CHAPTER 15

Physical Dimension

This chapter explores the development of the physical dimension within the Health and Physical Education (HPE) learning area. It directly relates to three elements of quality physical education (QPE): Whole child development; Community partnerships (strengths-based); and School implementation (cf. Figure 1.2). The physical education (PE) curriculum enables students to experience and learn in, through and about a wide spectrum of physical activities. Physical activity (and subsequent fitness) minimizes the risk of disease and maximizes wellness. "Physical education develops fine and gross motor skills and contributes to the maintenance of health, fitness and prevention of sickness not only in childhood, but throughout life" (Cale & Harris, 2019; Commonwealth of Australia, 1992, p. xiv). Being physically active throughout life plays a valuable role in reducing the risk of noncommunicable diseases (NCD), this is why governments should prioritise HPE in primary schools (Lynch, 2013).

The US spends more than twice as much for healthcare than any other nation, yet are among the sickest in the world (Robbins et al., 2011). According to the Centers for Medicare and Medicaid Services (CMS) "US health care spending grew 4.1 percent in 2022, reaching $4.5 trillion or $13,493 per person. As a share of the nation's Gross Domestic Product, health spending accounted for 17.3 percent" (CMS, 2019). In the UK the "total current healthcare expenditure in 2021 was £280.7 billion, equating to £4,188 per person" (Office for National Statistics, 2021). The

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total healthcare expenditure accounted for 12.4% gross domestic product (GDP) in 2021. Specifically, obesity costs are "at least £5.1 billion to the NHS [national health scheme] and tens of billions to UK society every year" (Obesity Health Alliance, 2017). Australia has a similar situation where health problems related to excess weight impose substantial economic burdens on communities, especially the most disadvantaged socioeconomic groups. For example, "obesity is more prevalent in rural and remote areas compared to urban areas" (National Health & Medical Research Council, 2013, p. xviii). Recent reports indicate that childhood obesity is not just a problem in the UK or Australia but rather is a global issue (Cale & Harris, 2019, p. 4).

The World Health Organisation's (WHOs) latest research indicates that more than one billion people are now regarded as obese. While it was acknowledged that the body mass index (BMI) is an imperfect measure for determining the extent of body fat, it is widely recorded in population-based surveys. The research found:

1. In 2022, 1 in 8 people in the world were living with obesity.
2. Worldwide adult obesity has more than doubled since 1990, and adolescent obesity has quadrupled.
3. In 2022, 2.5 billion adults (18 years and older) were overweight. Of these, 890 million were living with obesity.
4. In 2022, 43% of adults aged 18 years and over were overweight and 16% were living with obesity.
5. In 2022, 37 million children under the age of 5 were overweight.
6. Over 390 million children and adolescents aged 5–19 years were overweight in 2022, including 160 million who were living with obesity (WHO, 2024).

It is important to identify that health benefits from physical activity are evident in both adults and children (ACHPER WA Branch, 1999; WHO, 2018; WHO EMRO, 2019). A 28 year longitudinal study suggests health behaviours of youth can predict the same behaviours later in life (Palomäki et al., 2018) and several studies have tracked coronary risk factors from childhood into adulthood (Cale & Harris, 2019; Corbin et al., 2011; Schmidt, Walkuski, & Xiaoqian, 1997). Health benefits from physical

activity include wellbeing promotion, the prevention of disease and treatment for disease; "Regular physical activity over a lifetime may overcome the effects of inherited risk" (Corbin et al., 2011, p. 67).

Prevention of disease includes reduced risk of coronary heart disease and heart attacks (coronary occlusion); it improves coronary circulation and assists the heart to resist stress, reduces the risk for stroke and prevents peripheral vascular disease (Corbin et al., 2011; Shilton, 1997; Sport & Recreation Queensland, 2005). Physical activity protects the heart as it increases High-Density Lipoprotein ('good') cholesterol (Bouchard et al., 1990; Corbin et al., 2011; Fletcher et al., 1995; Sport & Recreation Queensland, 2005). "Regular physical activity can help prevent atherosclerosis by lowering blood lipid levels and reducing blood coagulants" (Corbin et al., 2011, p. 69); reducing heart disease by 30% (WHO EMRO, 2019).

