaged the school was to the research project, as they were provided with printed copies of enough booklets to distribute to all parents and a PDF version in case they needed to print more off.

In contrast, for other parents the organisation required to play the games in the booklet was mentioned as a difficulty and potential reason for lack of use. This is not surprising as in Chapter 4, time was the biggest barrier faced with their child's physical activity. Organisation requires time, and depending on the game, the time will be used on reading the instructions for the game, or preparing the equipment required for it. While organisation is due to motivation, time is more focused on physical opportunity, the results of these interviews continue to show how much each COM-B component can affect one another. Conversely, an argument could be that parents motivation is affected by their perception of the importance of PE, parents may value PE as part of the curriculum while equally perceiving it as less important than other academic subjects (Alcántara-Porcuna et al., 2021; Graham, 2008; Na, 2015; Sheehy, 2011). Though these parents were not asked, this raises the question of whether the same barriers would be mentioned if the booklet were provided to support the core subjects.

In addition, questions remain about whether these parents were aware of the importance of their involvement in their child's learning and the positive impact it can have (Fan & Chen, 2001; Green et al., 2007). A large body of literature suggest that parents influence their child's attitude in various aspects of life including PE (Anzman et al., 2010; Bartram, 2006; Campbell & Verna, 2007; Coulter et al., 2020; Hooley et al., 2012; Lwin et al., 2017; Mokoro et al., 2014; Scaglioni et al., 2008). Therefore, it was questionable whether these parents fully understood their influence on their child's education and the importance of participating in supporting PE at home, as they would for other subjects. The lack of booklet use has the

potential to send a message to their child, similar to the message school sends, that PE is not valued or important (Harris, 2018; Hayes, 2017; Hooper et al., 2023). However, the parents who were interviewed seemed keen on supporting their child's PE at home. The general agreement across the parents was that their child's enjoyment was very important to them and served as a motivator. However, some suggested that they struggle with thinking outside the box, as a result they fall back to activities their child suggests, this sometimes being sports. This relates back to confidence, their psychological capability.

8.4.3 Opportunity

8.4.3.1 Physical Opportunity

One of the biggest barriers to change for these parents was physical opportunity. Ultimately, parents want support from their child's school, and one way to do this is through step-by-step resources. As supplying resources would allow for parents to provide support in the form of modelling; doing something active with their child (Welk et al., 2003). Unfortunately, as noted above, one parent, participant 4, mentioned they did not receive the full booklet. Despite this, providing resources without linking it to the child's PE lessons does not seem to be beneficial. Notably, teachers have stated something similar in previous literature, where they raised the need for consistency in the message children receive at home and in school (Griffin et al., 2015).

8.4.3.2 Social Opportunity

When providing resources, there needs to be communication from the schools explaining what it is for and why it is being given to them. This is important because parents stated that they do not know what their child does during PE; this is similar to the results from Chapter 5, where 46% of parents were not aware of what their child was learning in PE. It is due to the results from Chapter 5 that the weekly prompts were created, to try to help bridge the gap between schools and parents with PE. However, based on the interviews these were not used, and as a result, no parent knew the connection between the booklet and their child's PE lessons, which were meant to be play-based. Unfortunately, these results are not surprising; as discussed in Chapter 5, previous literature has also found that communication from schools to parents was an issue (Coulter et al., 2020). Indeed, many parents find out what happens in their child's PE lessons from the child themselves (Sheehy, 2006, 2011). Despite this, parents felt that the resource would be helpful just like homework and reminders would be useful. One parent suggested that this lack of communication was across all subjects for them, while

another mentioned that their child's teacher was sick, and this could have been the reason for the minimal communication.

Ultimately, the general sentiment from parents was that that this school does not value PE, and this message is received through the lack of communication as well as the lack of PE being done. However, this is not something new, parents have previously expressed their frustration with the lack of time dedicated to PE (Coulter et al., 2020). As PE is a foundation subject, it is disadvantaged with the time and resources provided to it by schools (Harris, 2018), it is also undervalued and the subject that children are removed from when needed additional support for core subjects (Hooper et al., 2023). Key stakeholders in England have questioned how valued PE is within their schools, and how much of a priority it is (Hooper et al., 2023). With this value then trickling down into the community, it could affect the value parents and children place on PE as a subject. A study on primary school children found that they identified other subjects, such as the core subjects, more important than PE (Hayes, 2017). Seemingly reflecting the importance and value that is placed on PE by the school, and ultimately by the curriculum (Hayes, 2017). Similar results were found by Sheehy (2006), who, as discussed in Chapter 5, found that the subtle signals sent by schools through lack of information on child's performance in PE compared to other subjects, reinforced the parents' existing views that PE was not an important subject.

In the current study, one parent was very concerned about the lack of PE being done, which sent the message that PE is not prioritised. Though schools are mandated to teach PE, the number of hours schools need to dedicate to PE is not (Department for Education, 2015). Previous literature has found that children felt the time they had for PE was too short, and parents felt more time should be allocated to PE (Coulter et al., 2020). Furthermore, teachers expressed that the majority of their students did not receive high quality PE and sports for two hours per week (Harris et al., 2012). These studies suggest that the concern the parent in this chapter has with the time dedicated to PE, is something that has previously been raised.

Another parent expressed that had the school communicated and provided the parents with more information about the play-based PE, it would have helped them ask their child more tailored questions about PE. This suggests that the communication between this school and the parent could have facilitated better dialogue surrounding PE between the parent and child. This was one area that parents in Chapter 5 requested support in. Despite the schools being provided with the resources (weekly prompts) and opportunity to regularly communicate with the parents about their child's learning in PE, they were still unable to do so. Parents were left

confused about the booklet, as there was no communication to link the booklet to their child's PE, and ultimately the sentiment that PE is not valued to their child's school was reinforced. Additional social opportunity barriers for some parents were having multiple children at various ages and with different needs. They felt that the same resource may not be useful for them all. Similar results were also found in other research conducted in the UK, where parents expressed family life as being a barrier to supporting their child's physical activity (Bentley et al., 2012). Despite the participant pool in Chapter 5 being very different to this chapter through the number of participants, ethnic diversity, and region, the results share similarly. This implies that the issue of communication is not in one school, rather it seems to be across England, suggesting a more systemic issue

8.4.4 Parental Opinions on PE

When focusing on PE, parents expressed that competition was important; however, they felt it should really be against themselves rather than the whole class. Furthermore, fun was very important to parents, as it is a way to encourage children to be active. One parent mentioned that there needs to be diversity amongst the activities the children do, to encourage children like hers who are not competitive, or physically capable, to be active. Both competition and limiting options for children who do not enjoy competitive sports have been described as barriers to children and young people participating in physical activity (Moore, Edmondson, et al., 2023; Moore, Vernon, et al., 2023).

The focus on competition however is due to the National Curriculum, while other countries' curricula focus on holistic development, and are frequently informed by the concept of physical literacy, the National Curriculum for PE in England focuses on competition and success, values gained from sports (Herold, 2020). The views on the inclusion of competition vary, mainly suggesting that the concept is about winning and losing, meaning that children who are less skilled may experience competition negatively (Harvey & O'Donovan, 2013). It can ultimately have negative and excluding tendencies and lead to comparison between children, parents have raised concern that due to PE currently being very competitive, it leads to some students feeling incapable of participating and lacking in confidence (Aggerholm et al., 2018; Earley & Fleet, 2021; Jefferson-Buchanan, 2011). Equally, skills such as team work and fair play are seen as indirect outcomes of competition in PE (Harvey & O'Donovan, 2013). Competition has both positive and negative contributions, but ultimately students have emphasised their preference for focusing on the challenges that come with competing rather than the aspect of winning and losing (Beni et al.,

2017). The focus on sports within PE has the potential to lack inclusivity (O'Connor et al., 2012).

On the other hand, when discussing play-based PE, the prominent idea that parents raised was they felt this approach seemed more inclusive, this has also been found in previous literature on play-based PE (Klein & Beach, 2023; Wilson, 2020). Again, these results are similar to Chapter 5, suggesting that overall parents feel that play-based PE is a more beneficial form of learning about physical activity for their child, compared to the current form of PE. It could help build their physical literacy and ultimately support their continuation of physical activity into adulthood. Despite these views being consistent throughout both studies pertaining to parents, the lack of participation in this intervention pre and post raises the question of how much parents value PE, and whether the concerns raised in Chapter 5 and here, are generalisable. There is scope to argue that these issues have been raised in the interviews by parents who value PE, and those who have taken part are partially biased because of their views of PE.

8.4.5 Booklet Recommendations

When creating the booklet, accessibility was of importance. Consideration was made for parents who may struggle with using technology, hence the physical booklet. The fact that for some parents, English is not their first language was also spoken about; however more thought could have been put into the layout of the booklet. Some great suggestions were provided about making the booklet more accessible, one being making it so it is easy for the child to read and explain.

While some games were great, others were felt to need a larger space, and so again, creating a resource that has several games that could be done both indoors and outdoors, with or without a large space is important. For this research, only six games were included; however, there is a plethora of games on the BOING website, with many including videos. These videos could also help with accessibility, as well as other barriers such as organisation, as the parent could watch the video with their child.

The frequency of the booklet seems to be ideal per term; however, it is not as productive unless there is clear communication to the parents about why the resource is being given and how it can be used to further help their child's development in PE at home. These could be linked to the fundamental movement skills children need to learn, that are expressed in the National Curriculum. With some examples of these skills being running, jumping, throwing

and catching, and developing balance (Department for Education, 2013g). By linking the resources to the curriculum, this could further help parents understand what their child should be learning at that age, as well as the level of difficulty that is acceptable for their child. One idea could be to have a booklet for each skill provided to parents, and then communication from the school on what booklet to look at based on what the term is focusing on. Thus, providing support for both social and physical opportunity, two areas in which parents have expressed in both Chapter 5 and the current chapter as being barriers for them.

8.4.6 Limitations

It is unclear whether the CPD or booklet worked as not enough participants, both parents and teachers, took part in the post questionnaire. There is always a possibility that the participants engaged with the intervention but not with the research aspect; however, under these circumstances it is unclear. Thus, resulting in the inability to compare how participants felt pre and post intervention. While previous literature does suggest training in physical activity interventions, as little as one hour, can be beneficial, this was in conjunction with the researcher being present in the school daily throughout the intervention (Goh et al., 2017). Thus, ensuring the intervention went ahead as planned and boosting the relationship between researcher and potential participants. It is possible that there would have been an increase in participation in the current study had the researcher attended the schools; however, if the ultimate goal is to roll out play-based PE across England following a period of teacher training, the programme needs to run without researcher input. Lastly, only four participants took part in these interviews, while they have provided valuable information from the perspective of parents in England, the number of participants was smaller than ideal.

8.5 Conclusion

To conclude, physical capability was not an issue for parents, and there was a mixed response regarding confidence and knowledge. Despite this, some parents were motivated to use the booklet in supporting PE at home, while for other parents, barriers such as having multiple children, time, work and space prevented their ability to use the booklet. While the intervention was created to increase communication from the school, an issue mentioned in both studies, from these interviews this did not happen. As a result, again, lack of communication was a barrier parents felt. Furthermore, the communication problems alongside continuous cancellation of PE, have caused parents to feel that PE is not valued in

their child's school. Similarly to data from Chapter 5, parents had a positive view on play-based PE, and some felt that the booklet was a great idea.

Chapter Nine: General Discussion and Conclusions

9.1 Introduction

The research studies in this thesis explored the following three main aims using qualitative and quantitative methods:

- a) To better understand the factors that influence parents to support their child's PA and PE at home.
- b) To understand what influences teachers' and teaching assistants' confidence in teaching/supporting PE.
- c) To assess the acceptability and feasibility of a play-based PE programme in Key Stage One lessons (ages 5-7).

This chapter summarises the main findings reported within this thesis, highlighting the importance of these findings and areas for future research. However, due to the interconnectedness between the chapters and studies, rather than providing a summary of each chapter, a summary will be provided for the three areas of research: 1) parental perception of physical activity, PE and play-based PE; 2) teachers perception of physical activity, PE and play-based PE; and, 3) acceptability and implementation of play-based PE.

9.1.1 *Parents' Perception of Physical Activity, PE and Play-based PE*

9.1.1.1 Physical activity

Parental perception of and ability to support physical activity were explored in Chapters 4 and 7; this included their knowledge of the recommended guidelines for child physical activity, alongside facilitators and barriers they may face when supporting their child's physical activity. In Chapter 4, the group was larger and more diverse, and in Chapter 7, these factors were assessed using a theoretical framework, the COM-B model; despite this addition, the results from both chapters were highly similar. In Chapter 4, parents expressed concerns around the lack of promotion of physical activity from their child's school; they also felt that time, close enough services/environment, and money were significant barriers to them supporting their child's physical activity. Similarly, in Chapter 7, viewed through the lens of the COM-B model, parents expressed they were significantly more likely to have 'reflective motivation' and 'psychological capability' than 'social opportunity' (e.g. support from school) when supporting their child's physical activity. They also felt they had more 'psychological capability' than 'physical opportunity' (e.g. time, money). Additionally, most parents in both Chapters 4 and 7 did not correctly select the WHO physical activity guideline

recommendation for children their age; when provided with a multiple-choice question on these guidelines, 71% of parents answered incorrectly in Chapter 4, and 86% in Chapter 7.

Chapter 4 also explored predictors of child physical activity level and whether parents felt differently about the benefits gained from organised and non-organised physical activity. Caregiver physical activity level, caregiver ethnicity and child enjoyment of physical activity were all predictors of child physical activity level. Similar to Sport England's survey (Sport England, 2023), White parents deemed their children to have higher levels of physical activity compared to Black, Asian Minority Ethnic parents. Regarding organised and non-organised physical activity, parents felt that there were better mental health, physical health, social health and personal and academic development benefits from play-based activities compared to skill-based activities.

9.1.1.2 PE

In Chapter 5, parental childhood experiences of PE significantly affected parental perception of PE. In the questionnaire, parents deemed fun and teamwork as the most important attitudes and values PE should develop. This was further explored in the interviews, where there was a unanimous agreement, parents felt their child having fun was the most important thing to them. Unfortunately, in both Chapters 5 and 7, parents felt they needed more 'physical opportunity' (e.g. resources, space) and 'social opportunity' (e.g. support from school) to support their child's PE lessons at home. Parents also felt that the lack of communication was a great concern and resulted in many parents gaining information from their child on what they were learning; however, this was only if their child spoke to them about PE. In Chapter 5, 46% felt that they needed more information and support about PE, and this lack of communication also meant that not every parent knew who delivered their child's PE lessons.

9.1.1.3 Play-based PE

In the interviews (Chapters 5 and 8), inclusivity was heavily discussed as something they felt was important in PE. Their idea of inclusivity was the ability for all children, regardless of difficulties, to take part in PE in some way. Parents received the idea of play-based PE positively and felt that it centred around the children and allowing them to learn without feeling like they are learning. They felt it would have various benefits such as learning to play with others, emotional control, problem solving, confidence, and creativity, as well as physical benefits. However, parents' understanding of what play-based PE would entail

differed, while one parent felt that it would cause children to fall behind on learning fundamental movements, another felt that it could include the use of screen-based activities. They also mentioned that it could take away the aspect of competitiveness and some wanted their child to not miss out on playing traditional sports.

When considering the school, parents felt that time restrictions, as well as lack of resources and knowledge could be barriers. The main barriers parents felt towards supporting play-based PE at home were space, time, and resources. Overall, all parents were happy to support play-based PE at home, but like previously mentioned they require support from the school. This could be in the form of communicating what is being done during the term, as well as resources that parents can use at home. These resources need to be accessible and doable for parents who may have a small indoor space, multiple children of different ages, lack of outdoor environment such as a park, lack of knowledge on what to do and for parents who may not enjoy being physically active themselves.

9.1.2 Teachers' and Teaching Assistants' Perception of PE and Play-based PE

9.1.2.1 PE

When questioned about confidence in teaching PE to meet the government guidelines (Chapter 6), those that stated they were confident mentioned that experience, their degree, passion for sport, and having experience of CPD were the reasons for this. Additionally, teachers' physical activity level was positively correlated with their confidence level to teach PE. On the other hand, those who were somewhat confident mentioned that the lack of training/guidance and only delivering one PE lesson as reasons for their confidence level. However, the use of sports coaches, having a sports degree, and training in PE were not statistically significant in affecting confidence. Just over half of the teachers and teaching assistants in Chapter 6 indicated they did not feel equipped in teaching or supporting inclusive PE. With 29% of the teachers stating they did not feel supported by their PGCE regarding PE and 33% feeling somewhat supported.

