

The promoting active lifestyles (PAL) project: a principle-based approach to pedagogical change

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This paper presents findings on physical education (PE) trainees' and teachers' attempts to design and implement authentic curricular experiences, within the constraints of a neoliberalist context. It involved adopting a principle-based approach to promoting active lifestyles designed to align PE trainees' and teachers' health-related philosophies and pedagogies. The promoting active lifestyles (PAL) project was framed by social cognitive theory and the social ecological model and adopted a qualitative explanatory case study approach. Participants were secondary school PE trainees and teachers involved in a University-based Initial Teacher Education partnership in the East Midlands in England. The 32 participants were involved in professional development which included co-constructing and implementing PAL principles in the schools in which they were employed or undertaking their placement. All participants viewed the PAL principles positively and were able to implement at least some of them. Participants experienced unanticipated benefits beyond increased physical activity such as improved pupil behaviour. Many participants described transformative and enduring changes to their health-related philosophies and pedagogies. This low cost, flexible principle-based approach to pedagogical change addresses calls for evidence-based PE-for-health pedagogies and the development of possibilities that acknowledge the complexity of supporting physical educators to become more effective promoters of physical activity.

Keywords: physical education; health promotion; physical activity promotion; pedagogy; curriculum; professional development; social cognitive theory; social ecological model

Introduction

The role of schools in contributing to public health has been widely advocated (World Health Organisation, 2018) and schools have been encouraged to adopt whole school approaches to health promotion which incorporate the promotion of an active way of life (World Health Organisation, 2018; Department for Education, 2019; Public Health England, 2019). The promotion of active lifestyles is also an established, global goal of PE curricula (New Zealand Ministry of Education, 2007; Australian Curriculum & Reporting Authority, 2011; Department for Education, 2013). In England, for example, promoting an active way of life has been an increasingly prominent theme within successive revisions of the National Curriculum for Physical Education, with a current main aim being that all pupils should lead healthy,

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active lifestyles (Department for Education, 2013). Indeed, Kirk (2018) considers that health has increasingly become the leading justification for PE in schools.

The role of education in public health has, however, been critiqued, a key issue being that schools have other priorities and limited capacity and funding to take on public health outcomes (Gard & Pluim, 2014). Nevertheless, and notwithstanding the potential and real conflict between education and health outcomes, there is arguably some logic in schools in general and selected curriculum subjects (such as physical education) striving to contribute to health promotion, given schools' educative role and potential to influence nearly all children and their families. However, despite the seemingly accepted role that PE might play in health promotion, there are long-standing and continuing debates about the purpose and nature of PE and its role as a vehicle to achieve public health goals. Lounsbery and colleagues (2011), for example, point out that health is just one of multiple, competing objectives for the subject, others including the development of physical competence, social skills, moral values and intellectual ability. There has also been much criticism of PE curricula that are overly focused on a narrow range of objectives such as the development of motor skills (often via a dominant diet of team games) in that they have not shifted sufficiently to offer activities that are considered to more effectively promote regular physical activity (Trost, 2004; Fardy *et al.*, 2004; McKenzie & Kahan, 2004).

Some physical educators are very positive about physical education's contribution to public health (e.g. Tappe & Burgeson, 2004; Cone, 2004), while others question the appropriateness of a public health goal for the subject (e.g. Evans *et al.*, 2004; Kirk, 2018) and highlight the potential pitfalls of this (O'Sullivan, 2004). There is also a mid-position in which the potential of the subject to achieve health outcomes is recognised, alongside awareness of significant constraints to achieving that potential (Fox *et al.*, 2004; Trost, 2004). Fardy and colleagues (2004) question what the subject can realistically achieve in this respect, given limited curriculum time and workforce issues such as insufficient initial and continuing professional development. O'Sullivan (2004) concluded that, whilst physical educators generally agree that physical education should promote physical activity, major challenges persist with respect to the degree to which PE should focus on public health goals and what this looks like in practice. Armour and Harris (2013, p. 209) similarly claimed that the international PE community is uncertain about the 'proper role for PE in health' and about the level of responsibility the profession should accept for children's health outcomes.