Exercise is associated with lower rates of colon cancer (Blair et al., 1989; Corbin et al., 2011; Schardt, 1993; Sport & Recreation Queensland, 2005) breast cancer, rectal cancer and prostate cancer (Corbin et al., 2011), reducing breast and colon cancer by 21–25% (WHO EMRO, 2019).

Weight-bearing exercise enhances bone density and decreases the risk of osteoporosis (Caplon et al., 1993; Corbin et al., 2011; Sport & Recreation Queensland, 2005; White et al., 1993). Studies suggest more active people are less likely to develop non-insulin dependent (Type II) diabetes and physical activity can manage and treat Type II diabetes (Blair & Meredith, 1994; Corbin et al., 2011; Schardt, 1993; Sport & Recreation Queensland, 2005). Research findings indicate that regular physical activity reduces diabetes by 27% (WHO EMRO, 2019).

As well, exercise is an important management tool for asthma, arthritis, premenstrual syndrome, gallstones, and impotence; also, for reducing the risk of obesity (Berkowitz et al., 1985; Corbin et al., 2011; Johnson et al., 1956; Shilton, 1997; Sport & Recreation Queensland, 2005; Stefanik et al., 1959). Furthermore, physically fit people have a better immune system against colds and upper respiratory tract infections (Corbin et al., 2011; Schardt, 1993).

In summary, physical activity:

1. Improves cardiovascular health, Please renumber beginning at 1.
2. Mental health
3. Opportunity for successful experience and social interactions

4. Improved appearance
5. Greater lean body mass and less body fat
6. Improved flexibility
7. Bone development
8. Reduced cancer risk
9. Reduced effect of acquired aging
10. Improved wellness
11. Improved strength and muscular endurance
12. Resistance to fatigue (American Heart Association, 2019; Corbin et al., 2011; Centers for Disease Control and Prevention, 2019).

Knowledge of the health benefits of physical activity has always been known but evidence-based research has rapidly progressed over the last 50 years. The connections between physical activity and PE are illustrated by Lynch (2016, p. 4):

> Specifically, children 5–12 years are recommended moderate to vigorous intensity physical activities for at least 60 minutes a day for social, emotional and intellectual, and health benefits (Commonwealth of Australia, 2014). Physical education "is the entry-point for lifelong participation in physical activity" (UNESCO, 2015, p. 6).

While the health benefits of physical activity (and QPE) are known, there are global issues with implementation—as described in Chapter 1 under the sub-heading 'Problem', (cf. pp. 8–15). With a focus on Australia, the Australian Curriculum Assessment and Reporting Authority (ACARA) draft shape paper for HPE, espouses quality experiences for children and the importance of having these from the very beginnings of schooling. What is being accentuated within this shape paper is one particular aspect of quality HPE; that it is 'developmentally appropriate'. The priority for Health and Physical Education is "to provide ongoing, developmentally appropriate opportunities for students to practise and apply the knowledge, understanding and skills necessary to maintain and enhance their own and others' health and wellbeing" (ACARA, 2012, p. 4).

In the late 1980s and early 1990s, the HPE school curriculum within Australian schools was considered to have been in crisis (Dinan-Thompson, 2009; Tinning et al., 1994). Curriculum research indicates that the 'crisis' was experienced at an international level also

(Dinan-Thompson, 2009, p. 4). 'In-house' discussions of crisis at HPE conferences and in journals led to a Senate Inquiry (Commonwealth of Australia, 1992) into the state of physical education and sport within Australian Education systems. The findings in the report by the Senate Standing Committee on Environment, Recreation and the Arts (Commonwealth of Australia, 1992) confirmed the 'in-house' discussions of crisis (Dinan-Thompson, 2009). The findings included that there was in fact a decline in the opportunities for QPE in Australian schools although paradoxically there was unanimous support for the learning area. The problems were mainly with resources and the time allocation to the key learning area which resulted in a drastic decline in children's skill levels and physical fitness (Tinning et al., 1994).

These issues, according to the Australian Council for Health, Physical Education and Recreation (ACHPER) still exist today. "It is true that some schools struggle to provide quality PE and sport, in particular in primary schools" (2011). Furthermore, some graduate teachers are to this day completing teaching degrees without studying any units in Health and Physical Education and are then responsible for implementing this learning area in schools. Health and Physical Education primary specialist teachers are only employed sporadically within primary schools across Australia with, according to Dinan-Thompson (2009, p. 48) questions often raised about "who is teaching HPE, and who is deemed competent to teach HPE in schools".