Similarly, in Chapter 7, teachers were more likely to feel 'reflective motivation' and have 'psychological capability' compared to 'physical' and 'social opportunity' to deliver high quality PE, suggesting that their knowledge was not an issue for them. However, it is important to take into consideration that the teachers from the intervention study in Chapter 7 were from two schools from the Southwest of England. Therefore, it is possible that the teachers from these two schools feel more psychologically capable to teach high quality PE in

comparison to other schools. Furthermore, perceptions of high-quality PE could differ, while teachers in Chapter 6 were specifically asked about inclusive PE, which is a part of high quality PE, teachers in Chapter 7 were asked about high quality PE as a whole.

In Chapter 6 those who were confident in seeking help felt that their school was supportive; 47% of participants strongly felt that PE met the curriculum in their school and that their school viewed PE as important. Furthermore, 63% stated that their school invites external coaches, 57% mentioned their school focuses on sports, and 67% of participants stated they were not required to do refresher courses for PE and INSET days were not focused on PE. Notably, the majority (80%) of participants did not feel that PE was being pushed as an important part of the curriculum by the government. Nonetheless, all participants felt that PE is an important part of the curriculum, and that PE is important for children's wellbeing. Furthermore 87% felt that PE is as important as English, mathematics and science.

9.1.2.2 Play-based PE

Overall, the participants were receptive to the idea of play-based PE. Over half felt that training in BOING would be beneficial, and collectively the majority felt that PE sessions like BOING would be inclusive, benefit child wellbeing and would be enjoyable. However, several resources were seen as barriers, these included equipment, space, and finance for training, two of which could be supported using the sports Premium. The National Curriculum was also seen as an issue. It is however unclear how teachers in the intervention study, Chapter 7, felt about play-based PE due to no participation in the post-questionnaire and focus groups / interviews.

9.1.3 *Acceptability and Implementation of Play-based PE.*

While there is pre-questionnaire data, the absence of both post-intervention questionnaire and interview data has resulted in a lack of understanding from the teachers and schools' perspective as to what did and did not go well with the intervention, and how it could be improved to support them better. Despite parents and teachers both expressing positive views about play-based PE in studies one and two (Chapters 5 and 6), the same concerns raised in those studies by parents were then raised again in the intervention study during the interviews (Chapter 8).

9.2 Broader Implications

The current body literature addressed in this thesis, that explores parents and teachers in the context of PE and physical activity, encompasses many countries, curricula and are predominantly based pre-pandemic. Therefore, it was necessary to conduct studies one and two (Chapters 4-6) to provide context specific to England and post-pandemic. This thesis provides up to date data on parents and teachers current perception of the importance of PE and physical activity.

9.2.1 Perception of the Importance of PE and Physical Activity

Both parents and teachers expressed that PE and physical activity are important. Parents understand that the experience their child has in PE can affect their future physical activity level due to their personal experiences (Lago-Ballesteros et al., 2019). Therefore, they want to support their child's PE at home but need help. Many parents expressed that they are unaware of what their child learns in PE and that the lack of communication from their child's school is a significant barrier to supporting PE at home. Understanding how to provide parents support is important, as teachers and teaching assistants believe parental involvement in PE is important for children's physical activity level. Teachers and teaching assistants agree that PE is important for children's well-being, with the majority expressing that PE is as important as the core subjects. However, not all the teachers or teaching assistants believe PE is being pushed by the government as an important part of the curriculum. Furthermore, parents expressed the lack of value placed on PE by their child's school (Coulter et al., 2020; Sheehy, 2006).

Regarding physical activity, parents and teachers had a favourable view of physical activity. Parents also viewed play-based activities as more beneficial for their child's well-being than skill-based activities. However, like previous literature, most parents in this thesis did not know the correct guidelines for their child's physical activity level, although no difference was found based on ethnicity in this thesis (Sawyer et al., 2014). Despite this not being statistically significant in this thesis, as previous literature has stated, this lack of knowledge could be concerning as parents may use other measures to check whether their child is physically active enough (Bentley et al., 2012). As a result, children could believe that physical activity is all about weight, given parents' influence on children's attitudes towards physical activity (Edwardson & Gorely, 2010; Trost & Loprinzi, 2011). Therefore, it is important to ensure that parents are aware of the guidelines for child physical activity level,

the benefits of being physically active and ways in which they can support their child in being active.

It is also necessary to further explore why caregiver physical activity is a predictor of child physical activity. White parents perceive their children to be more physically active than non-White parents. This perception aligns with the results of other studies, which have found differences in physical activity levels based on ethnicity, with minority ethnic groups being less physically active (Moore, Vernon, et al., 2023; Sport England, 2023a). However, the reasons behind this predictor remain unclear, presenting an opportunity for future research. Ultimately, parents and teachers view PE and physical activity as important. Teachers and teaching assistants believe that parental involvement in PE is important, and parents are willing to support their child's PE at home but require help from schools to do so.

9.2.2 The Importance of Inclusivity in PE, and the Acceptability of Play-based PE

In addition to believing PE is important, parents were also very clear on the significance of inclusivity in PE. Inclusivity is important because PE can also provide children with the opportunity to try out various activities, the opportunity to participate in leisure time physical activity or try different sports and activities (Ekblom-Bak et al., 2018). They believe that the current form of PE is less inclusive and could result in children comparing themselves amongst one another. Furthermore, fun and enjoyment, teamwork and their child liking the activity were the most important attitudes, values and character development parents felt their child should learn from PE. Enjoyment, alongside confidence and motivation are also aspects key stakeholders and children value in supporting physical activity participation (Duncan et al., 2022; Morris et al., 2022), whereas competition with others was the least important for parents. Though competition can have both positive and negative contributions, students have previously emphasised their preference for not focusing on the winning and losing aspect of competition (Beni et al., 2017). With the current nature of PE being sport-focused, winning and losing is a large aspect of it, and so PE as it is currently is potentially lacking inclusivity (O'Connor et al., 2012).

On the other hand, parents felt that play-based PE was a great way to teach, as it felt more inclusive. Thus, reinforcing the previous literature that suggests play-based PE would be inclusive and fun (Jefferson-Buchanan, 2022; Klein & Beach, 2023). Ultimately, they were happy with the idea of their child being taught play-based PE. However, half of the teachers and teaching assistants indicated they did not feel equipped to teach inclusive PE. Teacher

training courses are known to not provide sufficient information or preparation to carry out effective inclusive PE lessons (Sharma & Sokal, 2015). Despite this, just over half felt that training on play-based PE would be beneficial, with the majority also believing that play-based PE would be inclusive, beneficial to children's wellbeing and that children would enjoy it. Overall, there was a positive response to play-based PE from both teachers and parents, and the results from this thesis provide novel insight into parent's receptiveness to play-based PE in their child's school.

9.2.3 The Feasibility of Play-based PE in Primary Schools

However, despite the receptiveness and enthusiasm towards play-based PE, implementing this approach in schools proves to be difficult. A few studies have found a positive implementation of non-linear pedagogical approaches using interventions (Crotti et al., 2021; Moy et al., 2016). Though, when taking a more 'hands-off' approach, the intervention in this thesis found opposing results. Some of the obstacles faced could have been mitigated had the researcher been more directly involved; for example, being present in the PE sessions or directly recruiting teachers and parents in the schools. These approaches would have been similar to the literature that has found positive outcomes; however, it would be difficult to replicate that level of attention and time to future schools who would want to implement this intervention. The results from this thesis also show that a single CPD session does not seem to address the core issue, despite teachers and teaching assistants wanting more training. Furthermore, a 'hands-off' approach does not work when wanting to implement change in primary schools. Though, whether this is due to the research aspect or content of the intervention is not clear.

As discussed across this thesis, there are many cultural and systemic issues surrounding PE that can affect implementation of play-based PE in primary schools. However, suggestions have been made based on these problems. Firstly, changing the status for PE, if the overarching issue stems from PE not being valued, then changing it to a core subject could be a starting point (Hooper et al., 2023). This could also help parents and teachers feel that PE is valued in schools and by the government. As discussed earlier, parents and teachers in this thesis do not feel this is the case. Understanding the potential benefits and risks of making PE a core subject, from the perspective of key stakeholders could help start the process of dealing with the systemic issues relating to the value placed on PE. Secondly, consideration for who is teaching PE (Blair & Capel, 2011; Griggs, 2018; Smith, 2015). This thesis has found that the more physically active teachers and teaching assistants view

themselves, the more confident they are in teaching/supporting PE. Not every generalist teacher is going to enjoy being physically active, but every generalist teacher is required to teach PE. Though, notably, coaches are currently being used to teach PE lessons by many schools, despite some growing concerns (Blair & Capel, 2011; Griggs, 2018; Smith, 2015). Regardless, given the impact experiences in PE can have on lifelong physical activity behaviour, consideration needs to be given as to whether specialist PE teachers should take over. As these are individuals who have chosen to specialise in PE due to their interest, and enjoyment of the subject.

9.3 Strengths and limitations

9.3.1 *Ethnic Diversity*

The first notable strength of this thesis is the achievement of ethnic diversity. Many studies focusing on the parental perspective of physical activity and PE lack participant ethnic diversity, making them difficult to generalise. Therefore, despite some of the results in this thesis being similar to previous literature, the participant pool was more ethnically diverse and representative of the population in England. Thus, the results are more generalisable than other research in England and internationally. For example, while previous literature has found differences in knowledge of the WHO guidelines by ethnicity, no statistical significance was found in this thesis. This is suspected because other studies, such as Sawyer et al. (2014), had 5% in their Ethnic Minority Group compared to Chapter 4, where 38% of the participants were not White.

9.3.2 *Mixed Methods Design*

The use of a mixed methods design throughout this thesis is also a strength, with one study using an explanatory sequential mixed methods design. The studies in this thesis provide rich quantitative and qualitative data, reinforcing findings from previous literature and new research on parents and teachers in England's views on the use of play-based PE in primary schools. Furthermore, the results from studies one and two (Chapters 4-6) directly informed the creation of the intervention. This process was guided by what parents and teachers suggested in the first two studies. However, using a mixed methods design also created some limitations regarding participant numbers, as participants for the interviews were taken from those who took part in the questionnaires.

9.3.3 Ecological Validity

Another strength of this thesis is the focus on the ecological validity of the intervention. This emphasis was crucial to ensure that the intervention results could be widely replicated. However, this focus also led to a small number of participants in the pre-questionnaire and a minimal (unusable) number of participants in the post-questionnaire. Furthermore, this approach ensured minimal to no contact with participants, as all the recruitment was left to the gatekeepers in schools A and B. This could be a limitation and have contributed to the lack of participants, as no rapport was built with them, and the study may not have been fully explained to them. The lack of post intervention questionnaire data from both parents and teachers, and the loss of data from teacher interviews changed the nature of the study.

9.4 Reflections

The first two studies, focusing on parents' and teachers' perspectives of PE and physical activity went to plan, despite the lack of teacher interviews. However, adaptations were made to the final study. Through the first two studies, it became clear that the focus should be on the feasibility and acceptability of play-based PE implementation by teachers and parents, rather than comparing play-based PE and traditional PE. This was due to the results of the first two studies, where it became clear that parents and teachers required more support. Therefore, exploring the feasibility and acceptability of a play-based approach to PE from the perspective of teachers and parents was more important at this stage. By conducting the research in this thesis through a pragmatic approach, there were many challenges and lessons learnt.

Firstly, upon reflection on studies one and two (Chapters 4-6), due to them being conducted across England, there was heavy reliance on remote digital outreach. While this has its benefits, given that there was always the hope to work with schools for the final study, more focus could have been placed on building rapport with schools at this stage, including the staff and parents. This may have helped with teacher engagement both in the second and final study. Furthermore, there was knowledge of the potential challenges in recruiting teachers and overall teacher engagement; therefore, if there are future studies with teachers and/or schools of this nature, more time and emphasis must be placed on gaining the trust of the teachers through in-person site visits and engagement directly with teachers where permissible.

Secondly, ensuring that participants are asked whether they would like to be informed of any publishing of study outcomes through infographics, papers, or podcasts, for example, is something that I would do in the future. It is important to ensure that participants feel valued, that they can get something out of the research, and that they are not just another number or person. To do this though, it is important to think about this at the stage of ethical approval applications.

Lastly, and more specifically to the final study, the intervention. The use of a pragmatist research paradigm resulted in deliberately structuring the intervention to mimic real world implication, in this case primary PE in school and at home. Due to this, no changes would be made. However, in light of the lack of data gathered, should the study be conducted again, schools would be visited to provide staff with a presentation explaining the rationale for the study being conducted. In addition, emphasis would be placed on ensuring all staff understood that all data is welcome and helpful, irrespective of whether they are positive or negative. While gathering data in realistic settings is important, it is also necessary to provide the participants with as much information as possible and the chance to ask questions.

9.5 Future Research

For physical activity, future research could focus on why ethnicity is a predictor of child physical activity in England. Currently, it is not known why ethnicity is a predictor, it could be due to cultural differences in parent-child interaction or parenting styles (Beets et al., 2010). Further studies exploring the potential reasons for this difference could be beneficial for ensuring all children and families are supported in the best way possible. This could be done specifically to the context of England, as cultural differences between countries is one aspect, but there would also be cultural differences within England due to its diversity.

School communication with parents should also be further explored, particularly understanding why schools are not communicating. Research in primary schools with a more hands on approach could provide greater participation in the research from teachers and headteachers. The focus should be on barriers schools may be facing with communicating with parents, and to see whether this is specifically with PE or across many subjects.

Additionally, further research into key stakeholders' views on the current status of PE in the National Curriculum in England, and whether it should become a core subject is needed. While there are many systemic issues that could be addressed, many stem from the value that is currently placed on PE as a subject in the National Curriculum. Understanding key

stakeholders' views on PE being a core subject, both positive and negative, is important, as the National Curriculum has not changed in over a decade. While this thesis has explored the use of play-based PE, implementation of an approach like this would be difficult without addressing the systemic issues first.

9.6 Conclusion

To conclude, the data from this thesis provides novel insight into parents, teachers and teaching assistants receptiveness to play-based PE in primary schools in England. It also shows that parents and teachers perceive PE to be important, with parents understanding the effects of experiences in PE on long-term physical activity behaviour. Additionally, it highlights the barriers parents are currently facing when supporting PE at home, as well as their willingness to support PE at home. One huge barrier being lack of communication from schools, despite teachers believing parental involvement in PE is important. Though previous literature has found similar results, much of the data is pre-covid and with a predominantly White participant group. On the other hand, this thesis provides insight from an ethnically diverse group of participants and in a post-pandemic environment. Furthermore, the results on parental knowledge of physical activity guidelines for children showed that there is not statistical difference based on ethnicity, which contradicts what previous literature has found, this is due to the study in this thesis being considerably more ethnically diverse. As a result, this is also a unique contribution to the field. Regarding teachers, the data from this thesis indicates that teachers somewhat confident in teaching PE, when compared to what previous literature suggest, and despite the use of external providers such as coaches. Although, teachers are less confident in teaching inclusive PE, which was the main goal of implementing play-based PE. This would indicate that more work needs to be done on providing teachers with resources and support to create an inclusive environment for all children in their PE class. While large systemic issues have also been addressed, suggestions from other researchers have been highlighted and discussed using the data from this thesis.

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Better Peer Play Ability at Age 3 Years Predicts Lower Risks of Externalising and

Internalising Problems at Age 7 Years in a Longitudinal Cohort Analysis. *Child Psychiatry*

& Human Development. <https://doi.org/10.1007/s10578-022-01368-x>

Appendices

Appendix 1: Study one parent questionnaire

Q0 Please ensure the main caregiver of the child is answering this questionnaire. If you have more than one child please fill this questionnaire out for your eldest child. You are more than welcome to fill out separate questionnaires for you remaining children as well should you wish.

Q1 Who is the main person filling out this form? (select one)

- Mother (1)
 - Father (2)
 - Other female adult (3)
 - Other male adult (4)
-

Q2 Are you the main caregiver for the child in question?

- Yes (1)
 - No (2)
-

Q3 What is your Ethnicity?

- English/ Welsh/ Scottish/ Northern Irish/ British (19)
 - Irish (2)
 - Gypsy or Irish Traveller (3)
 - Any other White Background (4)
 - African (5)
 - Caribbean (6)
 - Any other Black / African / Caribbean background (7)
 - Indian (8)
 - Pakistani (9)
 - Bangladeshi (10)
 - Chinese (11)
 - Any other Asian background (12)
 - White and Black Caribbean (13)
 - White and Black African (14)
 - White and Asian (15)
 - Any other mix/multiple ethnic backgrounds (16)
 - Arab (17)
 - Any other Ethnic group (18)
-

Q4 How old are you?