Previous research which has investigated how health is constructed and enacted in PE contexts has revealed a somewhat 'hit and miss' approach to the expression of health in PE and a lack of clarity about effective health-enhancing PE (Harris, 2005). It also revealed potentially detrimental health-related practices such as dreary drill and an overemphasis on fitness testing and training regimes (Evans *et al.*, 2008; Cale & Harris, 2009; Wellard, 2012; Harris & Cale, 2019). Indeed, Cale and Harris (2009) have proposed that fitness testing (depending on its purpose, content and delivery) may be a misdirected effort in promoting healthy, active lifestyles. Harris and Leggett (2015) also detected a lack of alignment between PE teachers' health-related philosophies and practices with many PE teachers declaring an intent to promote healthy, active lifestyles yet doing so predominantly through a narrow and potentially

off-putting range of fitness testing and training activities. All of this suggests a need for increased emphasis on initial and continuing professional development focusing on whole school and subject-specific approaches to health promotion. However, Alfrey *et al.* (2012) revealed a 'conundrum' in that many PE teachers have misguided confidence in their ability to teach health-related physical education and consequently tend not to engage with any CPD related to health and lifelong physical activity.

Given this, and the persistently limited and limiting health discourses and approaches within physical education, there is clearly a need for competency building, collaboration, the development of new ideas and sustained teacher change in this area of work. Indeed, back in 2006, Kirk pleaded for a critical approach to achieving healthy lifestyles that 'aims to open up possibilities and alternatives, to reveal the complexity of social life, and to resist the imposition of simplistic explanations and quick fix solutions' (p. 257). Armour and Harris (2013) similarly called for the development of new, complex, evidence-based and personalised PE-for-health pedagogies and this has since emerged as a developing area of research. Recent studies focusing on pedagogical approaches to promoting health within physical education have attempted to address some of the known problems in this area. For example, Weaver and colleagues (2016, 2018) in the United States involved PE teachers in a participatory-based, competency building professional workshop focused on implementing physical activity promoting practices (e.g. eliminating queues; using small-sided games) and found that pupils' physical activity behaviours within PE increased. In addition, Bowler (2019) and Sammon (2019) in the United Kingdom explored the development and application of a health-based physical education model which forefronts 'valuing a physically active life' as its primary goal and revealed that collaborative and sustained professional development programmes can support teachers to adopt new ideas and change their practices over time. These studies addressed and provided further insight into the challenges that PE teachers face when teaching PE for health, including their own limited understanding of health and issues associated with narrow and limiting curriculum discourse around health.

Collectively, research in this area of work contributes to welcome discussions about a potential resurgence in the way PE is constructed and taught, framed within wider debates about change, transformation and the potentialities of PE (Lawson, 2018; Thorburn, 2019). It is recognised, however, that this resurgence is situated within a neoliberal context which positions PE as vulnerable to privatised reforms (in the form of increased marketisation, performativity and outsourcing) that increasingly shape PE teachers' influence on curriculum space and design, arguably adversely affecting the potentialities of PE (Macdonald, 2011). For example, within the context of health-related physical education, the centrality of fitness testing (often including body mass measures) reflects the emphasis on high stakes testing within a broader neoliberal policy climate (Macdonald, 2011). This is despite Cale and Harris (2009) presenting the counter argument that fitness testing in PE may well represent a mis-directed effort in the promotion of healthy, active lifestyles and that limited PE time may, therefore, be better spent. The pervasiveness of neoliberal agendas has also led to additional concerns about health promotion outcomes being unattainable for the profession, the narrowing of PE to what can be measured, and an overemphasis on individual children's body shape or weight or fitness such that PE becomes a negative

experience (Tinning, 2000; Cale & Harris, 2009). Furthermore, increased marketisation and outsourcing has led to a range of providers (e.g. health, fitness and exercise instructors) and products (e.g. those focusing on fitness scores, body weight measures and training plans) which claim to address public health crises (Macdonald, 2011).