In response to addressing such issues on a global scale UNESCO designed a national strategy for quality physical education (QPE) in 2015:

1. Teacher education, supply and development
2. Facilities, equipment and resources
3. Curriculum flexibility
4. Community partnerships
5. Monitoring and quality assurance (p. 23).

Findings and Discussion

Of the three case study schools it appeared that only case study two school was implementing QPE lessons on a regular basis. Only case study two school had a whole school curriculum programme which was developmentally appropriate and progressive, enabling immediate and lifelong

benefits. Only case study two school implemented a Perceptual Motor Program in the early years of the school which developed the locomotor skills of walking, running, hopping, vertical jumping, horizontal jumping, galloping, sliding, skipping, and leaping, and the manipulative skills of throwing, catching, dribbling, striking, kicking and punting balls. Children do not acquire fundamental movement skills (FMS) naturally, rather they need to be provided with quality learning experiences to enable development (Doorn, 1999). Research suggests that the best time for children to learn and refine their motor skills is in the early years of school (Branta et al., 1984; Commonwealth of Australia, 1992; Espenschade & Eckert, 1980) and health behaviours such as regular physical activity, developed at a young age can predict the same healthy behaviours later in life (Palomäki et al., 2018). Hence, in case study two school PE "is the entry-point for lifelong participation in physical activity" (UNESCO, 2015, p. 6) and QPE "enshrined in UNESCO's 1978 International Charter of Physical Education and Sport", is evidenced as a "fundamental right for all, and an essential element of lifelong education" (UNESCO, 2015, p. 11).

Only case study two school lessons observed by the researcher actually confirmed the teacher participants' shared insights and evidenced their understanding of the socio-cultural approach, embedded in the HPE syllabus. This was evidenced through the promotion of social justice and equity principles, where the HPE specialist teacher structured and taught inclusive lessons which acknowledged student diversity and skill levels and created supportive learning environments (QSCC, 1999). Such learning environments were created through the use of eclectic pedagogies. At times a traditional dominant science pedagogy (Tinning, 2004) was evidenced with emphasis placed on correct skills and movement techniques. This was achieved through demonstrations, cues, explanations and by providing feedback to students. At other times critical socially just pedagogies (Tinning, 2004) were evidenced in a diverse range of sports and skills covered and implemented using several minor games simultaneously, enabling students maximum participation and involvement.

In this case study it is clear that qualified specialist HPE teachers positively influence the implementation of the school's curriculum, a finding strongly supported by the national survey of primary school principals—82% of school principals preferred to have H/PE specialist teachers in their school. Within very large sized schools (600 children and more)

all comments from Principals supported HPE specialists within primary schools, with 97.8% of Principals preferring to have a specialist HPE teacher.

Principals stated quality PE was increased by a H/PE specialist teacher, provided through: expertise (knowledge of the subject) and qualifications; priority of the learning area; skill development (correct technique); motivation and interest (passion); community relations; confidence; safety; consistent/ regular lessons; and coordination of HPE/ sport within the school. Thus enabling a comprehensive, sequential, developmentally appropriate and consistent programme delivered across the whole school (where resources are maintained). It was mentioned that HPE classes often provide release time for classroom teachers and that some teachers lack confidence and training. Having a specialist HPE teacher was perceived as being in the best interest of children's health/wellbeing and provision of a variety of health opportunities, also allowing classroom teachers to focus on other curriculum areas—not be burdened by curriculum demands, parents to not have to pay for outsourcing, and enable optimal safety.

Furthermore, only case study two school employed a HPE specialist teacher with qualifications in the HPE learning area, who had extensive knowledge of the HPE syllabus and demonstrated an awareness of the various pedagogies needed to deliver quality HPE lessons (Tinning, 2004). This was endorsed by case study two school student participants who said that they enjoyed HPE Physical Activity and found it fun. Thirteen of the twenty-four student participants named HPE as their favourite school learning area at case study two school—even though the focus groups were selected to represent a cross section of interests. There were only two student participants from case study one school and not one from case study three school who expressed such positive sentiments about the HPE key learning area (cf. Table 12.2, p. 128). The QPE experience for children in case study two school increases children's likeliness of meeting the recommended moderate to vigorous intensity physical activities for at least 60 minutes a day (Commonwealth of Australia, 2014).