Page _____
Break

Q5 What is your child's gender?

- Male (1)
 - Female (2)
 - Non-binary (3)
 - Prefer to self describe (4)
-

- Prefer not to say (5)
-
-

Q6 What is your child's age?

Q7 What year is your child in?

- Reception (1)
 - Year 1 (2)
 - Year 2 (3)
 - Year 3 (4)
 - Year 4 (5)
 - Year 5 (6)
 - Year 6 (7)
-
-

Q8 What is your child's Ethnicity?

- English/ Welsh/ Scottish/ Northern Irish/ British (19)
 - Irish (2)
 - Gypsy or Irish Traveller (3)
 - Any other White Background (4)
 - African (5)
 - Caribbean (6)
 - Any other Black / African / Caribbean background (7)
 - Indian (8)
 - Pakistani (9)
 - Bangladeshi (10)
 - Chinese (11)
 - Any other Asian background (12)
 - White and Black Caribbean (13)
 - White and Black African (14)
 - White and Asian (15)
 - Any other mix/multiple ethnic backgrounds (16)
 - Arab (17)
 - Any other Ethnic group (18)
-

Q9 Does the child you are filling this questionnaire out on behalf of, have a physical disability or a learning disability, which affects their capacity to participate in certain physical activities?

Yes (please specify) (1)

No (2)

Page
Break

Q10 Do you have any physical or mental health difficulties that you feel prevent you from being as physically active as you would like to be?

Yes (1)

No (2)

Q11 Do you feel that those difficulties mean that you can't encourage your child to be physically active?

Yes (1)

No (2)

Q12 Area of residence: This question refers to the permanent area of residence or city you live in. Would you describe the place you live in as? (please tick relevant box)

A big city (more than 500,000 inhabitants) (1)

Suburbs or outskirts of city (less than 500,000 inhabitants) (2)

Town (less than 50,000 inhabitants) (3)

Village / rural area (less than 5,000 inhabitants) (4)

Q13 What is the highest level of education you have completed (if you completed this outside the UK please pick an equivalent)? (select one only)

- None (1)
 - Primary school (2)
 - Higher or secondary or further education (A-level, BTEC, etc) (3)
 - Undergraduate degree (4)
 - Post-graduate degree (5)
 - Prefer not to say (6)
-

Q14 Is your child eligible for Free School Meals?

- Yes (1)
 - No (2)
-

Page
Break

Q0 The following questions will be asking you about the government guidelines for physical activity and both you and your child's physical activity level.

Q15 How many minutes per day of vigorous – moderate activity do the government guidelines suggest is a minimum for children.

- At least 60min and up to several hours every day (1)
 - At least 60 min and up to several hours a week (2)
 - For at least 30 minutes and up to several hours every day. (3)
 - For at least 30 minutes and up to several hours a week. (4)
-

Q16 In the past **week**, on how many days has **your child** done a total of 60 minutes or more of physical activity throughout the day, which was enough to raise their breathing rate?

This may include skipping, playing with pets, cycling/walking/scooting to school but should not include activity at school.

- 0 days (1)
 - 1 day (2)
 - 2 days (3)
 - 3 days (4)
 - 4 days (5)
 - 5 days (6)
 - 6 days (7)
 - 7 days (8)
-

Q17 In the past **week**, on how many days have **you** done a total of 30 mins or more of physical activity throughout the day, which was enough to raise your breathing rate? This may include sport, exercise and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that is part of your job.

- 0 days (1)
 - 1 day (2)
 - 2 days (3)
 - 3 days (4)
 - 4 days (5)
 - 5 days (6)
 - 6 days (7)
 - 7 days (8)
-

Q0 I would like to know about your child's Physical Education lessons in school. Sometimes it is referred to PE or 'gym' and should not be confused with after school activities or school team competitions or training.

Q18 To your knowledge has your child done any of the following activities during PE as a tester or part of the class? Please select all that apply

- Athletics – (e.g. running, jumping and throwing) (1)
 - Aquatics – (e.g. swimming) (2)
 - Dance – (e.g. creative dance) (3)
 - Games – (e.g. throwing, catching, kicking, striking, team games, football, netball, tag rugby) (4)
 - Gymnastics – (e.g. travel, jumping, rolls and balance) (5)
 - Outdoor and Adventure – (e.g. walks, treasure hunts, challenges, orienteering, canoeing) (6)
 - I don't know (7)
-

Page _____
Break

Q0 I am interested in whether you think that your child's school supports physical activity and keeps you informed about what opportunities are available.

Q19 Your child's school provides enough lesson time each week for PE and other physical activity?

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q20 Your child's school provides enough opportunities outside of lesson time for sport and physical activity for its pupils?

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q21 How important is physical education in your child's school, in your opinion?

- Very important (5)
 - Important (4)
 - so-so (3)
 - Unimportant (2)
 - Very unimportant (1)
-

Q22 Do you think your child's Physical Education lessons should be assessed and a grade given?

- Yes (1)
 - No (2)
 - I don't know (3)
-

Q23 Are you aware of what your child is learning in Physical Education?

- Yes (1)
 - No (2)
-

Page _____
Break

Q24 I am pleased with my child's Physical Education Programme

- Yes (1)
 - No (2)
-

Q25 Do you think your child's PE lessons are appropriate for your child's needs?

Yes (1)

No (2)

Q26 Do you feel you need more information/support about Physical Education?

Yes (1)

No (2)

I feel that Physical Education is the schools' job (3)

Q27 Do you feel you need more information to support your child in Physical Activity?

Yes (1)

No (2)

I feel that Physical Activity is the schools' job (3)

Page
Break

Q28 Of the following options, pick the three you feel are most important to your child's physical education and rank them 1st, 2nd and 3rd by entering 1, 2 and 3 in the box next your chosen options (you only need to do this for three of them).

- _____ Sportsmanship and respect for rules and officials (1)
 - _____ Fun and enjoyment (2)
 - _____ Teamwork (being a member of a group, belonging, leadership, cooperation, sharing, etc) (3)
 - _____ Competition (challenging others) (4)
 - _____ Competition (challenging self) (5)
 - _____ Reduce stress (let off steam) (6)
 - _____ Liking activity and wanting to be active (7)
 - _____ Participating in class (8)
 - _____ Other (please specify) (9)
-

Q0 Skills and activities and taught in physical education. What do you think are the most and least important for your child?

Q29 Of the following options, pick the three you feel are most important to your child's physical education and rank them 1st, 2nd and 3rd by entering 1, 2 and 3 in the box next your chosen options (you only need to do this for three of them).

- _____ Fitness and health related fitness activities (1)
 - _____ Games (cooperative games, relays and recreational) (2)
 - _____ Team games (basketball, hockey, football) (3)
 - _____ Individual sports (athletics, tennis etc) (4)
 - _____ Gymnastics and tumbling (5)
 - _____ Dance (folk and creative) (6)
 - _____ Swimming and water confidence (7)
 - _____ Outdoor activities (orienteeing, group challenges) (8)
 - _____ Other,(please specify) (9)
-

Q0 Now I would like to know how your child feels towards Physical Education. Please answer these questions on behalf of your child.

Q30 How much does your child enjoy physical education classes at school?

- Un-enjoyable (1)
 - Somewhat un-enjoyable (2)
 - Neutral (3)
 - Enjoyable (4)
 - Very enjoyable (5)
-

Q31 What is your child's attitude to Physical Education?

- Positive (3)
 - Neutral (2)
 - Negative (1)
-

Q32 How much does your child enjoy physical activity outside of PE? (remember physical activity is anything that makes your child's breathing rate increase, but does not include anything they do during school hours). This may include skipping, playing with pets, playing in the park, cycling/walking/scooting to school.

- Un-enjoyable (1)
 - Somewhat un-enjoyable (2)
 - Neutral (3)
 - Enjoyable (4)
 - Very enjoyable (5)
-

Q33 What is your child's attitude to physical activity?

Positive (3)

Neutral (2)

Negative (1)

Page
Break

Q0 Please answer the following questions based on how YOUR views of Physical Education.

Q34 Ideally I think my child's physical education lessons should improve fitness

Definitely yes (5)

Yes (4)

Somewhat (3)

No (2)

Definitely no (1)

Q35 Ideally I think my child's physical education lessons should teach team sports skills

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q36 Ideally I think my child's physical education lessons should teach them to play team sports

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q37 Ideally I think my child's physical education lessons should teach individual sports

- Definitely yes (5)
- Yes (4)
- Somewhat (3)
- No (2)
- Definitely no (1)

Q38 Ideally I think my child's physical education lessons should teach them to play individual sports

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q39 Ideally I think my child's physical education lessons should teach dance skills

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q40 Ideally I think my child's physical education lessons should teach recreational games

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q41 Is there anything else you feel your child's physical education lessons should include?

Page
Break

Q42 What my child's physical education lessons actually do is improve fitness

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q43 What my child's physical education lessons actually do is teach team sports skills

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q44 What my child's physical education lessons actually do is teach them to play team sports

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q45 What my child's physical education lessons actually do is teach individual sports

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q46 What my child's physical education lessons actually do is teach them to play individual sports

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q47 What my child's physical education lessons actually do is teach dance skills

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q48 What my child's physical education lessons actually do is teach recreational games

- Definitely yes (5)
 - Yes (4)
 - Somewhat (3)
 - No (2)
 - Definitely no (1)
-

Q49 Is there anything else your child's physical education lessons actually do?

Page
Break

Q50 PE is a waste of time

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q51 PE is as important as English, Maths and Science in schools

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q52 I had a good experience of PE

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q53 I think PE is a worthwhile subject in school

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Page _____
Break

Q0 The following questions are going to ask about your support with regards to your child's physical activity. We define support as encouraging your child's participation in physical activity, engaging in physical activity with your child, motivating your child to be physically active and/or praising your child when they are physically active. Remember physical activity is anything that makes your child's breathing rate increase, but does not include anything they do during school hours.

Q54 I model physical activity for my child by being physically active myself

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q55 I try to be physically active in front of my child, even if I do not enjoy it

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q56 I try and show enthusiasm about physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q57 I show my child how much I enjoy being physically active

- Strongly agree (5)
- Agree (4)
- Neither agree nor disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q58 I frequently exercise or do something active with my child for example organising family outings that involve physical activity (going for a walk or a bike ride, going ice skating).

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q59 I encourage my child to be physically active

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q60 I also encourage my child to try a variety of different activities (e.g tree climbing, walking, swimming, playing in the park)

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q61 I praise my child when they are physically active

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q62 I consider myself a supportive parent for my child's physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Page
Break

Q0 These next set of questions will ask about your child's physical activity outside of school, your views on organised (skill based) and non-organised (play based) physical activity and how these affect your child's wellbeing ("a state of complete physical, mental and social well-being"). An example of organised physical activity is sports, an example of non-organised physical activity is playing in the park.

Q63 I make sure that my child travels actively on foot or by bicycle (with or without me) as often as possible.

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q64 I believe it is more beneficial for my child to take part in physical activity with a qualified coach than with me.

- Strongly agree (5)
- Agree (4)
- Neither agree nor disagree (3)
- Disagree (2)
- Strongly disagree (1)

Q65 What do you feel your child would gain from **organised physical activity** (please tick all that apply)

- Sportpersonship and respect for rules and officials (1)
- Fun and enjoyment (2)
- Teamwork (being a member of a group, belonging, leadership, cooperation, sharing, etc) (3)
- Competition (challenging others) (4)
- Competition (challenging self) (5)
- Reduced stress (let off steam) (6)
- Reduced anxiety (7)
- Liking activity and wanting to be active (8)
- Improved wellbeing (9)
- Friendships (10)

- Social skills (11)
- Confidence and self esteem (12)
- Resilience (13)
- Discipline (14)
- Self defence (15)
- Improved concentration (16)
- Improved academic performance (17)
- Improved communication skills (18)
- Improved coordination / motor skills (19)
- Improved physical health (20)
- Improved mental health (21)
- Organisational skills (22)
- Other (23) _____

Q66 What do you feel your child would gain from **non-organised physical activity** (please tick all that apply)

- Sportspersonship and respect for rules and officials (1)
- Fun and enjoyment (2)
- Teamwork (being a member of a group, belonging, leadership, cooperation, sharing, etc) (3)

- Competition (challenging others) (4)
- Competition (challenging self) (5)
- Reduced stress (let off steam) (6)
- Reduced anxiety (7)
- Liking activity and wanting to be active (8)
- Improved wellbeing (9)
- Friendships (10)
- Social skills (11)
- Confidence and self esteem (12)
- Resilience (13)
- Discipline (14)
- Self defence (15)
- Improved concentration (16)
- Improved academic performance (17)
- Improved communication skills (18)
- Improved coordination / motor skills (19)
- Improved physical health (20)
- Improved mental health (21)

Organisational skills (22)

Other (23) _____

Q67 Based on your answers of the previous two questions If there were no barriers (e.g. money, time), would you take your child to (Pick one):

Organised physical activity (1)

Non-organised physical activity (2)

Page
Break

Q0 We want to understand what prevents you from being physical activity with your child or encouraging your child to be physically active. Below are a few statements I would like you to read and select a response you agree with.

Q68 I am not physically able to support my child's physical activity

Strongly agree (5)

Agree (4)

Neither agree nor disagree (3)

Disagree (2)

Strongly disagree (1)

Q69 I am not emotionally able to support my child's physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q70 I do not have enough skill to support my child's physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q71 I do not have access to what I need to support my child's physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q72 I do not have enough time to support my child's physical activity in the way I want to

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q73 I do not have enough money to support my child's physical activity in the way I want to

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q74 I cannot access close enough services / environments to support my child's physical activity in the way I want to

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q75 Is there anything else that is not listed above that you feel prevents you from supporting your child's physical activity in the way in which you want to.

Page _____
Break

Q76 Would you like to enter the prize draw or interview?

- Yes I would like to enter the prize draw AND take part in the interview (1)
- Yes I would like to enter the prize draw (2)
- Yes I would like to take part in the interview (3)
- No I don't want to do either (4)

Skip To: End of Survey If Would you like to enter the prize draw or interview? No I don't want to do either

Q77 As you've answered yes either to one or both of the options above I am going to ask for your e-mail address. In order for you to understand how we use this information you can read a privacy notice for research participants by clicking [here](#).

If you are still happy to please enter you email address below

Appendix 2: Study one parent interview guide

Overarching beliefs about PE

1. Describe your own experiences of PE when you were at school yourself.

[Draw upon individual questionnaire response data as prompt]

2. In your view, is PE as important as the core subjects? And why? (Maths, English, Science)

[Prompt if they say it's not as important, ask how they would feel if it was taken out of the curriculum]

Satisfaction and dissatisfaction

3. Tell me more about why you are satisfied or dissatisfied with the PE your child is currently receiving?

[Draw upon individual questionnaire response data as prompt]

4. What do you currently like about your child's PE lessons?

5. In your view what would make PE better for your child?

Sub theme questions from open text responses

(wellbeing, fun, life skills, sports/activities to include in PE, teacher support)

6. Do you feel that your child's PE lessons currently supports their wellbeing?

[Provide definition of wellbeing: Wellbeing is a part of health, it consists of 3 components: physical, psychological, and social.]

7. How important is your child having fun in PE to you? Why?

8. What life skills do you think your child should be learning in PE, and how important is that?

[Prompt about age, would it be different depending on their child's age]

9. Apart from the current activities your child does, what other activities would you include in PE?

[Prompt about age, would it be different depending on their child's age]

Quality of teaching

10. Who delivers your child's PE lessons?

11. What do you think about the quality of teaching when it comes to PE?

[Prompt about support and encouragement of the PE teacher depending on their answer]

12. Do you feel you know enough about what's going on in PE?

13. Does your child's school provide information on how to support what your child does in PE at home? If so, how helpful is this information

[If they say the school doesn't (or if the information is not helpful), then ask would they find it useful if their child's school did]

[Might need to prompt about PA if they say no about PE, because some schools might provide stuff on PA rather than PE specifically]

Play-based approach for PE

A play-based approach includes playful, active, and inclusive spaces that develop children's movement and social skills, allowing them to be the best version of themselves through the power of play. It lets children be children by embracing their imagination. It provides children with the tools they need to explore the world around them and solve problems in a fun way. Children are taught fundamental movement such as balance using games.