Given the somewhat precarious nature of PE within this resurgence, alongside ongoing debates about PE's contribution to health plus concerns associated with some health-related approaches and limited professional development in this area, the Promoting Active Lifestyles (PAL) project was created. The main aim of this project was to develop and trial a novel principle-based approach to promoting active lifestyles designed to inform and develop PE trainees' and teachers' health-related philosophies and pedagogies. In particular, it aimed to help PE trainees and teachers to align their aspirations for young people to lead physically active lives with their practices within the physical education curriculum, as part of a whole school approach to health promotion. This particular paper focuses on the PE trainees' and teachers' development of, and engagement with, whole school and subject-specific physical activity promoting principles.

The PAL project was underpinned by social cognitive theory which recognises the influence of experiences, actions and environmental factors on health behaviour (Bandura, 1986). Within this, and similar to other studies which have focused on the promotion of physical activity in school settings (Langille & Rodgers, 2010; Hyndman *et al.*, 2012), the project embraced the social ecological model which acknowledges the interactive characteristics of individuals and environments that underlie health outcomes (Sallis *et al.*, 2008) and emphasises that children's physical activity behaviour is influenced by multiple levels associated with individual, social, environmental and policy factors (Salmon & King, 2010). More specifically, the PAL project focused on the intrapersonal and interpersonal levels of this model (McLeroy *et al.*, 1988) by providing support to PE trainees and teachers who regularly interact with and potentially influence young people's health-related understandings, attitudes and behaviours. This support took the form of an intervention which set out to inform and engage PE trainees and teachers in ongoing debates about health within PE and to assist them in creating possible ways forward.

Methods

Approach

In addition to the PAL project being framed by social cognitive theory and the social ecological model, it was informed by the literature on school-based approaches to health and physical activity promotion. For example, Kriemler and colleagues' (2011) review confirmed the public health potential of high quality, school-based physical activity interventions for increasing physical activity in youth. A review by Golden and Earp (2012) revealed that interventions that focused on certain topics or occurred in particular settings more successfully implemented a social ecological approach. Furthermore, a review of interventions focusing specifically on increasing physical activity in the school setting found multi-faceted interventions such as

those which aimed to increase physical activity levels in PE lessons as well as incorporating curriculum and/or environmental changes to be the most effective (Salmon *et al.*, 2007). In addition, this review revealed that strategies requiring little training and promoting less structured types of physical activity were more sustainable. The above findings informed the design of the PAL project in that it adopted a single topic (physical activity), single setting (schools) and multi-faceted approach (whole school and subject-specific). It was also designed to be sufficiently flexible to be implemented across a range of school settings and populations with no requirement to follow a rigid programme, accessible in that it involved limited training and resources, and thereby potentially sustainable. The methodological approach adopted took the form of qualitative explanatory case studies.

Setting, participants and engagement

Secondary school PE teachers and trainee teachers involved in a one year University-based Initial Teacher Education (ITE) partnership in the East Midlands in England were invited to participate in the study. At the beginning of three consecutive academic years commencing in 2015-2016, an invitation to be involved was made to the PE trainee teachers at the University and to the school-based PE mentors (experienced PE teachers) who support the trainee teachers' development in the secondary schools within the partnership. During 2016-2017 and 2017-2018, the invitation was also sent to participants from previous years. During the fourth year of the project (2018-2019), no invitations were made to trainee teachers but previous participants were invited to continue their involvement. Over the course of the study, eight participants from 2015-2016, seven from 2016-2017 and seven from 2017-2018 remained involved and 10 withdrew due to personal and health issues and/or increased work responsibilities. Of the 22 participants who engaged with the study throughout, 13 were female and 9 male. A summary of the participants is presented in Table 1.

Table 1. Summary of study participants 2015-2019

Academic year	New participants	Continuing participants	Total number of participants who engaged for the academic year
2015-2016	12 (3 teachers and 9 trainee teachers)	All participants were new	11 (2 teachers and 9 trainee teachers)
2016-2017	11 (2 teachers and 9 trainee teachers)	9 teachers from 2015-2016	19 (11 teachers and 8 trainee teachers)
2017-2018	9 (1 teacher and 8 trainee teachers)	9 teachers from 2015-2016 & 8 teachers from 2016-2017	25 (18 teachers and 7 trainee teachers)
2018-2019	No new participants were invited	8 teachers from 2015-2016, 7 from 2016-2017 & 7 from 2017-2018	22 teachers