There presently does appear to be an issue regarding the knowledge and ability of those teaching PE in schools, as Dinan-Thompson (2009, p. 48) phrases "who is teaching HPE, and who is deemed competent to teach HPE in schools". When principals were commenting on key attributes of a good HPE teacher—the top five responses were: HPE

curriculum knowledge and developmentally appropriate pedagogy; planning/ assessment and flexibility; rapport/communication and management skills; passion/interest/enthusiasm in HPE and children; and that they are a good classroom teacher also. It can be argued that these top five responses closely relate to Teacher Education and specifically the UNESCO national strategy for QPE (2015).

There were 232 schools (61.7%) where a HPE specialist teacher was responsible for part or all of the implementation of the learning area. However, of these 232 schools there were 36.4% (95 principals) who stated that their HPE specialist did not have specific qualifications in PE. Furthermore, 115 principals chose not to answer the question which suggests that many of the HPE specialist teachers were either not qualified or the principals were not informed of any specific qualification. Another major problem identified in the Australian senate inquiry was that "suitably qualified physical education teachers were not being employed to teach physical education and school sport to all children" (Commonwealth of Australia, 1992, p. xiv). There was also no required accreditation or formal training in physical or sport education as a condition of employment for graduating primary school teachers (Moore, 1994). Hence, there does appear to be a gap in Teacher education, supply and development, the first focal point for the UNESCO national strategy.

Principals believed a course that qualifies teachers to be generalist classroom teachers and HPE specialists would be or would probably be valuable (83.2%). Only 2.4% of principals indicated that it would not be valuable. The majority of principals believed a testamur/ certificate that read "Bachelor of Primary Education (Health and Physical Education)" would assist or probably assist them with the employment of staff (60.3%). Only 12.9% believed it would not assist.

In the UK the UNESCO national strategy for quality physical education (QPE) does appear to be even more pertinent. Teacher education, supply and development are necessary as a 'lack of understanding' of physical education amongst generalist teachers and fellow teacher educators was identified as a challenge to overcome in the ITE course. Also, Angela (pseudonym) the PE specialist teaching primary children, shared that during her Graduate Teacher Programme (GTP) course preparation "in terms of primary, there was nothing. It was a secondary PE course". Andrew (pseudonym) asserted, "I know in the UK we don't have specialist PE in primary and primary teachers have to teach PE". Furthermore, he believed that there was an opportunity at university to have a

course which qualified teachers to teach PE in the primary school and where they could learn what he has learnt over many years of experience. Angela agreed, she thought primary teachers being given the opportunity to specialise in PE was an ideal course, "that would be brilliant" but commented, "there would be very few in the UK".

Official ITE course documentation stated; "The physical education team recognise that some nonspecialist trainees embarking on a course of initial teacher education have significant weaknesses in, and negative attitudes towards the subject". Therefore, if as Angela suggests "training for primary PE is minimal". Then, as Andrew identifies in primary school "teachers wouldn't be that confident to teach PE". Simone (pseudonym), the ITE lecturer supported this belief and specifically referred to field experience; "Some classroom teachers lack confidence and therefore hand it (PE) over to them (pre-service teachers) straight away".

Priorities 2, 3 and 4; Facilities, equipment and resources; Curriculum flexibility; and Community Partnerships, respectively, were also identified by the specialist teachers and lecturers as being important and related. Partnerships (priority 4) enabled more facilities, equipment and resources (priority 2)—identified as a problem area throughout history which resulted in a drastic decline in children's skill levels and physical fitness (Tinning et al., 1994). The university and schools shared facilities as ITE subject leader shared:

> One of the schools their hall is tiny and they have 30 children, so they have to break it (PE lessons) into three sessions of PE, they bring 10 children in at a time. So when they come up to our hall, which to them is a huge space, their children get a lot from it, using all the apparatus and equipment that we have got as well, so it's a win-win situation really for both of us.

Furthermore, she shared that "the children get a lot from it" as they get access to expertise, space and equipment that they may otherwise not have. The teacher educators shared that parents also benefit from the partnerships who at times are invited up to observe the lessons.

Hence, community partnerships (priority 4) were also used to optimise Teacher education, supply and development (priority 1) and Monitoring and quality assurance (priority 5). The ITE subject lead commented:

> They [teachers] value it as well, they see it as an opportunity to get CPD (Continuing Professional Development). From experience they often say 'That was brilliant, I never thought of doing that, I'm going to try do that' and things like this. So it is good and helpful to them too. But also they (the classroom teacher) get to sit and watch and assess their children.