14. Based on the statement that I just read, do you feel this is the type of PE your child does at school?

[sub question – Do you feel that this type of PE would be better suited for your child?]

15. What are the potential benefits and the potential problems you feel would occur with this type of PE?

16. Do you feel that this type of PE would be appropriate for all year groups? – probe to explain more

17. Would you feel able to support play-based PE activities such as this at home? If not, what would you need in terms of support?

Appendix 3: Study one NVivo raw data

Name	Files	References	Created on	Created by
BARRIERS TO EFFECTIVE PE	7	12	17/02/2023 10:50	FG
Barriers school face	2	2	01/02/2023 18:49	FG
Reality of PE	1	1	01/02/2023 18:49	FG
School resources	5	7	01/02/2023 18:49	FG
Swimming barrier	1	1	01/02/2023 18:49	FG
CHILD DEVELOPMENT	8	51	01/02/2023 18:49	FG
Current PE lessons support child's overall wellbeing	7	11	01/02/2023 18:49	FG
Life skills kids should be learning in PE	6	9	01/02/2023 18:49	FG
PHYSICAL	1	2	17/02/2023 13:28	FG
Motor skills	1	2	01/02/2023 18:49	FG
PSYCHOLOGICAL	7	21	17/02/2023 13:28	FG
Being able to follow instructions	1	1	01/02/2023 18:49	FG
Build confidence and self efficacy	4	4	01/02/2023 18:49	FG
Children learning to understand their body	1	2	01/02/2023 18:49	FG
Learning to lose	2	3	01/02/2023 18:49	FG
Participation matters over winning	1	2	01/02/2023 18:49	FG
PE is good for emotional development	2	3	01/02/2023 18:49	FG
Perserverance	1	1	03/02/2023 17:47	FG
resilience and problem solving should be taught from young	1	5	01/02/2023 18:49	FG
SOCIAL	6	8	17/02/2023 13:28	FG
Learning to play with others	5	7	01/02/2023 18:49	FG
PE helps with social wellbeing	1	1	01/02/2023 18:49	FG
CHILD'S EXPERIENCE OF PE	6	13	17/02/2023 10:50	FG
Child enjoys PE	5	10	01/02/2023 18:49	FG
Difference in the way girls and boys are treated	1	1	01/02/2023 18:49	FG
Personal barriers children may face	2	2	03/02/2023 15:40	FG
COMMUNICATION	8	40	01/02/2023 18:49	FG
Biweekly reports	1	1	01/02/2023 18:49	FG
Child	7	14	01/02/2023 18:49	FG
Communication during pandemic	2	2	17/02/2023 13:40	FG
Lack of school communication	7	15	01/02/2023 18:49	FG
Parents learn about PE through other parents	1	2	01/02/2023 18:49	FG
School provide initial information	1	2	01/02/2023 18:49	FG
Schools rely on children to inform parents about what happens in PE	2	2	01/02/2023 18:49	FG
DELIVERY OF PE	8	29	01/02/2023 18:49	FG
Disorganised	1	1	03/02/2023 12:18	FG
External coach focuses on sports	3	3	03/02/2023 12:13	FG
Not happy with external coaches	1	4	01/02/2023 18:49	FG
Not sure who teaches PE	2	2	01/02/2023 18:49	FG
Staff and external coach	2	3	01/02/2023 18:49	FG
Structured	1	2	01/02/2023 18:49	FG
Teacher and support assistant	4	5	03/02/2023 12:16	FG
Use of external organisations	4	7	01/02/2023 18:49	FG
Want less focus on sports	2	2	01/02/2023 18:49	FG

Name	Files	References	Created on	Created by
INCLUSIVITY IN PE	5	13	17/02/2023 10:49	FG
Inclusivity in play-based PE	2	2	17/02/2023 13:46	FG
Parent's idea of inclusivity	3	11	01/02/2023 18:49	FG
PARENTAL CHILDHOOD EXPERIENCES OF PE	8	35	01/02/2023 18:49	FG
Competitive	1	1	03/02/2023 16:43	FG
Lacking	1	2	03/02/2023 16:47	FG
Negative	3	7	03/02/2023 16:40	FG
Negative view of team sports	1	1	03/02/2023 16:41	FG
Not being good at it	2	2	01/02/2023 18:49	FG
Not valued as much as core subjects	1	2	03/02/2023 16:48	FG
PE can have a negative effect on future physical activity participation	3	5	01/02/2023 18:49	FG
Positive	3	3	03/02/2023 16:39	FG
Previous negative experience had later impact	3	7	01/02/2023 18:49	FG
Previous positive experience had later impact	1	1	01/02/2023 18:49	FG
Sporty kid	2	2	03/02/2023 16:44	FG
Structured	1	2	01/02/2023 18:49	FG
PARENTS PERCEPTION OF THE IMPORTANCE OF PE	8	136	01/02/2023 18:49	FG
NEGATIVE	8	51	17/02/2023 10:40	FG
Alternative for when PE is cancelled	1	1	01/02/2023 18:49	FG
Not prioritised or valued by school	2	11	01/02/2023 18:49	FG
PE is less important than core subjects	3	7	01/02/2023 18:49	FG
Want more access to non-traditional activities	5	17	01/02/2023 18:49	FG
Want more PE	5	13	01/02/2023 18:49	FG
Worry about form being taught to kids	1	2	01/02/2023 18:49	FG
POSITIVE	8	85	17/02/2023 10:40	FG
Child having fun is important to parent	8	15	01/02/2023 18:49	FG
Childhood experience of PE is important for future physical activity	6	7	01/02/2023 18:49	FG
Competitiveness is important	2	3	01/02/2023 18:49	FG
Happy with the variety of activities in PE	3	3	01/02/2023 18:49	FG
It should teach things they can do at home	1	2	01/02/2023 18:49	FG
Neither satisfied nor dissatisfied with child's PE	1	2	01/02/2023 18:49	FG
Parent's background has shaped their view	4	12	01/02/2023 18:49	FG
Parents rely on school for their child's physical activity	1	2	01/02/2023 18:49	FG
PE is just as important as core subjects	5	11	01/02/2023 18:49	FG
PE teaches many skills if done right	1	1	01/02/2023 18:49	FG
Physical benefits of current PE	1	1	01/02/2023 18:49	FG
Quality of teaching in PE	7	10	01/02/2023 18:49	FG
Sports is important	3	3	01/02/2023 18:49	FG
Swimming	5	10	01/02/2023 18:49	FG
What they like about child's current lessons	2	2	01/02/2023 18:49	FG
Wouldn't be happy if PE wasn't part of curriculum	1	1	01/02/2023 18:49	FG

Name	Files	References	Created on	Created by
PLAY	3	19	14/04/2023 17:31	FG
Children enjoy play	1	1	01/02/2023 18:49	FG
Play can increase physical activity levels	1	1	01/02/2023 18:49	FG
Play important for young children	1	7	01/02/2023 18:49	FG
Real world application of play	1	5	01/02/2023 18:49	FG
Reception play	2	5	01/02/2023 18:49	FG
PLAYBASED PE	8	60	01/02/2023 18:49	FG
Appropriate age for play based PE	6	11	01/02/2023 18:49	FG
Child's current PE compared to play-based PE	3	4	01/02/2023 18:49	FG
Current PE has a play-based approach	5	7	01/02/2023 18:49	FG
Issue with play based PE	3	3	01/02/2023 18:49	FG
Parent barriers to supporting Play based PE	2	3	01/02/2023 18:49	FG
Parental ability to support play based PE at home	4	9	01/02/2023 18:49	FG
Parents view of play-based PE	6	6	01/02/2023 18:49	FG
Potential barriers to play-based PE	7	8	01/02/2023 18:49	FG
Potential psychological benefits	4	6	01/02/2023 18:49	FG
Staff should be taught play-based PE	1	3	01/02/2023 18:49	FG
PROMOTION OF PHYSICAL ACTIVITY	5	5	14/04/2023 17:00	FG
Camps and clubs	1	1	14/04/2023 17:01	FG
Starter pack	1	1	14/04/2023 17:03	FG
Walk to school week	3	3	14/04/2023 17:01	FG
SUPPORT	8	53	01/02/2023 18:49	FG
Adults fear of failing	1	1	01/02/2023 18:49	FG
Difference in home environment	2	3	01/02/2023 18:49	FG
Guidance for parents who may not enjoy physical activity or have the knowled	2	5	01/02/2023 18:49	FG
Guidance on dialogue for child motivation and enjoyment of physical activity	3	4	01/02/2023 18:49	FG
Guidance on level their child should be at for their age	1	4	01/02/2023 18:49	FG
Having a checklist like other subjects	2	4	01/02/2023 18:49	FG
More communication regarding PE for health and wellbeing	6	8	03/02/2023 14:01	FG
Not every child communicates about PE	2	2	03/02/2023 14:05	FG
Parents want guidance with PE	3	4	01/02/2023 18:49	FG
Providing face to face sessions	1	4	01/02/2023 18:49	FG
Providing parents with resources for home	6	11	01/02/2023 18:49	FG
Reassurance for parents	2	3	01/02/2023 18:49	FG
TEACHER	6	24	01/02/2023 18:49	FG
Approachability	1	1	01/02/2023 18:49	FG
Encouraging	2	2	01/02/2023 18:49	FG
Providing more support and training for teachers	2	8	01/02/2023 18:49	FG
Teacher confidence is important	1	2	01/02/2023 18:49	FG
Teacher knowing child is important	1	1	01/02/2023 18:49	FG
Teacher to student ratio	3	5	01/02/2023 18:49	FG
Teachers views and experience of PE is important	1	5	01/02/2023 18:49	FG

Name	Files	References	Created on	Created by
UNSURE	6	32	01/02/2023 18:49	FG
Child does sport outside of school	1	4	01/02/2023 18:49	FG
Children have no concept of time in PE	1	2	01/02/2023 18:49	FG
How often PE is done	2	3	01/02/2023 18:49	FG
Lack of play	1	2	01/02/2023 18:49	FG
less competitiveness	1	1	01/02/2023 18:49	FG
More outdoor physical activity	1	1	01/02/2023 18:49	FG
Parent doesn't read letters from school	1	1	01/02/2023 18:49	FG
Parent satisfied with child's PE	3	8	01/02/2023 18:49	FG
Parent supporting PE at home is important	1	1	01/02/2023 18:49	FG
Parent's enjoyment of physical activity influences child	1	3	01/02/2023 18:49	FG
Parents want information and help with PE and PA	1	2	01/02/2023 18:49	FG
Physical benefits of play based PE	1	1	01/02/2023 18:49	FG
Segregation in football	1	2	29/03/2023 20:29	FG
Why parent would speak to school	1	1	01/02/2023 18:49	FG

Appendix 4: Study two teacher questionnaire

Q0 Please answers questions below according to the normal standards before COVID.

The following questions will be regarding your qualifications, training and experiences.

Q1 Are you a qualified teacher or teaching assistant (TA)?

- Teacher (1)
 - Teaching Assistant (2)
-

Q2 What type of school do you work in?

- Private/independent (1)
 - State school (2)
 - Other (please specify) (3)
-

Q3 Is your school exclusively for SEND children?

- Yes (1)
 - No (2)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q4 Are you the PE coordinator in your school?

- Yes (1)
 - No (2)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q5 What year group do you teach?

- Reception (1)
 - Year 1 (2)
 - Year 2 (3)
 - Year 3 (4)
 - Year 4 (5)
 - Year 5 (6)
 - Year 6 (7)
 - Other (please specify) (8)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q5 What year group do you support?

- Reception (1)
 - Year 1 (2)
 - Year 2 (3)
 - Year 3 (4)
 - Year 4 (5)
 - Year 5 (6)
 - Year 6 (7)
 - Other (please specify) (8)
-

Page _____
Break

Q6 Did you complete an undergraduate degree, if so, what was the title?

- Yes (please specify) (1)
-
- No (2)

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q7 What year did you graduate from your teacher training degree?

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q8 What training have you received to teach PE?

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q9 How many years of teaching experience do you have?

- NQT (0-1 years) (1)
 - 1-3 years (2)
 - 4-6 years (3)
 - 7-9 years (4)
 - 10 years + (5)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q10 How many years of classroom experience do you have?

- NQT (0-1 years) (1)
 - 1-3 years (2)
 - 4-6 years (3)
 - 7-9 years (4)
 - 10 years + (5)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q11 Have you received formal training for PE?

- Yes (1)
 - No (2)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q12 Have you received any training for PE?

Yes (1)

No (2)

Page
Break

Q13 If so, how many hours of your training was dedicated to PE?

Q14 What were you taught about PE?

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q15 How well supported do you feel from your PGCE in regard to teaching PE?

Very well supported (5)

Well supported (4)

Somewhat supported (3)

Not very well supported (2)

Not supported (1)

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q16 How well supported do you feel from your training regarding teaching/and or supporting PE?

- Very well supported (5)
 - Well supported (4)
 - Somewhat supported (3)
 - Not very well supported (2)
 - Not supported (1)
-

Q17 Regardless of the training, how confident do you feel about delivering PE to meet the government guidelines?

- Very confident (5)
 - Confident (4)
 - Somewhat confident (3)
 - Not very confident (2)
 - Not confident (1)
-

Q18 Please elaborate on your answer above

Q19 Are you required to do refresher training courses or INSET which focus solely on PE?

- Yes (1)
 - No (2)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q20 How well equipped do you feel to teach a fun and interactive PE lesson?

- Very well equipped (5)
 - Well equipped (4)
 - Somewhat equipped (3)
 - Not very well equipped (2)
 - Not equipped (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q21 How well equipped do you feel to teach and/or support a fun and interactive PE lesson?

- Very well equipped (5)
 - Well equipped (4)
 - Somewhat equipped (3)
 - Not very well equipped (2)
 - Not equipped (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q22 How well equipped do you feel to teach an inclusive PE lesson?

- Very well equipped (5)
- Well equipped (4)
- Somewhat equipped (3)
- Not very well equipped (2)
- Not equipped (1)

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q23 How well equipped do you feel to teach and/or support an inclusive PE lesson?

- Very well equipped (5)
- Well equipped (4)
- Somewhat equipped (3)
- Not very well equipped (2)
- Not equipped (1)

Page _____
Break

Q0 I will now be asking you a series of questions about your schools attitude towards PE and how supported you feel.

Q24 Do you feel that PE is pushed by the Government as an important part of the curriculum?

- Very much so (4)
 - Somewhat (3)
 - Not very much so (2)
 - Not at all (1)
-

Q25 To what extent does the national curriculum dictate what you do on a day-to-day basis?

- Very much so (4)
 - Somewhat (3)
 - Not very much so (2)
 - Not at all (1)
-

Q26 Do you feel that PE in your school meets the current curriculum?

- Very much so (5)
 - Somewhat (4)
 - Not very much so (3)
 - Not at all (2)
 - I don't know (1)
-

Q27 Do you feel that PE is pushed by the school as an important part of the curriculum, explain your answer?

- Very much so (4)
 - Somewhat (3)
 - Not very much so (2)
 - Not at all (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q28 Do you have the professional freedom to decide the content of your teaching?

- Yes (1)
 - No (2)
-

Q29 To what extent is meeting PE requirements impacted by other factors (e.g. weather, space, equipment)?

- Very much so (5)
 - Somewhat (4)
 - Not very much so (3)
 - Not at all (2)
 - I don't know (1)
-

Q30 How much does this dictate what you do in your PE sessions?

- Very much so (5)
 - Somewhat (4)
 - Not very much so (3)
 - Not at all (2)
 - I don't know (1)
-

Q31 Who determines the amount of time is spent on PE?

- The teacher (1)
 - The school you work for (2)
 - I don't know (3)
-

Page _____
Break

Q32 Per week, how many hours does your school dedicate to PE?

- None (1)
 - Up to 1 hour (2)
 - Up to 2 hours (3)
 - More than 2 hours (4)
 - I don't know (5)
-

Q33 How has this been affected by COVID?

- Gone up (4)
 - Stayed the same (3)
 - Gone down (2)
 - I don't know (1)
-

Q34 Does your school invite external coaches for PE?

- Yes (1)
 - No (2)
-

Q35 If so, how do you think this impacts the nature of PE being delivered?

- Makes it better (2)
 - Stays the same (2)
 - Makes it worse (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q36 I feel confident to ask for help with delivery of PE

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q37 I feel confident to ask for help with planning PE

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q38 I feel confident to ask for help in supporting children doing PE

- Strongly agree (5)
- Agree (4)
- Neither agree nor disagree (3)
- Disagree (2)
- Strongly disagree (1)

Page _____
Break

Q0 The following questions will be about your PERSONAL views on PE and physical activity overall.