Research activity

During the first year of the project, participants attended four, two-hour professional development sessions at the University every few months. Within these sessions, the participants were informed about and discussed the implications of global literature associated with the promotion of active lifestyles (e.g. relating to whole school approaches, physical activity for health recommendations, health-based PE and the role of fitness testing in promoting activity). In this way, the intervention directly connected with and addressed the known limited and limiting health discourses and approaches within physical education. The participants were also introduced to principles associated with promoting active lifestyles based on research-informed good practice (e.g. promote active travel to school; teach pupils how active they should be). Participants were asked to draw on this literature to co-construct principles associated with promoting active lifestyles in schools (PAL principles). Between sessions, the participants selected and implemented the PAL principles flexibly (in accordance with their local contexts and pupils' needs) in the schools in which they were employed or undertaking their school placement. The sessions provided opportunities for the participants to share and reflect on their experiences which ultimately helped to create a supportive community of practice (Wenger, 2000).

During the following three academic years commencing 2016-2017, the four sessions were replaced by a three hour professional development workshop at the University during which participants were introduced to the previously developed principles and encouraged to amend, develop or add to them and to implement any number of them in their schools, choosing those aligned with their local contexts and pupils' needs. Participants were also encouraged to share their experiences via participant-led online groups. The authors did not engage with these groups although did respond to requests from them, for example for additional resources associated with promoting active lifestyles.

Data collection, analysis and ethics

Participants were invited to complete an online survey three months into and at the end of each academic year. The early survey included questions about their own and pupils' initial responses to implementing the PAL principles, and any changes to their thinking or teaching about promoting active lifestyles as a consequence of their involvement in the project. The latter survey included some previous questions and also asked what had helped and hindered their implementation of the PAL principles and the likelihood of them continuing to implement these in the future.

All participants were also invited to be interviewed during Autumn 2019 to discuss the impact of their involvement in the project on themselves, their pupils and their schools, and to share any documentation relating to this impact. Interviews were conducted with 10 (out of a possible 22) teachers at various locations across England that were convenient for them (mostly their schools but occasionally at professional development events). Each interview lasted between 30 and 60 minutes and was audio-recorded with the consent of the teachers involved. Four of the ten interviewed teachers additionally brought documentation that they had produced in the form

of pupil booklets and revised schemes of work. Trustworthiness of the data was enhanced by asking participants to verify the accuracy of the interview transcripts.

The survey and interview data were analysed in line with constructivist grounded theory methods (Charmaz, 2006). The first stage of the analysis involved highlighting keywords and phrases within the responses, the second stage involved coding and grouping these into related issues and the third stage was the identification of categories and themes (Ritchie & Lewis, 2013). Constant comparison of existing and developing themes was used to explore how the data added to or changed the patterns of existing information.

Ethical approval for the study was obtained from the authors' institution. All participants were informed that they could withdraw from it at any stage, without this affecting their current or future involvement in the ITE partnership.

Results

Data analysis led to the development of three major themes: pragmatism in PAL practice; unanticipated benefits; and transforming philosophies and pedagogies.

Pragmatism in PAL practice

A key feature of the project was the co-construction and implementation of principles associated with promoting active lifestyles in schools. Twenty PAL principles were developed, 10 were categorised as whole school and 10 as PE-specific, as follows:

Whole school PAL principles.

1. Include the physical activity for health guidelines for children in the teaching of PSHE (Personal, Social, Health and Economic) Education (alongside other health guidelines) as well as in PE.
2. Discuss the promotion of active lifestyles, including marketing the 'one hour a day' physical activity guideline, with all staff, governors, pupils and parents/carers.
3. Put 'increasing physical activity levels' on the agenda of School Councils and encourage pupil representatives to propose ideas for achieving this.
4. Increase activity levels in non-PE lessons by having pupils move more within the learning environment (e.g. in the classroom or outdoors).
5. Promote active travel to school (cycling, walking and scooting) and ensure safe storage of cycles/scooters.
6. Ensure that physical activity facilities (including changing areas) are well managed, clean and safe.
7. Review the school's extra-curricular physical activity programme and consider how accessible/appealing it is for ALL pupils.
8. Encourage and reward teachers from all subjects to contribute to the school's extra-curricular programme.
9. Visibly raise the profile of physical activity in school (e.g. via noticeboards, newsletters, intranet/website, assemblies, media).
10. Develop good community links (e.g. with feeder/partner schools, local leisure centres and sports clubs) to increase the quality and quantity of physical activity opportunities for pupils.