Partnerships were also a successful strategy identified by the PE specialist teachers; Andrew and Angela discussed the School Sports Partnerships. This partnership involved "giving advice to the primary classroom teachers, giving them schemes of work and giving them guidelines, they [primary classroom teachers] gradually then took over the lessons and the sports coordinators became an advisory role". As Angela detailed this initiative "ran all over the country—they either brought coaches in or gave the teachers schemes of work, they gave the teachers training. Every primary [school] had a 'link' teacher. They could have a whole day training session for gymnastics and go back and train their school". Andrew referred to the partnership as "brilliant" and "standards improved significantly". Angela was employed as a sports coordinator in the sports partnership initiative where she would "go into primary schools and help primary school teachers with their PE teaching". However, the initiative ended when as Andrew states "the government pulled the funding".

Andrew recommended that it was essential "to watch lessons being delivered by a primary expert in PE—that's the key". He advocated that there "has to be good communication with classroom teachers with what is expected. What frameworks are being used". In Andrew's context this was essential as he was underprepared for the primary sector, "from my own experiences, because I am not trained in that area… communication and how to talk to Key Stage 1 children and Key Stage 2 children. We learn a lot from the teachers and then they learn a lot of our skills and then you put it all together and you start to get some good lessons". This related specifically to the first and fifth priority of the UNESCO national strategy; Teacher education, supply and development and monitoring and quality assurance. School leadership also plays an important role in advocating communication and employment of teachers.

School leadership was an issue raised, specifically the role of headteachers in deciding who they employ within the school to coordinate physical education. The ITE lecturer shared "It is the Head's ultimate responsibility. Anyone going into primary school will have a teaching qualification (classroom teacher) and it is assumed they will take PE, even

if they've only had six hours training". As the ITE subject lead affirmed, "Yes, and it doesn't always have to be a qualified teacher, so sometimes head teachers will say this person is a gymnastics coach, we're going to get them in. So they might not have qualified teacher status (QTS) but they have qualifications in gymnastics".

Teaching a holistic HPE learning area did come with identified problems. Within the PE field in the US states it appears that time was the major barrier for teachers in relation to HPE implementation. As Robert (pseudonym) shared; "The biggest problem is time. We barely have time to teach Physical education standards. How are we going to add health standards to an already overloaded programme?" Ruth (pseudonym) from New York (East Coast) suggested that "many PE teachers, like myself, incorporate many health topics into our lessons (ie: nutrition, tobacco use, safety, how the body works, hygiene, etc.)". Furthermore, she offered examples of curriculum connections for managing the crowded curriculum, which relate to the third UNESCO strategy priority—curriculum flexibility. "These concepts, and many more, can be easily integrated into various games/activities". Curriculum connections were supported by Barry also, a Middle School teacher from Washington.

Other barriers included a lack of either a health curriculum, Ruth (pseudonym), or physical education curriculum, Rebecca (pseudonym), and also professional development, Lucy (pseudonym). This often resulted in the prioritisation of PE but as Rebecca (pseudonym) from Washington shared, health is at times taught at the expense of PE. Kate spoke of her disbelief in the holistic HPE ideal because of the practical barriers. Another barrier was teacher preparation, as Ruth shares; "creating a HPE titled position, although a good idea perhaps, could be truly burdensome to the PE teacher who has limited time with their students as it is in most instances. Proper training is a must since most PE majors don't really focus on Health unless they are striving for a separate certification".

Quality Physical Education (QPE) was enacted in the primary school case study maintained by the government school of England, located in Asia; primary school case study, British School Overseas (BSO), located in Africa; and primary and secondary school case study, British curriculum school located in the Middle East. All case study schools had specialist PE teachers with a well planned and developmentally appropriate WSCP.

Reflection

This chapter explores the physical dimension and wellbeing benefits within the HPE learning area. Are being overweight or obesity, Type II diabetes and mental health of concern amongst community members within your context? How are people responsible for leading and teaching PE knowledgeable and confident? What are examples of developmentally appropriate physical activities within your context? How are resources and time used to enhance HPE? How are partnerships used to enhance the physical dimension for learning?

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