Q39 I think PE is an important part of the curriculum

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q40 The school I work in supports me with PE

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q41 Do you think your colleagues share similar views about PE?

- Yes (1)
 - No (2)
-

Q42 I feel PE is as important as English, Math and Science

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q43 It doesn't matter if a child does not participate in PE

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q44 PE should encourage competitiveness

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q45 PE is important for children's wellbeing

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q46 Parental involvement is important in children's physical activity

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q47 Physical activity benefits children's academic performance

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q48 Please add any comments for why you have answered the questions above

Q49 How would you describe yourself?

- Very physically active (5)
 - Physically active (4)
 - Somewhat physically active (3)
 - Not very physically active (2)
 - Not physically active (1)
-

Q50 To what extent are your views of PE reflected in your school culture?

- Very much so (4)
 - Somewhat (3)
 - Not very much so (2)
 - Not at all (1)
-

Q51 Do you think it should be a statutory requirement to have PE for more than 2 hours a week?

- Yes (1)
 - No (2)
-

Q52 How many hours of PE do you think there should be per week?

Page _____
Break

Q0 Please answer the following questions based on your PE sessions.

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teacher

Q53 Describe what one of your typical PE lessons would look like

Display This Question:

If Are you a qualified teacher or teaching assistant (TA)? Teaching Assistant

Q54 Could you describe what a typical PE session might involve

Q55 Who delivers most of your PE sessions?

- Teacher (1)
 - Teaching Assistant (2)
 - External Coach (3)
 - Other (please specify) (4)
-

Q56 Children enjoy the PE sessions in my school

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q57 The PE sessions in my school encourage competition

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q58 The PE sessions in my school allow all children to join in equally

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q59 The PE sessions in my school focus on sports

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q60 The PE sessions in my school are really for the sporty children

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Page _____
Break

Q0 Some schools focus very much on sports and skills in PE which is not always beneficial to ALL children. We are trying to find out whether a different format, a play based type of PE would be better or worse. Please watch the following video before answering the questions:

Q0 In comparison to what you do in your school/ PE class:

Q61 In terms of all children joining in do you think PE sessions like BOING would be

- Very detrimental (1)
 - Detrimental (2)
 - Neither (3)
 - Beneficial (4)
 - Very beneficial (5)
-

Q62 In terms of children enjoyment do you think PE sessions like BOING would be

- Very detrimental (1)
 - Detrimental (2)
 - Neither (3)
 - Beneficial (4)
 - Very beneficial (5)
-

Q63 In terms of children's wellbeing do you think PE sessions like BOING would be

- Very detrimental (1)
 - Detrimental (2)
 - Neither (3)
 - Beneficial (4)
 - Very beneficial (5)
-

Q64 Would training in activities like BOING make you feel more equipped to teach PE?

- Strongly agree (5)
 - Agree (4)
 - Neither agree nor disagree (3)
 - Disagree (2)
 - Strongly disagree (1)
-

Q65 What barriers do you see that could prevent you from teaching PE this way?

Q66 Would you like to enter the prize draw or interview?

- Yes I would like to enter the prize draw AND take part in the interview (4)
- Yes I would like to enter the prize draw (1)
- Yes I would like to take part in the interview (2)
- No I don't want to do either (5)

Skip To: End of Survey If Would you like to enter the prize draw or interview? No I don't want to do either

Display This Question:

If Would you like to enter the prize draw or interview? ! No I don't want to do either

Q77 As you've answered yes either to one or both of the options above I am going to ask for your e-mail address. In order for you to understand how we use this information you can read a privacy notice for research participants by clicking [here](#).

If you are still happy to please enter you email address below

Appendix 5: Study three parent questionnaire (pre & post)

Q0.2 Please fill in the following to create an ID code: Example: LOTKSE

First two letters of the town you were born in (1)

First two letters of your mother's maiden name (2)

First two letters of the month you were born in (3)

End of Block: Information sheet and consent

Start of Block: Default Question Block

Q1 To which gender identity does your child most identify?

Boy (1)

Girl (2)

Non-binary (3)

Prefer to self-describe (4) _____

Prefer not to say (5)

Q2 What is your child's age? (please put a number)

Q3 What year is your child in?

Year 1 (1)

Year 2 (2)

Q4 How old are you?

- Age (1) _____
- Prefer not to say (2)

Q5 What is your Ethnicity?

- English/ Welsh/ Scottish/ Northern Irish/ British (1)
- Irish (2)
- Gypsy or Irish Traveller (3)
- Any other White Background (4)
- White and Black Caribbean (5)
- White and Black African (6)
- White and Asian (7)
- Any other mix/multiple ethnic background (8)
- Indian (9)
- Pakistani (10)
- Bangladeshi (11)
- Chinese (12)
- Any other Asian background (13)
- African (14)
- Caribbean (15)
- Any other Black / African / Caribbean background (16)
- Arab (17)

Any other ethnic group (18)

Prefer not to say (19)

Q6 Does the child you are filling this questionnaire out on behalf of, have a physical disability or a learning disability, which affects their capacity to participate in certain physical activities?

No (1)

Yes (please specify below) (2)

Q7 Do you have any physical or mental health difficulties that you feel prevent you from being as physically active as you would like to be?

No (1)

Yes (2)

Skip To: Q9 If Do you have any physical or mental health difficulties that you feel prevent you from being as ph... No

Q8 Do you feel that those difficulties mean that you can't encourage your child to be physically active?

No (1)

Yes (2)

Q9 Is your child eligible for Free School Meals?

No (1)

Yes (2)

Q10 In the past **week**, on how many days has **your child** done a total of 60 minutes or more of physical activity throughout the day, which was enough to raise their breathing rate? This may include skipping, playing with pets, cycling/walking/scooting to school.

- 0 days (1)
 - 1 day (2)
 - 2 days (3)
 - 3 days (4)
 - 4 days (5)
 - 5 days (6)
 - 6 days (7)
 - 7 days (8)
-

Q11 In the past **week**, **on average** how many **minutes a day** has **your child** done physical activity outside of school, which was enough to raise their breathing rate? This may include any physical activity outside of school such as skipping, playing with pets, walking to school.

- 0 minutes (1)
 - 10 minutes (2)
 - 20 minutes (3)
 - 30 minutes (4)
 - 40 minutes (5)
 - 50 minutes (6)
 - 60 minutes (7)
 - Above 60 minutes (8)
-

Q12 Please read the following definition of physical activity and then answer the questions. **Physical activity is any movement that makes your child's breathing rate increase, but does not include anything they do during school hours. This may include skipping, playing with pets, playing in the park, cycling/walking/scooting to school.**

Q13 I have enough time to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q14 I have enough activity guidance to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q15 I have enough space at home to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q16 I have enough money to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q17 I have the right equipment to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q18 I have access to suitable places for physical activity with my child

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q19 My child's school encourages physical activity outside of school

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q20 The government helps me support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q21 My friends and family help me to support my child physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q22 I have the motivation to ensure my child is physically active

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q23 It benefits my child to be physically active

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q24 I have a plan with regards to how to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q25 I am able to support my child's physical activity without thinking about it

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q26 Thinking about supporting my child's physical activity makes me feel excited

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q27 Thinking about supporting my child's physical activity makes me feel scared

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q28 Thinking about supporting my child's physical activity makes me feel enthusiastic

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q29 Thinking about supporting my child's physical activity makes me feel nervous

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q30 I am physically fit enough to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q31 I have the physical skills/ coordination to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q32 I am strong enough to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q33 I have enough physical stamina to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q34 How many minutes per day of vigorous to moderate activity do the government guidelines suggest is a minimum for children.

- At least 60min and up to several hours every day (1)
 - At least 60 min and up to several hours a week (2)
 - For at least 30 minutes and up to several hours every day. (3)
 - For at least 30 minutes and up to several hours a week. (4)
-

Q35 I understand the importance of supporting my child with their physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q36 I have a good understanding of what activities I can do with my child

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q37 I know what to do to support my child's physical activity

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q38 Please read the following government definition of physical education and then answer the questions. A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically-demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

Q39 I have enough time to effectively support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q40 I have enough activity guidance to effectively support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q41 I have the right equipment to effectively support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q42 Other parents from my child's school help me support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q43 My child's school provides me with information about my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q44 My child's school provides me with activities to do at home to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q45 I have the motivation to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q46 I have a plan with regards to how to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q47 It benefits my child if I support their physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q48 I am able to support my child's physical education without thinking about it

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q49 Thinking about supporting my child's physical education makes me feel excited

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q50 Thinking about supporting my child's physical education makes me feel scared

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q51 Thinking about supporting my child's physical education makes me feel enthusiastic

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q52 Thinking about supporting my child's physical education makes me feel nervous

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q53 I am physically fit enough to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q54 I have the physical skills/coordination to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q55 I am strong enough to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q56 I have enough physical stamina to support my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q57 I have a good understanding of the importance of supporting my child's physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q58 I have a good understanding of the importance of physical education

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q59 I have a good knowledge base of physical education to support my child

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q60 Now that you have completed the questionnaire:

Q61 Would you like to take part in the **prize draw** to win **one of two £25 vouchers**?

- Yes (1)
 - No (2)
-

Q62 Would you like to take part in the **second questionnaire**?

- Yes (1)
 - No (2)
-

Q63 Would you like to take part in an **interview**?

- Yes (1)
 - No (2)
-

Display This Question:

If Would you like to take part in the prize draw to win one of two £25 vouchers? Yes

Or Would you like to take part in the second questionnaire? Yes

Or Would you like to take part in an interview? Yes

Q64 As you have selected one or more yes options, I am going to ask for your e-mail address. In order for you to understand how we use this information you can read the GDPR privacy notice for research participants by [clicking here](#) If you are still happy to please enter you email address below

Post intervention questionnaire addition:

Q60 As part of the play-based PE you were provided with a booklet to have at home, please answer the following questions about how you used the booklet

Q61 This booklet encouraged me to be more physically active with my child

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q62 How many of the games did you try?

0 (1)

1 (2)

2 (3)

3 (4)

4 (5)

5 (6)

6 (7)

Q63 On average, how much time did you spend playing each game with your child?

0 minutes (1)

5 minutes (2)

10 minutes (3)

15 minutes (4)

20 minutes (5)

More than 20 minutes (6)

Q64 Overall, how was your experience?

Appendix 6: Study three teacher questionnaire (pre & post)

Q0.2 Please fill in the following to create an ID code: Example: LOTKSE

First two letters of the town you were born in (1)

First two letters of your mother's maiden name (2)

First two letters of the month you were born in (3)

End of Block: Default Question Block

Start of Block: Block 1

Q1 To which gender identity do you most identify?

Man (1)

Woman (2)

Non-binary (3)

Prefer to self-describe (4) _____

Prefer not to say (5)

Q2 How old are you?

Age (1) _____

Prefer not to say (2)

Q3 What year group do you teach?

- Reception (1)
 - Year 1 (2)
 - Year 2 (3)
 - Year 3 (4)
 - Year 4 (5)
 - Year 5 (6)
 - Year 6 (7)
 - Other (please specify) (8)
-

Q4 How many years of teaching experience do you have?

- NQT (0-1 years) (1)
 - 1-3 years (2)
 - 4-6 years (3)
 - 7-9 years (4)
 - 10 years + (5)
-

Page _____
Break

Q5 Please answer these questions before completing the CPD.

Q6 My school currently follows a scheme for PE

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q7 My PE lessons currently meet the national curriculum guidelines

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q8 Describe what one of your typical PE lessons would look like

Q9 In your opinion, describe what you consider high quality PE to look like

Q10 I have enough time to plan high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q11 I have all the activity guidance I need to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q11 I have the right equipment to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q12 I have enough space to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q13 My head teacher supports me to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q14 My colleagues support me to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q15 The government supports me to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q16 I am motivated to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q17 I believe teaching high quality PE lessons is important

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q18 I feel the need to continuously update my skills in order to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q19 I can teach high quality PE lessons without thinking about it

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q20 When I teach PE I feel excited

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q21 When I teach PE I feel enthusiastic

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q22 When I teach PE I feel prepared / well equipped

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q23 When I teach PE I feel nervous

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q24 When I teach PE I feel scared

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q25 I am physically fit enough to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q25 I have sufficient physical stamina to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q26 I have the physical skills/coordination to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q27 I have a good understanding of the PE curriculum

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q28 I have a good understanding of how to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q29 I have a good understanding of the importance of PE

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q30 I have a good knowledge base which enables me to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q31 I have the skills to deliver high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q32 I am confident in my ability to teach high quality PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q33 I am confident in my ability to teach inclusive PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Q34 I am confident in my ability to teach fun PE lessons

- Strongly disagree (1)
 - Somewhat disagree (2)
 - Neither agree nor disagree (3)
 - Somewhat agree (4)
 - Strongly agree (5)
-

Page _____
Break

Q35 Now that you have completed the questionnaire:

Q36 Would you like to take part in the prize draw to win a **£25 voucher**?

Yes (1)

No (2)

Q37 Would you like to take part in the **second questionnaire**?

Yes (1)

No (2)

Q38 Would you like to take part in a **focus group**?

Yes (1)

No (2)

Display This Question:

If Would you like to take part in the prize draw to win a £25 voucher? Yes

Or Would you like to take part in the second questionnaire? Yes

Or Would you like to take part in a focus group? Yes

Q39 As you have selected one or more yes options, I am going to ask for your e-mail address. In order for you to understand how we use this information you can read the GDPR privacy notice for research participants by [clicking here](#). If you are still happy to please enter you email address below

Post intervention questionnaire addition:

Q35 Now that I have completed a term teaching play-based PE, I intend on continuing teaching this form of PE

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Q36 Now that I have completed a term teaching play-based PE, I am considering integrating this form of PE with my normal PE lessons

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

Appendix 7: Study three parent interview guide

1. How useful did you find the PE support booklet 'The BOING play club' in helping you support your child's physical education at home?
 - *(prompt) Did you receive a booklet?*
 - *Help with motivation? **COM-B prompt***
 - *Help with confidence in supporting child's PE?*

2. How useful did you find the weekly prompts the school sent you regarding the PE support booklet?
 - *Did you receive the reminder?*
 - *Is this something you would like to continue?*

3. What has your child told you about their PE classes during the term where play-based games were being used?
 - *Child's experience*
 - *Enjoyment, was it fun?*

4. Are there any suggestions you may have for how to improve your child or children's general participation in PE at school?