PE-specific PAL principles.

1. Limit/reduce time spent getting ready for/from PE lessons; maximise 'learning' time.
2. Meet the Association for Physical Education (afPE) guideline of pupils moving for 50%-80% of the available learning time (excluding changing and getting to/from venues) by limiting/reducing the time spent giving instructions and queueing/waiting to access equipment/resources.
3. Use the time spent getting to and from venues actively (e.g. walking briskly, jogging), as part of the warm up/cool down.
4. Teach pupils about the broad range of benefits (physical, psychological and social) of a healthy, active lifestyle, including the role of physical activity in healthy weight management.
5. Move pupils on to the next task without stopping the whole class, where appropriate.
6. Acknowledge, praise and reward effort and progress.
7. Include assessment of learning and progress in active ways (e.g. show me...; demonstrate...; shadow...).
8. Routinely inform pupils where they can be active within 3–5 miles of the school radius (in every unit of work and via the school's intranet/library).
9. Teach pupils how active they should be, involve them in monitoring their activity levels so they become aware of how active they are, and inform them of multiple ways of increasing their activity levels.
10. Identify low active pupils and offer them (and their parents/carers) support/guidance/information and targeted/bespoke activity sessions.

Co-construction of the principles was in keeping with the social ecological model in that PE teachers acknowledged a range of influences on young people's physical activity behaviour within and beyond the school setting (Salmon & King, 2010). This approach also helped to counteract some of the known limitations of top-down professional development (see Keay *et al.*, 2019).

Participants involved in the first year of the project were those who most significantly contributed to the development of the PAL principles. However, participants from later years were given opportunities to revise, develop and add to the principles—though no changes were suggested. Indeed, all participants were positive about the principles, describing them as 'pragmatic', 'practical', 'manageable' and 'easy to put into practice'. One teacher stated:

My department will love these. They are so straightforward. Everyone can see the sense in them. We don't have great facilities or much in the way of funds but we can still have a go at nearly all of these. (Female teacher, 2015–2016, 3 years' teaching experience)

Other teachers, having trialled the principles, stated:

Having a list of principles worked well as it allowed my PE colleagues to select a few they wanted to focus on. It's straightforward, not like previous programmes that were a burden. We liked the simplicity of this approach. (Male teacher, 2017–2018, 3 years' teaching experience)

We chose the principles we thought would work best. We liked the freedom and flexibility of this approach. We weren't being told what to do, we could do what we wanted in a way that's best for our pupils. (Female teacher, 2018–2019, 4 years' teaching experience)

All participants, including trainee teachers, reported that they had been able to implement at least some of the PAL principles. PE-specific principles were the most frequently selected, as exemplified in the following quotations:

I reduced the time spent getting ready for lessons to give more time for learning. I also tried to ensure pupils were active for longer in my lessons and this helped my lessons work better. (Female trainee teacher, 2015-2016)

I put learning outcomes on cards in corners of the hall and pupils had to find them rather than sitting them down and talking through them. I also gave shorter instructions and more demos. Plus, I asked pupils to 'show me' rather than 'tell me' during questioning sessions, that worked a treat and the kids liked it too. (Male trainee teacher, 2016-2017)

I used active assessment during lessons when students led stations. This allowed me to move around the class and ask students to show me what they had been taught. It is something I will continue to do as it works well, especially for students that struggle with their literacy. (Male teacher, 2016-2017, 6 years' teaching experience)

I looked at the afPE guideline about how much pupils should be moving in lessons. The percentage varied a lot, it was 45% for a new sport Tchoukball but 85% for football. I learnt not to introduce so much new stuff in one go and not to keep stopping the whole class to move pupils on. I learnt these things even though I've been teaching for over ten years. (Male teacher, 2018-2019, 11 years' teaching experience)