5. Since completing my last questionnaire, have you used the PE support booklet games at home to increase your child's physical activity?
 - *Why have you/have you not?*
 - *Has motivation been a factor? **COM-B prompt***
 - *Physical capability? **COM-B prompt***

6. Were the play-based games something your child enjoyed and engaged with at home? Please explain.
 - *Does their level of enjoyment change how much you want to support play-based PE at home?*

7. What challenges if any, did you face when playing the games at home?
 - *Resources? **COM-B prompt***
 - *Understanding the games? **COM-B prompt***
 - *Physically being able to play the games? **COM-B prompt***

8. What challenges or barriers do you feel may prevent you from using these games moving forward?
 - *Need more games/resources/ideas? **COM-B prompt***

9. How useful did you find the PE support booklet in helping you support your child's general physical activity?

10. Are there any suggestions you may have for how to improve your child or children's general participation in physical activity at home?
11. Has being provided resources been useful to you?
 - *Is this due to being told what to do?*
 - *Being provided with games to follow?*
 - *Feeling supported by the school?*
12. How have you found trying new, something you haven't done at home before?
13. Would you want a booklet or booklets throughout the school year?
 - *Booklets on play-based PE*
 - *Booklets on traditional sports played in PE*
 - *One at the beginning of the year or each term?*
14. How suitable was play-based PE for your child? Please explain?
 - *Is this something you would want to do when they are older?*
 - *Their ability?*
 - *Their personality?*
 - *Any condition they may have?*

Appendix 8: Study three parent raw NVivo data

Name	Files	References	Created on	Created by
Booklet	4	29	14/02/2024 18:	FG
Accessibility	1	1	14/02/2024 18:	FG
Booklet use	3	12	14/02/2024 18:	FG
Child has access to other resources	1	1	14/02/2024 18:	FG
Couldn't remember	1	1	14/02/2024 18:	FG
Didn't use booklet	1	2	14/02/2024 18:	FG
Dragons Land	1	1	14/02/2024 18:	FG
GO GO Gold	1	2	14/02/2024 18:	FG
Haven't used booklet since last questionnaire	1	1	14/02/2024 18:	FG
If finance was a problem	1	1	14/02/2024 18:	FG
If there were restrictions like lockdown	1	2	14/02/2024 18:	FG
Laser Webb	1	1	14/02/2024 18:	FG
Usefulness	3	7	14/02/2024 18:	FG
When and how to receive booklet	4	9	14/02/2024 18:	FG
COM-B Motivation	4	21	14/02/2024 18:	FG
Booklet helped with motivation	1	1	14/02/2024 18:	FG
Child enjoyment is important	3	3	14/02/2024 18:	FG
Organisation	2	4	14/02/2024 18:	FG
Parent's willingness	3	9	14/02/2024 18:	FG
Thinking outside the box	2	4	14/02/2024 18:	FG
COM-B Physical capability	4	4	14/02/2024 18:	FG
Physical fitness	4	4	14/02/2024 18:	FG
COM-B Physical opportunity	4	16	14/02/2024 18:	FG
Resources	4	8	14/02/2024 18:	FG
Space	3	6	14/02/2024 18:	FG
Time	1	2	14/02/2024 18:	FG
COM-B Psychological capability	3	12	14/02/2024 18:	FG
Appropriateness of activity for child's age	1	3	14/02/2024 18:	FG
Parent's career	2	5	14/02/2024 18:	FG
Parent's confidence	1	2	14/02/2024 18:	FG
Struggled despite knowledge of importance of physical activity	1	2	14/02/2024 18:	FG
COM-B Social opportunity	4	62	14/02/2024 18:	FG
Family	4	9	07/03/2024 14:	FG
Child's psychological barrier	2	2	14/02/2024 18:	FG
Children	3	7	14/02/2024 18:	FG
School communication	4	43	07/03/2024 14:	FG
Communicate what they're doing in PE and focusing on	2	8	14/02/2024 18:	FG
Cross referencing between school and booklet	2	5	14/02/2024 18:	FG
Didn't receive full booklet	1	4	14/02/2024 18:	FG
Didn't receive weekly prompts	4	4	14/02/2024 18:	FG
Helpful similar to homework	2	2	14/02/2024 18:	FG
Issue with teacher	1	1	14/02/2024 18:	FG
Lack of communication about booklet and play-based PE	3	12	14/02/2024 18:	FG
Lack of communication is across all subjects	1	2	14/02/2024 18:	FG
Reminders would be useful	3	5	14/02/2024 18:	FG
Schools value of PE	2	10	07/03/2024 15:	FG
Lack of PE	2	4	14/02/2024 18:	FG
School not prioritising PE	2	4	14/02/2024 18:	FG
School's value of PE is important	1	2	14/02/2024 18:	FG

☐	○ Thoughts about PE	4	31	11/11/2024 19:	FG
	○ Barriers school may face	1	1	14/02/2024 18:	FG
	○ Child communication about PE	4	8	14/02/2024 18:	FG
	○ Competitiveness	2	4	14/02/2024 18:	FG
	○ Fun is important	3	3	14/02/2024 18:	FG
	○ Parent's suggestions for PE	1	1	14/02/2024 18:	FG
	○ Positive of play-based PE	4	13	14/02/2024 18:	FG
	○ What PE and physical activity can teach	1	1	14/02/2024 18:	FG
☐	○ Background on school	1	8	12/03/2024 15:49	FG
	○ Bad ofsted report	1	2	07/03/2024 16:30	FG
	○ Free school meal	1	1	14/02/2024 18:04	FG
	○ Keen on any help	1	3	07/03/2024 16:32	FG
	○ Teachers	1	2	07/03/2024 17:36	FG
☐	○ Barriers working with schools	1	7	12/03/2024 15:50	FG
	○ Execution of ideas	1	2	14/02/2024 18:04	FG
	○ How experienced a teacher is	1	3	14/02/2024 18:04	FG
	○ Teacher motivation	1	1	14/02/2024 18:04	FG
	○ Teacher time	1	1	14/02/2024 18:04	FG
☐	○ Other	2	4	14/02/2024 18:	FG
	○ Active child	1	2	14/02/2024 18:	FG
	○ Child enjoys PE normally	1	1	14/02/2024 18:	FG
	○ Children may feel left out	1	1	14/02/2024 18:	FG

Appendix 9: Study three NVivo coded transcript

I: So, I'm going read the following consent statements, if you could just, if you're happy to agree to them then we can start. Do you confirm that you have read and understood the information sheet for the above study and had have had the opportunity to ask questions?

P2: Yep.

I: Do you understand that your participation is voluntary and that you are free to withdraw any time without given reason?

P2: Yeah

I: Do you agree to take part in the above study?

P2: Yes.

I: Do you understand the interview with audio recorded?

P2: Yes.

I: Do you agree to the use of anonymized quotes and publications?

P2: Yes.

I: And do you agree that any anonymized data set gathered for this study may be stored in the specialized data centre relevant to this subject area for further research?

P2: Yes.

I: Perfect. So the first question I have for you, by the way, if I'm looking this way, it's just because my other screen is here.

P2: Yeah, that's fine.

I: How useful did you find the PE support book, The BOING Play Club in helping you support your child's physical education at home?

P2: So this is where I need to just like start this whole thing as a confessional, in that like yeah, I have, we haven't used it at home, so I don't know how, yeah, I don't know what, what you're expecting or what the other experiences will be of the parents that you speak to. But I kind of just wanted to speak to you, I guess when you emailed about an interview, to be a voice to say that with all the will in the world, it's just yeah really challenging to find time at home to do this. So that's, so that's kind of like ripping that plaster off just being like, we we haven't used it at all. And I asked my daughter before I came to work this morning, like if she had been playing any of the games, the

names of the games in the book and she didn't know them. So I mean, at home, if I tell you like, I guess what happened was when we got this, I brought it, I grabbed it before I left, I kept it, I have it, but, and I brought into work this morning. I kind of saw it and I was like, oh, that's exciting that's brilliant, I'm really glad that that's happening at school. And I started reading inside and before I even finished like reading the first page I'm interrupted by one of my kids and then I try and read the next bit and I'm interrupted by one of the kids and then I try and like think about how I could actually like organize one of these games and then another one's run off or they've got a distracted or they want to do something else. I've got two, so I've got a year one child who's 5 almost 6 and I've got a 2 year old, almost 3 year old and balancing these 2 like needs at home alongside, an almost full time job, so I work 4 days a week, around then also when after school like could we get her after school but she has a couple of other activities after school in a week. And there are days when she goes to our neighbors, for example. So all of this just means actually when it comes to like there being any free time, which would be like on the weekend really, I don't know, it just isn't the like thing that we want to be doing or the sort of way, and so I'm not sure if you've got my kind of questionnaire data in front of you or if you've had a look at that, if you've kind of triangulate these things, but I feel like I'm a very aware person in terms of, what's important for children's physical activity, but still despite that, it was just, it's just like just very hard to have actually put this into practice. Yeah.

I: No, that makes sense. I mean, in my first study one of the things that did come up was time. That time was kind of an issue for parents when it came to trying to do things for physical activity and especially if you do have kids that are so young. It makes and you working as well, it makes a lot of sense. So the next question I have and this is going to be if you receive these, you're going kind of have to let me know.

P2: Hmm

I: How useful did you find the weekly prompts the school sent you regarding the support booklet?

P2: Yeah, we didn't get them.

I: You didn't get them.

P2: No. No.

I: Is this something you would have liked?

P2: Yeah, I think so, I guess if it had been a little bit more joined up, yeah, that would have been good, but I still don't think it would have helped hugely with the main barriers which is just like the

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- Barriers
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P2: Yeah, she, she hasn't mentioned. So I think at her school there's a PE lead who takes them out. Either with that teacher or while the teacher does something else. But she hasn't mentioned an external person coming in and doing it

I: Okay

P2: Is that how you were running it

I: No, no, no, it's just that, sometimes, from the previous schools I've spoken to and from teachers, a lot have, I'm not sure if it happens in this particular school, but a lot of them have said that normally one happens with the PE lead or the teacher and then another is an external coach. So I was just wondering whether it was the school, internal one that wasn't running, but it was the external one that was running, which would make sense why play-based wasn't it being done. But if she hasn't mentioned external coach then I'm going to assume that an external coach hasn't come.

P2: Yeah Yeah, I assume it was her teacher or the like PE lead.

I: So are there any suggestions you may have for how to improve your child or just generally children's, participation in PE at school?

P2: Hmm. I guess, thinking of my child, and for PE at school it just has to be based in, like a diversity of like things that you can do that would encourage a child like her who's not very physically capable and is not competitive, to finding ways that she can enjoy being active. So she would enjoy the games and things like that. I think the I think the thing that, I think she would really enjoy and probably is enjoying the play-based PE at school. I think the kind of harder bit, the bit that like we've fallen down on, is, is the linking through with it at home. But I think this is a more, more enjoyable way for her to be doing PE, because she just doesn't want to do sports and she doesn't want to do competitive things and she feels like she's going to lose and she then she does and it's a negative feedback. And so she's not going to be interested in that kind of thing. She's also got quite a quiet and a shy and I like, well shy is the wrong word, but she's more of a back seat observant person. So she's not going to be someone who, like kind of, takes the lead in in a sort of sport or activity so she needs sorts of structures that allow her to participate in a way where she doesn't have to be forceful to part.

I: Yeah.

P2: So that's just the kind of character she is and the challenge, I guess, for teachers and PE at school is the like diversity of different kids and how they would enjoy it and what they want to do. It's a real challenge but I think yeah play would be is great for her that's totally up, up her street, the kind of thing where there is rules or boundaries, ways to participate are clear and it's not always about like yeah like a score, scoring goals, winning through like numbers that kind of thing, yeah.

I: And based on you feeling that play-based PE would potentially be more better suited than traditional PE. If the school did communicate more about what they were doing and the kind of games they were doing and they did, maybe not necessarily through a booklet, but maybe through the apps or whatever way they contact parents. If they were to provide you with examples of games and kind of generally each term what was going on, would that encourage you more, to, attempt to find time to do activities.

P2: Yeah, yeah, I think it would, yeah, I think it really would, because I think it's about, it's about support. And if, like, you know, we kind of got this as a resource and I'm like, okay, brilliant there's a resource there. And then it gets put to the pile, at the bottom of the pile. But if we were getting a message that was like from the teacher on and the app they use is class dojo, you know this week we're playing...this week on the PE lesson we play Dragon Lands. That would kind of make like pop into your mind and be like, oh, ask the kid about that. And did they enjoy that this week? And yeah, I think it would encourage us all, and if I find out that she enjoyed it, then I would be like, alright, show us how, you know, do you want to teach it to us, we could play it at home. So I think I think that would help. I think the experience and I don't mean to criticize the school at all I love the school and they've got a lot on their plate.

I: Yeah

P2: They're really, really, really busy. I think they're multiple things going on. So, so that's kind of like. Again, part of the part of the reality and the barriers to doing this stuff is the challenges of school and I'm dealing with this all the time in my work as well. But, but yeah, I think having more communication would really help yeah. Because it would just keep reminding us that this was there and this is something that is carrying on like they're learning every week, that they're doing at school.

I: And is that the kind of communication you get with other subjects such as like the core subjects?

P2: Not really.

I: No

P2: I mean, like sometimes does. You might get a little flurry like, or if something special happens, we get some communications on that. But...no, I mean, they just don't have time to do it. They really don't. So we might find out for example if they were doing like a particular topic one week

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turn to this straight away. But yeah, right now it just feels like she's getting enough from other, other sort of places.

I: And, based off that, do you feel then, that this booklet or these kind of resources may be useful to parents who for example may not have the resources to do external activities or may not have, the space to do external activity such as a garden or a park, etc.

P2: Yeah, I think it would. I think it would, but that would, only to an extent, where there'll probably be other barriers in place. So working or motivation, you know, prioritization, those sorts of things, seeing it as thing that was, like a really important thing to be trying to like prioritize. So yeah, it's just that these things are like in these very complex contexts with multiple, factors playing into them aren't they. But yeah, I do think it would be I mean, for me personally, I know that yeah, if everything else was taken away for a while or again or for whatever reason or financially we couldn't be sending her to things, then I would like step in and step up and try and like be more proactive with it.

I: Well, I think the answer to this question is going to be no, but I'm going to ask it anyway. Were the play-based games something your child enjoyed and engaged with at home?

P2: No, I can't answer yeah today.

I: Has your child seen the games or expressed that maybe they would be interested in the games?

P2: When she brought it home, she was interested in it in the leaflet and she was reading, she was reading and quite excited and then, yeah, it just goes out their mind because things stay in their minds for about 5 min and that's that. Yeah, so she was kind of, yeah enthusiastic when she first saw it, but that was it.

I: Well, at least she was enthusiastic when she first saw it

P2: Yeah

I: So for the next question, I think so I'm what I'm going to ask you what challenges if any did you face when playing the games. I guess from the biggest one you've said time. And from everything you said, it doesn't seem like resources or an area to actually play with be a barrier.

P2: No, we can go, yeah, we can play in our front room or we could go to the park or whatever, yeah.

I: And do you feel like you would be physically able to play the games?

P2: Yeah

I: Do you feel like you'd understand the game as well from the way they're written?

P2: Yeah.

I: Okay, so based on everything you've said, it really has just been time and the fact that she's got other things going on as well.

P2: And the like younger sibling who's kind of like not in a not old enough to understand the game and join in, but not young enough to leave us alone.

I: Yeah.

P2: Yeah. So just like kind of like tricky aged younger sibling who, who will dominate everything and come and get involved in everything. And, and basically, I think in my mind I'm just like, I know it will stop being fun within 2 seconds because she would come in and just start like yeah, not follow she can't follow the rules, she won't understand. So it's these like this moment in time of 2 quite different needs that which have sort of balancing at home.

I: No, that definitely makes sense. And what challenges or barriers do you feel may prevent, you from using these games moving forward if there are any?

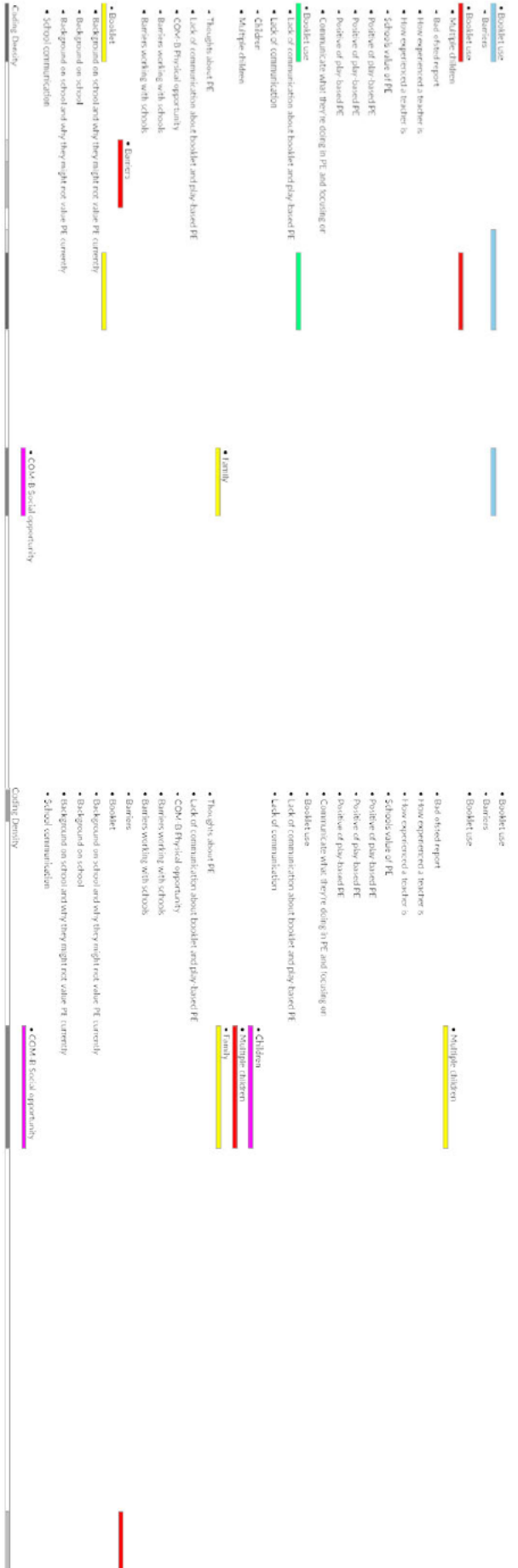
P2: Just the same the same kind of barriers that I've sort of prevented just using it to so far will go carry on going forward. But like I said, I'm going to keep it in the draw and have it there, if, it's like I know that it's there if we do need it which is nice.

I: And if, you did find games on BOING where the younger one might understand it just somewhat and the old one was okay to play do you think you'd be more inclined to maybe try those games?

P2: Yeah, and maybe. Maybe one of the aspects of it is like the the way of learning them. So, like, I don't know if you ever had this, but when we were the kids and we try and like try a new board game for example and if we try and sit down and try and read the rules first. It's like everyone. It's hard because as the adult, you're trying to read and digest the rules

I: Yeah.

P2: Which involves concentration, and you have people like grabbing cards or whatever, shouting at you, asking your attention, trying to start, blah, blah, and you're trying to like process all these bits of information at the same time. And it's the same way like reading something like this it's just like finding them I would almost have to like find some time away from the kids, alone to like read,



P2: Umhmm

I: And so it's kind of just giving me insight into, okay, parents do you want this for the issue is kind of here and hopefully through the 2 studies I'm able to kind of come up with something maybe for schools to sort of be like, look, parents are saying this. It'd be great if you could at some point when you have time, maybe work on these things.

P2: Yeah, yeah, I mean it's hard. Time, I think time is the ultimate like resource for schools at the moment. But still things things can improve and things can be done. But yeah, it's not easy.

I: No, and from the sounds of it the way if you guys received the email about doing the post questionnaire, then the people above the school seems to be fine. I'm wondering maybe it's been at teacher level

I: And I guess maybe trying to understand that because if you've receive that I haven't spoken to any of the teachers that's been sent to the head people that I've spoken to and if that's been sent out but the weekly prompts haven't been sent out. Then I guess it'd be interesting maybe to see from a teacher's perspective what's happened there and if it's just been a work overload for them.

P2: Do you have an opportunity to to interview the teachers?

I: If anyone want to take part.

P2: But the plan is to hopefully if they would say yes.

I: That's the goal. But again, it's if they do, I've found with teachers it has been a bit of a struggle and I completely understand, especially with the pandemic and everything that's happened. It feels like they're playing catch up a lot.

P2: Massively yes

I: Now ask them to do like an hour interview out of their day, I understand that it can be quite a lot. But hopefully at some point maybe I do, just so we can kind of see maybe from a teacher's perspective, what it is exactly that's going on, how we could help them because ultimately it is them that's providing the PE and is them that's contacting you guys.

P2: Yeah, no, and we're having the same thing like teacher time and getting teachers to reply to emails is like one of the main challenges of everything we do. Because even if they are like, it takes you have to like land someone who is I think extra motivated. To be trying to like work on this, prioritize this, see kids physical activity as like a high priority. And then yeah and then you need a teacher who like for example these like mind like the micro details of my daughter's teacher is still relatively newly qualified. So I assume I think that her workload is still massive and you know when you've been doing, teaching the same material for several years, you have all this resource that's like under your belt and you just, I think it gives you some breathing room.

I: Yeah.

P2: So I think some of the, staff that we've interviewed in our sort of, we're just finishing up a project have been people who'd been more senior or like that for a bit longer, you know, and they you can see that, I can see that they have more space to be thinking about these kind of more strategic things or giving time to different things. Whereas my daughter's teacher just looks like she's doing a you know a brilliant job, but I think when you're in your, I think she's in her second year of teaching, it's a different game, yeah, so, her workload is massive, you know, and you can see that.

I: I guess it's trying to, find the balance or trying to do this these kind of studies but then also understanding that they may not have time. And to merge the two, but the school has been great. I mean, school took part and I'm really grateful for them taking part. And I'm really grateful for all of you parents who have decided to interviews because it's, it's really helpful.

P2: Was it just key stage one or was it key stage two as well?

I: So, the CPD was for any of the teachers you want to take part. But the booklets were only sent to key stage one.

P2: And do you have a sense of like the year one teachers, if the year one teachers did do the CPD like for example, do we know that my daughter's teacher did it?

I: As far as I'm away, yes, everyone did take part in the CPD. I don't know the names of people. But I was on the CPD and there was quite a lot of people. And it was one of the criteria for my study that they had to have taken that, any of the teachers who are taking part in the CPD, they were the only ones that could take part in my study.

P2: And again, I think it's probably something they would have snapped at the opportunity for because again thinking of my daughter's teacher. She's, if she is relatively newly qualified, she'll have very, very little training in doing PE. And I get the impression that it's not, you know, I haven't directly spoken to her about this, but I think the vibe I get for how she prioritizes it is...probably due to like a lack of her natural instinct, like interest in it and then a lack of like you know, she needs some ideas and some things. So I think. This sort of thing would be really like welcomed if they have the time to do it.

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Coding Overlay

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I: Yeah, and I hope even if they haven't used it now, I hope it has been somewhat useful for them. I think having a CPD in general just learned something is useful.

P2: Yeah

I: So, fingers crossed it has. I have got two questions, I'm going skip one, well there's three questions, but I'm going skip one just because again, you haven't done the booklet, so therefore the question doesn't really.

P2: Sorry

I: No, no, no, honestly, it you're not doing it's also just really useful for me as well to understand.

P2: That's why I thought, you know, I'll just put myself, I'll chat to you and just explain it a little bit, I think.

I: Yeah, no, it's really useful to understand whether it has or hasn't been useful. So would you want a booklet or booklets throughout the school year or maybe something on the app or the way they communicate to you, in regards to PE.

P2: Yeah. Yeah. I think, I mean, I know this sounds contradictory because like the thing you've given me, I haven't used. But I think just a little bit more highlight like a little bit more communication, I guess, is the word, but like, reminders that like this is something we're using, this is something we're doing that will kind of that needs to like galvanize a little bit to encourage like to remind it put it on people's minds that this is what kind of program that they're using this year. And to kind of join things up a little bit more.

I: And, would you want that throughout the year like as in like each term or would you want it just like at the beginning of the year like how frequent would you want that kind of information.

P2: I think more than just at the beginning of the year, because then the same thing would happen again, where it would just sort of disappear, drop off. So I think yeah, like the most useful thing would be communication, a reminder and like rule of like how to play a game if we know that that specific game had been used or is being used in their in the in the classroom or in the PE session or in the playground. Yeah, so that it's like a real tangible kind of connection, it's not just like, here are some games you could play, but like here is a game that your child has been playing or is playing this week. So whether they did it weekly or whether they did it for one term in a year or whether they played one BOING game every term or every few weeks, whatever it was frequency wise I just think

it'd be really helpful to be told about that as a parent, if we want this like kind of joined up doing at home doing it at school thing.

I: And would you find that useful, I'm just thinking now if they played X amount of games throughout the term and maybe at the end of term, just before half term you kind of were given oh this term these are the kind of games we played with your child maybe see if your child remembers them and.

P2: Yeah.

I: how to play them.

P2: Yeah that would be good.

I: And, would you want resources on play-based PE or on traditional sports or generally traditional PE?

P2: Not really on traditional PE. Yeah, I mean, like just to know what they're getting up to in PE in general would be nice. But I understand it's too much to ask, I think.

I: It's never too much to ask

P2: yeah

I: And you kind of said this earlier, but if there's anything else you really want to add, how suitable do you think, play, well, how suitable was play-based PE for your child. But I guess what I'm asking is how suitable do you think it would be?

P2: Do I think it would be? I think it would be really suitable, yeah, for my child. Like I said because she's a kid who doesn't, isn't inclined towards competitive sports and prefers things that are more around like play games, imagination. Yeah, it's just definitely appeals to her more than something like playing football with all. Yeah.

I: So, do you, so I guess from what you're saying, like ability wise, it would see quite a bit better, personality wise.

P2: Yeah, yeah Yep.

I: It would to her better. And are these games that you think she would enjoy and you would want to continue doing with her as she gets older throughout primary school.

P2: Yeah, I suppose there is kind of like an age, where they'd reach where they'd rather switch from sort of play to other well maybe that's not true, I don't know, maybe all people like play, I'm not

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- Multiple children
- Family
- Lack of communication about booklet and play based PE
- COM: B Physical opportunity
- Barriers working with schools
- Barriers working with schools
- Barriers
- Background on school and why they might not value PE currently
- Background on school
- Background on school and why they might not value PE currently

- School communication
- COM: B Social opportunity
- Communicate what they're doing in PE and focusing on
- Positive of play based PE
- Positive of play based PE
- Positive of play based PE
- Thoughts about PE
- School communication
- COM: B Social opportunity

sure. But I mean, I mean, for example, she started, the past, a few weeks ago she started going to a tennis club after school on a Monday. And in an hour session, I think there's about 10 min where they are stood either side of the net trying to like hit a ball over the net to each other with a racket. And the other 50 min, it's all play. And she's enjoying it and she enjoys that a lot more, but I've, tried to take her to football before and the first half is like some skills play stuff with the football and then the second half is a match and she is not into it at all. She likes the first half and does not like the second half. So she's enjoying going to the tennis because it's just like games like where the instructor is like throwing balls at them and they're trying to dodge them and then they get put into jail and then they have to like try and get back out of jail without being hit by a ball from him or you know, so that's much more fun to her.

I: That's all the questions I have. Are there any questions you have for me?

P2: I mean, not really, but yeah, I'm just, I'm just interested in the whole thing and how it's going and yeah, like I, wait, I don't ask you too much because that's not the point of this

I: I can stop recording.

- Booklet use
- Barriers
- Booklet use
- Multiple children
- Bad or/ed report
- How experienced a teacher is
- How experienced a teacher is
- Schools value of PE
- Positive of play-based PE
- Positive of play-based PE
- Positive of play-based PE
- Communicate what they're doing in PE and focusing on
- Booklet use
- Lack of communication about booklet and play-based PE
- Lack of communication
- Children
- Multiple children
- Family
- Thoughts about PE
- Lack of communication about booklet and play-based PE
- COM: B Physical opportunity
- Barriers working with schools
- Barriers working with schools
- Barriers
- Booklet
- Background on school and why they might not value PE currently
- Background on school
- Background on school and why they might not value PE currently
- School communication
- COM: B Social opportunity

Coding Density

Appendix 10: Study three teacher interview guide

1. Prior to completing the CPD course, was PE a subject you were confident and capable of teaching? Please explain why. **(Teachers)**
 - *(prompt) Physical capability – physically able to teach PE*
 - *Psychological capability – have the knowledge, training*

2. Since delivering play-based PE for a term, do you feel that you have a better understanding of how to teach PE effectively? **(Teachers)**
 - *Has your confidence changed?*
 - *Do you feel more equipped?*

3. Since completing the term using the play-based games, have you continued to integrate this method of teaching in your PE classes? Please explain why. **(Teachers)**
 - *Has motivation been a factor?*
 - *Support from colleagues, school?*
 - *Is this due to confidence and understanding of play-based PE?*

Since the term using play-based games has ended, have the teachers in your school who took part continued to integrate this method of teaching their PE classes? **(Staff)**

4. How have your colleagues responded to the use of Play-based PE? **(both)**
5. What has changed for you since the CPD? **(Both)**
6. Based on your experience of teaching play-based PE, could you reflect on the long term sustainability of using play-based PE? **(Teachers)**

Based on play-based PE being taught in your school, could you reflect on the long-term sustainability of using play-based PE? **(Staff)**

7. Since delivering play-based PE for a term, do you feel that you have the necessary resources to deliver an effective PE lesson? Please explain **(Teachers)**
 - *Physical resources?*
 - *Psychological resources, understanding, enough training?*

Since the term for play-based PE has ended, do you feel that the teaching staff have enough resources to deliver an effective PE lesson? Please explain **(Staff)**

- *Physical resources?*
- *Psychological resources, understanding, enough training?*
8. What are your suggestions for increasing the implementation of play-based PE both in your school and generally in primary education? **(Both)**
9. What were the benefits and weaknesses of the CPD course you were given? **(Both)**
10. How useful was the CPD course for you and what else could be done to increase this for you? **(Both)**
11. During the time you were teaching play-based PE, how was the student engagement in lessons? **(Teachers)**

- *Did they enjoy it?*
- *How about children who don't normally engage with PE*
- *Has this been different to traditional form of PE?*
- *Inclusivity*

During the time where play-based PE was being taught, did you notice or hear about student engagement? **(Staff)**

- *Did they enjoy it?*
- *How about children who don't normally engage with PE*
- *Has this been different to traditional form of PE?*
- *Inclusivity*

12. How suitable do you think play-based PE is for primary school children? **(Both)**

- *Is it suitable for KS1 & KS2?*
- *Is it suitable for all types of children, personality?*
- *What about children with SEND?*

13. During the time you were teaching play-based PE, how was parental engagement with the resource (booklet)? **(Teachers)**

- *Are you aware that the school was provided with a booklet to give to parents to use at home?*
- *Was it noticeable whether parents were using the booklet at home?*

During the time play-based PE was taught, are you aware of the parental engagement with the resource (booklet)? **(Staff)**

- *Are you aware that the school was provided with a booklet to give to parents to use at home?*
- *Was it noticeable whether parents were using the booklet at home?*

14. During the time you were teaching play-based PE, how was the children's engagement at home with the resource (booklet) ? **(Teachers)**

- *Was it noticeable whether children were doing the games at home*
- *Was it noticeable whether children wanted to do similar games from their PE lessons at home?*

COM B prompts

Capability

- *Physical*
- *Psychological*

Opportunity

- *Physical*
- *Social*

Motivation

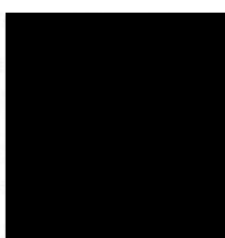
- *Automatic e.g. Changing my behaviour to improve my health is something that I do automatically*
- *E.g. I am motivated to change my behaviour to improve my health*

Appendix 11: Study three PlayUp Club booklet



You're being provided this booklet because I am working with your child's school to implement a new type of PE, which your child will be taught this term. This booklet will help you support your child's PE lessons at home. I am interested in understanding how schools can better equip parents to support what is taught in PE at home. If you would like to take part in my study, please scan the QR code below and complete the questionnaire before your child's first PE lesson and using this booklet, it will take around 15 minutes to complete and on completion you can enter a prize draw to win 1 of 2 £25 vouchers.

Whether you choose to take part or not, this booklet is for you to keep and utilise. If you would like more games to try at home, check out www.boingkids.co.uk



Please fill in the questions at the end of each game after playing them each week. These questions will help you answer the second questionnaire after completing this booklet.

Disclaimer: Before starting any of the activities please ensure the space you are using is free from trip or fall hazards and that you and your child are dressed appropriately.



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Welcome to the Boing Play Up Club! We want to help you get active and playful at home, so we have put together some quick and easy games that you can play with friends and family wherever and whenever. Check out our quick guide to why the PlayUp Club is so much fun!

1. Being Active

Why is it magic? It adds great energy to any play session. Playing whilst also being active will develop a love for physical activity that will last a lifetime!

What does it feel like? When your heart is beating a bit faster and you're a bit out of breath!

What to do to add it to your play? Add a time limit to speed things up. Play in a bigger space so there is more ground to cover. Restrict players to a specific type of movement (eg: hop, skip, jump).

2. Imagination

Why is it magic? Creating a place for imagination in play will lead to dreaming up new worlds to play in, characters to be and stories to tell within the game. Playing with imagination will develop players ability to make play what they want it to be and make it work for them.

What does it feel like? When you are pretending the cardboard box in the corner is actually a magical castle.

What to do to add it to your play? Give players special powers, or better yet, ask them to think of them. Hand over control to the players to take the game wherever they want to. Ask the players to add new 'roles' or characters into the game.

3. Adventure

Why is it magic? Play that involves an element of adventure will mean it will last longer because of the exploration and intrigue. Adventure in play will lead to being more willing to explore the unknown and investigate new places!

What does it feel like? Knowing where you have to go, but don't know how you are gonna get there.

What to do to add it to your play? Play in a new setting that players have never been to before. Hide something to find. Share clues of a secret location to get to or set a challenge to complete.

4. Fun

Why is it magic? If play is fun, then players are more likely to do it again another time. Having fun with your play is what it's all about. If it's not fun, it's not play!

What does it feel like? When you're enjoying what you're doing so much, you forget about everything else.

What to do to add it to your play? Provide the freedom to play in whatever way works for the players. Add in extra buzz by commentating on the game or cheering players on. Be led by the player, if they have a smile on their face, encourage more of what they are doing. Ask them where they want to go next with it.