In addition, some of the experienced teachers referred to adopting a 'departmental' approach to implementing the PE principles:

Getting the students more active in PE has been a push for us in the department. We each tried a different PAL principle and the ones that worked well were getting the students changed within 5 minutes, reducing the time we spend talking, and active plenaries. As a result, all our lessons are now more active. (Male teacher, 2015-2016, 7 years' teaching experience)

My department chose the PE principle about informing pupils where they can be active in the area. We put together a board that showed pupils all local activity and sports clubs. There was a lot of interest in this. We also encouraged pupils to jog to where the lesson was taking place as part of their warm up and this worked really well. (Female teacher, 2017-2018, 5 years' teaching experience)

Whole school principles were less frequently implemented and it was predominantly the more experienced teachers who selected these. For example, two stated:

I focused on visibly raising the profile of physical activity and put posters around the school so that students and staff would be better informed and could make up their own minds about changing their lifestyles. (Male teacher, 2017-2018, 2 years' teaching experience)

I decided to include physical activity in the PSHE programme as I'm in charge of this. I put it into the Passport 2 Health Initiative which helps pupils make healthy lifestyle choices. (Female teacher, 2018-2019, 9 years' teaching experience)

On the contrary, some trainee teachers referred to particular challenges or barriers to implementing whole school principles. Two commented:

I didn't choose any of the whole school principles as I'm only a trainee and can't really start telling qualified teachers what to do. I'll give them a go though when I'm properly settled in my own school next year. (Male trainee teacher, 2015-2016)

It's difficult for me as a trainee to go beyond the changes I can implement within my own lessons. (Male trainee teacher, 2017-2018)

The increased attention to subject-specific over whole school principles aligns with Craig and colleagues' (2016) finding that teachers generally give prominence to subject-specific over generic curriculum issues. The challenges in implementing the principles demonstrate some of the previously identified constraints to achieving public health goals within school settings (see Fardy, Azzollini & Herman, 2004).

Unanticipated benefits

Participants reported some principles to have benefits beyond increasing physical activity, including improved pupil behaviour and enjoyment and enhanced differentiation and assessment. These benefits seemingly came as a surprise to participants with them frequently being describing as 'unexpected' or a 'bonus':

I found a useful spin off was that pupils behaved better, probably 'cos they were moving around more and it was more enjoyable. Anyhow, it was a big bonus and made it easier for me to focus on the teaching and learning side of things. (Female trainee teacher, 2015-2016)

A principle I used a lot was active assessment of learning - I found that pupils liked and got more out of this, as opposed to just answering questions. It makes sense to do it like this, it keeps more of the physical in PE. (Female teacher, 2016-2017, 3 years' teaching experience)

I found using active assessment for learning very successful such as getting pupils to coach each other through the techniques they had just learned. Also, having them move to stand in a certain area based on their opinion of how well they understood the task or mastered the skill. Pupils seemed to enjoy these activities which was a real bonus. (Male teacher, 2017-2018, 2 years' teaching experience)

This year, I focused on the principle about moving on to the next task without stopping the whole class. I really like this as it supports differentiation. It worked well in badminton and basketball, where I was able to move around and set different challenges for different groups. The pupils seemed to prefer it too. (Male teacher, 2018-2019, 1 year' teaching experience)

These unexpected benefits inevitably reflect the complexity of the setting and the inter-connected nature of teaching and learning; they also affirm Kirk's (2006) call for critical, sophisticated approaches to addressing public health goals within an educational setting.

Transforming philosophies and pedagogies

All participants reported that their involvement in the PAL project had changed their thinking and teaching about active lifestyles, and many described the changes as 'major', 'big' or radical', as exemplified in the following quotations:

I now reference health and well-being more in my lessons, I didn't do enough of this before. It's a big change for me but I feel that I am now helping our pupils join up the dots regarding health. They need this. (Female teacher, 2016-2017, 3 years' teaching experience)

I've realised that it's the responsibility of all teachers to promote active lifestyles, not just the PE department. I hope that in future employment I can promote this message across the school. This

would reinforce the importance of active lifestyles from different angles. (Female trainee teacher, 2017–2018)