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5. Creativity

Why is it magic? Play that gives plenty of space to think outside the box and create new and different ways of playing, will mean more exciting versions of the same game emerge. Being creative whilst playing is where the resilience and thinking skills needed to tackle any situation, any space and any problem are made.

What does it feel like? When you're finding your own way, coming up with brand new ideas and not caring what other people are doing!

What to do to add it to your play? Change the shape or size of the play area, or the size of the teams to set a different problem to solve. Keep making the game harder and harder. Give out points for each new way a player plays the game.

6. Collaboration

Why is it magic? Collaborative play is where relationships are formed and mean new ways of playing can emerge through everyone combining their ideas together! Playing together to achieve a goal, go on a mission together or create something new can build trust with others that can last forever.

What does it feel like? When you make a plan together that you couldn't make on your own, and then you go and make that plan happen, as a team.

What to do to add it to your play? Get into groups and make a plan before starting to play. Set each group the challenge of coming up with a new rule, or a whole new game. Make the game about building something, or figuring something out as a team.



being
learning through play

Go Go Gold



People

2+ (best with 4)

Aim

Collect the gold into your vault as fast as you can

Space

Home / Garden / Park

Equipment

Something for a halfway line (eg: t shirt or a line on the floor) Something to make two vaults (eg: a rolled up jumper) As many small things as you can find to be the gold (eg: balls or shoes or anything you can find)

How to Set Up

Two vaults, spaced out, with a halfway line between them.
Equal amounts of gold in each half. As much gold as you can get.
Players in two groups, give them a vault each.

Two Rules

One piece of gold at a time
Only collect gold from the other half

How to Play

Go to the other half - where your vault isn't - and collect a piece of gold
Bring it back to your vault
Go again!

How to End

The first player to collect all the gold from the other player's half wins

Level One. Add Tagging

Players can now tag each other, but only when a player comes into their half.
If tagged, drop any gold, go back to the vault for five seconds and then go again.

Level Two. Add Golden

Tails Players tucks a t-shirt into the back of their waistband with most of it hanging out. That's the golden tail.
If a player from the other team grabs the golden tail, they win the whole game!

Level Three. Tagging and Golden Tails

Players can now tag each other to stop each other collecting gold.
But each player also has a golden tail. If a player grabs a golden tail, they win.

Boss Level. Play the Game Your Way

The game and the levels are just start points for your imaginations to run wild with!

The best way to play the game is creating your own way to play.

Why not try and make your own version of the game! Remember the magic ingredients of great play from the PlayCorner.

If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.



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Power Ups

- 1 - Remove the "only collect one piece of gold at a time" rule
- 2 - Give players specific jobs, some players are collectors and some are taggers (great if you have more than two players)
- 3 - Play with a golden nugget. If the nugget gets captured and taken to a vault, the team that collects it wins
- 4 - Play so that tagging can happen anywhere
- 5 - Place small gates across the halfway line. Players can only go through these to get the gold and back
- 6 - Play with no half way line, all the gold is up for grabs. Who can grab the most?
- 7 - Give each player two golden tails
- 8 - Play with super powers. Create special powers each player has that can impact the play of the other player.
- 9 - Add a time limit and make it a race against the clock

Level the Playing Field

- 1 - Change the amount of gold each player has to collect
- 2 - Change the way some players move (hop or jump instead of run for example)
- 3 - Move the vaults closer to or further away from the halfway line

Please fill this in once you have tried the game

- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



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Laser Webs



People

1+

Aim

Get through the lasers in whatever way you can!

Space

Home / Garden / Park

Equipment

Six long lengths of string A space where there are lots of places to tie string too

How to Set Up

Create a laser web by wrapping one length of string around door handles, table legs or banisters

Players stand on one side of the laser web

All the other lengths of string at either end of the web

One Rule

No contact with each other

How to Play

Make your way through the web without touching each other

When all players are at the other end, add another laser to the web

Go back through to the other side

Repeat!

How to End

When you've added six different lasers to the web.

Level One. Touching a Laser

Play so that if a player touches a laser with any part of their body, they have to go back to the start and go again.

Level Two. Add a Time Limit

Play with the touching the laser rule from level one.

Add a time limit of thirty second per run through the web.

Level Three. Add in Objects

Play with the touching the laser rule from level one and the time limit from level two.

Now put six different objects per player at one end of the web.

Players have to carry each of the objects in turn to the other end of the web.

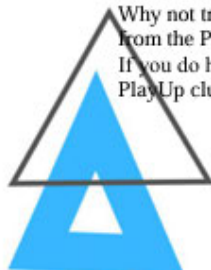
Boss Level. Play the Game Your Way

The game and the levels are just start points for your imaginations to run wild with!

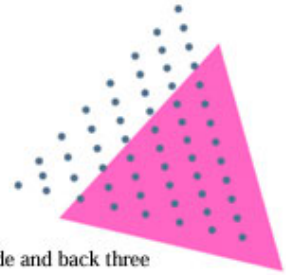
The best way to play the game is creating your own way to play.

Why not try and make your own version of the game! Remember the magic ingredients of great play from the PlayCorner.

If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.



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Power Ups

- 1 - Play with one player blindfolded and the other player as the guide
- 2 - Do it as a pair and hold hands whilst trying to get through the web
- 3 - Make it a race through the web!
- 4 - Start with players at opposite ends of the web, and see who can get to the other side and back three times first
- 5 - Create different shaped webs
- 6 - Make the web go across the floor, so you just have to step or jump over the lasers
- 7 - Add in a tagger in the middle of the web, if you get tagged, go back to the start

Level the Playing Field

- 1 - Give the players different sized objects to carry through the web
- 2 - Make the players hold hands with each other as they play
- 3 - Give different players different lives. eg: touch a laser three times before they have to go back and start again

Please fill this in once you have tried the game

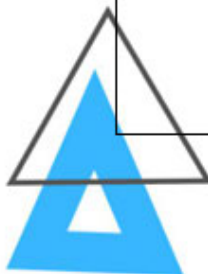
- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



being
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Dragon Lands



People

2+ (best with 4)

Aim

Find the Dragon's eggs or the Queen's crowns that have gone missing!

Space

Home / Garden / Park

Equipment

Five of something to be the crowns (You could use balls or t-shirts)

Five of something different to be the eggs (You could shoes or pieces of card)

Something to mark out two small areas, one castle and one dragon's den (you could use rolled up jumpers or some twigs)

How to Set Up

Hide five dragon eggs and five crowns as far and wide as you can

Dragon's hide their eggs. Knights hide the crowns

Split players into two groups and make one set the dragons and one set the knights

Put a castle and a dragon's den next to each other in the middle of where you're playing

Two Rules

Collect one at a time only

No taking anything out of the castle or the dragon den

How to Play

Dragons go off and find the crowns. Knights go off and find the eggs

Once they have found a crown or an egg, bring it back and put it in the castle or the dragon den

Go back out to find another piece!

How to End

When the dragons have collected all the crowns, or the knights have collected all the eggs

Level One. Add Tagging

Players can tag each other when they see a player with a crown or an egg.

If a player is tagged, drop their crown or egg, freeze, shut their eyes and count to 20.

The tagger can go and rehide the dropped crown or egg.

Level Two. Add Fireballs

Add five fireballs into the game. Scatter them everywhere and anywhere.

Players can pick them up for two seconds and then throw them at other players to tag them.

If a player is tagged by a fireball, drop their crown or egg, freeze, shut their eyes and count to 20.

Level Three. Move the Dragon's Den and Castle

Keep the tagging rule and maybe even the fireballs too

Rather than in the middle of the space, put the dragon's den and the castle in separate corners, maybe near a fences or hedges

Boss Level. Play the Game Your Way

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The best way to play the game is creating your own way to play.



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Why not try and make your own version of the game! Remember the magic ingredients of great play from the PlayCorner.

If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.

Power Ups

- 1 - Hide loads more crowns and eggs
- 2 - Add in a third team seeking a third type of object
- 3 - Play in pairs with one player blindfolded and one player as the guide
- 4 - Play with a golden egg or a golden crown. If they return it they win, but they can be tagged with it as well, and if they are tagged they lose the whole game
- 5 - Make it a relay race. One player from each side looking for an egg or a crown at a time
- 6 - Play in a giant triangle. Don't go outside the triangle and put the castle and the den at one point of the triangle
- 7 - Play in a wood or a much bigger area
- 8 - Give each player a golden tail that if it gets pulled out of their shorts then they loose the game
- 9 - Add in safe zones for players to seek shelter in
- 10 - Add in more fireballs and create shields out of cardboard for each player to block them with

Level the Playing Field

- 1 - Hide different amounts for different players
- 2 - Make the length of time players have to freeze different
- 3 - Put the castle and the dragon den different distances away from the hidden crowns and dragon eggs

Please fill this in once you have tried the game

- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



being
learning through play

Planet Protectors



People

2+ (best with 4)

Aim

Sort as much rubbish as you can into the right recycling centres in three minutes

Space

Home / Garden / Park

Equipment

Something to make three recycling centres (You could use rolled up t-shirts or the corners of a room).
As many small things as you can find to be rubbish, you'll need equal numbers of three different things (You could use socks, books, or pencils).

How to Set Up

Scatter all the rubbish randomly, make each type of equipment a different type of rubbish (eg. glass, plastic, metal).

Three recycling centres as far away from each other as possible. Make one for each type of rubbish. Players holding hands.

Two Rules

Collect one piece of rubbish at a time.

Don't let go of each other's hands.

How to Play

Go and find a piece of rubbish.

Take one piece at a time to the right recycling centre.

Go again!

How to End

After three minutes, see how many pieces of rubbish are in the recycling centres.

Level One. Safe Zones

Make the recycling centres safe zones. You can only be outside the safe zone for an agreed duration at any one time.

If a team doesn't make it back to the safe zone in time, drop the rubbish, don't put it in the recycling centre and then play again.

How many goes does it take everyone playing (as one big team) to collect all the rubbish?

Level Two. Stepping Stones

Players don't have to hold hands now.

Give them two stepping stones each to move about on (you could use anything that won't slip).

Players cannot touch the floor, only the stepping stones. If they touch the floor, they must go back to a recycling centre and play again.

Level Three. Stepping Stones and Pairs

Players don't have to hold hands but are working in pairs.

Give each pair three stepping stones between them to move about on (you could use anything that won't slip).

Players cannot touch the floor, only the stepping stones. If they touch the floor, they must go back to a recycling centre and play again.



being
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Boss Level. Play the Game Your Way

The game and the levels are just start points for your imaginations to run wild with!

The best way to play the game is creating your own way to play.

Why not try and make your own version of the game! Remember the magic ingredients of great play from the PlayCorner.

If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.

Power Ups

1 - Play so that each player has one specific type of rubbish to sort.

2 - Put roadblocks (you could use pillows, duvets or books) in the way of the recycling centres so players have to throw the rubbish in over the blocks.

3 - Put roadblocks (you could use pillows, duvets or books) throughout the space for players to go round.

4 - Play with six different recycle centres.

5 - Play so that players can collect as many pieces of rubbish as they like.

6 - Give each player a sack (you could use a bag or a pillow case) that they can collect the rubbish in to take it to the recycle centre.

7 - Play with taggers, if you are tagged drop the rubbish and start again.

Level the Playing Field

1 - Give players different sized stepping stones.

2 - Give players more types of rubbish to sort and others less.

Please fill this in once you have tried the game

- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



being
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Tip Tap



People

2+ (best with 2)

Aim

Get 8 taps before the other player

Space

Home / Garden / Park

Equipment

8 of one type of household object and 8 of a different household object (you could use plastic cups, books, shoes or rolled up socks)

Something to mark a small centre circle (you could use a hoop or some rolled up t-shirts)

How to Set Up

Place the two types of household objects equally spread out in a big circle

Make a small circle in the centre of the big circle

Both players stand inside the small circle

Designate each player a type of object to tap over

Three Rules

No physical contact

Only one tap at a time

Don't tap the other player's objects

How to Play

Race to tap all 8 of your items over first

Go through the small circle after each tap

Make sure to change the item in some way when you tap it (ie: if its a rolled up ball of socks, pull them apart, or if its a book but it on its end and the tap it so it falls over)

How to End

First player to tap all 8 objects and get back to the centre circle

Level One. Play with a Tagger

Play so that one player is the tagger and one player is the tapper

The tagger needs to play on their knees and can't stand up. Their job is to tag the tapper 5 times before the tapper can tap all the objects over

Swap roles and play again!

Level Two. Add in Un-tapping

Now players can un-tap the other players objects or tap their own before going through the centre circle again

Play with a time limit and see who has the most objects tapped over when the time runs out

Level Three. Add Safe Zones

Keep the tagger rule from level one

Mark out two safe zones in and around the objects to tap over

Tappers cannot be tagged in the safe zone, but can't spend more than three seconds in them



being
learning through *play*

Boss Level. Play the Game Your Way

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If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.

Power Ups

- 1 - Play with one player blindfolded and another one guiding them
- 2 - Play in teams over a bigger area (Great for large groups)
- 3 - Play with both players on your hands and knees (Great for little spaces)
- 4 - Play in different shapes other than a circle, (ie: square, circle, triangle)
- 5 - Play with two stepping stones per player (you could use pillow cases or pieces of cardboard).

Players can only step on the stepping stones and not touch the floor

- 6 - Give each player one freezing power. They can shout freeze at one point and freeze the other player for five seconds
- 7 - Scatter small balls around the circle, players can use these to tag and freeze each other
- 8 - Give each player a ball to carry. They have to tap the objects by throwing it at the objects from two metres away

Level the Playing Field

- 1 - Make the items further apart or closer together for different players
- 2 - Reduce the number of taps needed to win for some players

Please fill this in once you have tried the game

- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



being
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SuperShots



People

2+ (best with 2)

Aim

Be the first player to score five supershot points

Space

Home / Garden / Park

Equipment

Something to mark a halfway line (you could use some shoes or a line on the floor) \
Something to mark two goal lines (you could use some jumpers or a line on the floor)
Two balls (you could also use tennis balls or rolled up balls of socks)

How to Set Up

Two wide goal lines parallel to each other with a halfway line in the middle
Split players into two groups and give them a goal line each
Give each side one ball each (or just start with one ball in total to make it easier)

Two Rules

Don't cross the halfway line
Only roll the balls

How to Play

Roll the balls, try and get them over the other player's goal line
If the ball goes over the goal line you score a supershot point
Block any balls from going over your goal line, but don't cross the halfway line

How to End

When one player has scored five supershot points

Level One. Golden Ball

Play with three balls instead of two
Make one of the balls a golden ball worth two supershot points, if it goes over a goal line

Level Two. Blocker Zones

Play so that every time a player concedes a supershot point, they can put something in their half as a blocker zone (you could use a book, or a rolled up t-shirt)
If a ball hits a blocker zone they can grab it and play from there

Level Three. Exploding Blocker Zones

Start with players setting up five blocker zones in their half
Now players have to protect their blocker zones as well as stop the ball going over their goal line
If a blocker zone is hit, it explodes and is removed from the game

Boss Level. Play the Game Your Way

The game and the levels are just start points for your imaginations to run wild with!

The best way to play the game is creating your own way to play.

Why not try and make your own version of the game! Remember the magic ingredients of great play from the PlayCorner.



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If you do have a go at the boss level, we'd love to see and share your Play Ups with the rest of the PlayUp club.

Power Ups

- 1 - Play with even more balls
- 2 - Instead of a goal line, give each player two small goals a few metres apart to defend
- 3 - Play so that players can only be on their hands and knees
- 4 - Ban players from using their hands to block supershots
- 5 - Create a wall on the half way line with books or cushions and make three gaps in it for the ball to go through
- 6 - Play over a big distance and players can throw or kick the balls (great if you are in a park or garden)
- 7 - Play so that the players have to stay behind the blocker zones in their half

Level the Playing Field

- 1 - Change the distance between the halfway line and the goal line in each half
- 2 - Make the goal lines different lengths for different players
- 3 - Change the amount of supershot points each player needs to win

Please fill this in once you have tried the game

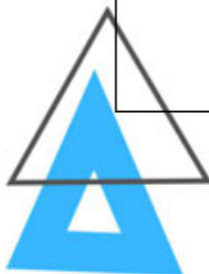
- How much time did you spend on this activity with your child? (Please circle)

0 min 5min 10min 15min 20min 25min 30min 30+min

- How would you rate this activity out of 10? 1 = bad – 10 = excellent (Please circle)

1 2 3 4 5 6 7 8 9 10

- What were your thoughts on the activity? (Consider things like ease, practicality, enjoyment etc)



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