It has made me re-think how I structure lessons to encourage pupils to be active for longer. It's made me consider different ways to bring in activity where it maybe wouldn't have been before and how important this is. This is a radical change to how I teach. (Female teacher, 2018–2019, 6 years' teaching experience)

The change is major. It's made the whole department appreciate that health isn't just a theme to focus on for a half term now and again. It should be a key pillar of the PE and wider school curriculum. (Male teacher, 2018–2019, 11 years' teaching experience)

Many participants also reported that they intended to continue to implement some of the PAL principles in the future:

When I'm in my new school, I'm going to continue with the PE principles I've had success with so far and I'm going to try out some whole school ones. I talked about these at interview and the staff showed a lot of interest. (Female trainee teacher, 2016–2017)

Next year, we're going to continue with the principles we've already introduced and we're going to bring in a new '5 mins and you're out' rule in the changing rooms. We're also going to teach about the physical activity guidelines in PSHE. (Female teacher, 2017–2018, 5 years' teaching experience)

We'll definitely continue with the principles that have worked, they are now written into our departmental plan. (Female teacher, 2018–2019, 6 years' teaching experience)

These findings suggest that, even within the constraints of a neoliberalist context, significant teacher change is possible over time, providing that teachers are supported to recognise the broad range and interactive nature of influences on young people's health behaviour and that they perceive the change to be desirable, possible and manageable within their own settings.

Discussion

The specific aim of the PAL project was to develop and trial a novel principle-based approach to promoting active lifestyles designed to inform and develop PE trainees' and teachers' health-related philosophies and pedagogies. The PAL principles which were co-created by the participants reflected the social cognitive theory and social ecological model underpinning the study in that they acknowledged a range of experiences, actions and factors on children's physical activity behaviour such as access to wide-ranging and appealing extra-curricular and community-based programmes and the importance of involving non-PE teachers and parents/carers. The fact that as many 'whole school' principles were created as 'subject-specific' principles suggests that the participants collectively understood the multiple and interactive influences that underlie health outcomes.

As with studies by Weaver and colleagues (2016, 2018) in the USA and Bowler (2019) and Sammon (2019) in the United Kingdom, improvements were detected in PE teachers' effectiveness as promoters of physical activity. These improvements were the consequence of the participants readily engaging in co-constructing the PAL principles, expressing much satisfaction with them, and all finding ways of implementing at least some of them. This somewhat modest but positive response was

most likely associated with participants' involvement in co-constructing and thereby 'owning' the principles, and with design features of the project such as its simplicity, accessibility and flexibility, all of which avoided rigidity which is an identified characteristic of ineffective implementation of school programmes (Forman *et al.*, 2009) and enhanced sustainability. The approach adopted gave prominence to teachers as co-constructors of knowledge and curriculum developers, thereby avoiding the limitations of narrowly focused professional development experiences in PE (Keay *et al.*, 2019). In this way, it helped to address the 'conundrum' previously identified by Alfrey and colleagues (2012) of PE teachers' lack of engagement with health-related professional development, associated with limited awareness and perhaps acceptance of gaps in their health-related knowledge and understanding.

It is unsurprising that the participants mostly selected to implement subject-specific principles, given that teachers generally pay more attention to subject-specific (e.g. aims) and pragmatic issues (e.g. resources) over more generic curriculum ambitions such as the promotion of health via interdisciplinary learning (Craig *et al.*, 2016). It is perhaps also no surprise that trainee teachers engaged less than experienced teachers with whole school principles as implementing the latter inevitably takes time and is more complex, given the need to influence colleagues. This was perceived by trainee teachers to be especially challenging given their status within the school setting. This aligns with the literature on occupational socialisation theory (Lawson, 1986) which reveals that the socialisation of early career teachers can be hindered by situational workplace constraints (Curtner-Smith, 2001). These constraints have also been found within contemporary education with beginning teachers subdued by neoliberalist school cultures characterised by accountability, work intensification, performance appraisal, regulation of teacher competence and competition (Loh & Hu, 2014). It is encouraging though that many participants expressed a desire to try and impact the whole school in the future and that some strived to achieve this during the study.

The unanticipated benefits described by participants may have been related to the co-constructed approach to the project which built on teachers' current knowledge/practice, acknowledged the contexts and constraints of their working environments and provided opportunities for reflection and sharing. This aligns with what is known about effective professional development for contemporary PE teachers, such as it needing to acknowledge the complexity of the learning process, prioritise context and contemporary challenges and bridge research/theory-practice in innovative ways, all of which are more likely to result in improved pedagogy and student outcomes (Armour *et al.*, 2017). The unanticipated benefits provided some evidence of improved pupil responses to pedagogical change; however, it is recognised these were not verified by additional measures such as the use of lesson observations, attitude surveys and accelerometers, mainly to reduce the research burden on schools. Despite this, the transformative and enduring changes to the teachers' health-related philosophies and pedagogies described by many of the trainees and teachers indicate that the research-informed approach within the PAL project led to evidence-based teaching; it is suggested that this was achieved by creating the conditions for pedagogical-driven practice gains that can reduce gaps between policy and practice. Indeed, a key aim of the study was to help PE trainees and teachers align their aspirations for young

people to lead physically active lives with their practices within the physical education curriculum. The findings of this study are encouraging in this respect as they suggest that closer alignment between philosophies and pedagogies was achieved which resulted in PE trainees and teachers becoming more effective promoters of physical activity, thereby enhancing PE's contribution to public health.

The PAL project has a number of strengths such as its 'bottom up' approach which ensured that the co-constructed principles were deemed pragmatic and the participants had ownership of them. Additional strengths were the relatively low-cost, low-burden approach and the support system underpinning the programme, the latter of which is a key influencing factor in the implementation of school-based physical activity interventions (Naylor *et al.*, 2015). The project can be viewed as supporting the development of practices that are 'sensitive to broader pedagogical purposes and educational principles, and less likely to be influenced by non-pedagogical pressures which render education a means to an end, a performance to be delivered, and an ongoing game of performativity' (Priestley & Philippou, 2018, pp. 156–157). The project supported the development of such practices by retaining a clear focus (on promoting active lifestyles amongst young people) and on educational principles (such as equity and high quality learning); this helped to counter pressures to blindly engage with the increasing trends of high stakes testing and outsourcing associated with neoliberalism (Macdonald, 2011).

The PAL project also has limitations such as its relatively small and voluntary sample and additional measures not being included to verify the reported pedagogical changes or the perceived pupil responses. A further limitation is that the project did not address structural levels of influence on behaviour which might have a more enduring health impact. Future studies could expand the sample and include measures to verify the pedagogical changes (e.g. those adopted by Weaver *et al.*, 2016, 2018) and pupil responses. They could also go beyond the lower levels of the social ecological model and further explore the influence of the communities of practice.

Notwithstanding these limitations, the findings of this principle-based approach to promoting active lifestyles suggest that it has the potential to address some debilitating and even corrosive influences of neoliberalism in curriculum PE, associated in particular with high stakes testing, marketisation and outsourcing (Macdonald, 2011). These influences seem to be particularly prominent in the area of health-related physical education with, for example, regular calls for national fitness testing and body weight measures and numerous providers and products claiming to 'solve' public health 'crises' such as poor mental health, low activity and fitness levels, and increased obesity amongst young people (see Evans, 2014).

Conclusion

The findings of this study contribute to discussions about a resurgence in the way PE is constructed and taught, within the constraints of a neoliberal context (Macdonald, 2011). In particular, it respects PE teachers' professional autonomy and encourages critical, creative and personalised responses to change agendas associated with future potentialities in health and physical education. The study also addresses a call for evidence-based PE-for-health pedagogies (Armour & Harris, 2013) and

constructively responds to neoliberalist concerns associated with the privileging of reductive health-related practices in PE, centred on measurable outcomes, accountability and heightened surveillance (Macdonald, 2011; Evans, 2014). Increasing PE teachers' professional autonomy in this area represents a much-needed step towards retaining 'some semblance of control over one's destiny in education and PE' (Evans & Davies, 2015, p. 23).

Disclosure statement

The study was approved by Loughborough University's Ethics Committee.

Data deposition and geolocation information

The data are located at the University campus (LE12 3TU).

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