

WAS PHYSICAL EDUCATION AS BAD AS PEOPLE REMEMBER IT? A QUALITATIVE THEMATIC REVIEW

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Abstract

Observations of middle aged to retired clients in Personal Training practices in London UK, surfaced two themes; exercise-averse individuals with sedentary leisure and work pursuits reported poor experiences of physical education in secondary (high) school, whereas more active clients reported positive reflections. This instigated a systematic examination of contemporaneous documents and literature, which sought to explain the context of this reality. Five major themes emerged: The politico-educational environment from the 1960's to the 1970's, the parallel experience of maths anxiety, teaching practice, navigating failure and economic implications. Evidence suggests why the behaviour of a generation has been impacted; a post-war hierarchical social order undergoing profound change, poor pedagogic practices in which the less able found themselves suffering everything from corporal punishment to physical embarrassment and response models to failure predict clients' later behaviours. The research findings substantiate the claims of clients' memories of negative experiences with physical education at secondary school. The research concludes that the socio-economic costs associated with such past failures in PE are estimated to exceed £6 billion over the life of a contemporary five-year UK government and have clear social and economic implications for other developed democracies.

Keywords: *Sedentary, anxiety, school, failure, adult, physical education*

Introduction

In the UK, the cost associated with physical inactivity was £7.4 billion per year, of which £0.9 billion was to the NHS (Office for Health Improvement and Disparities, 2019). Together with this exorbitant toll and the general malaise towards exercise, COVID 19 has been shown to have had a further and significant effect on reducing activity levels in the general public (Stockwell et al., 2021). These failings and their wider economic implications for advanced democracies suggest the value of investigating all avenues for solutions to health and wellbeing issues, be they in the past as well as in the present.

In a bid to understand inactivity, a body of literature in Physical Education (PE) has considered the historical stumbling blocks of pedagogic regimes; some have looked at the effects of school sport on exercise participation in later life. Streat (2009) documented negative memories of PE experience, and Cardinal et al. (2013) looked at the specific pedagogic practices of choosing sides for teams to have a lasting effect, whereas Thompson et al.'s (2003) longitudinal study identified links between adults' activity personae and their wider experiences of growing up and PE and the debate as to whether behaviours can be laid at history's door alone or are more significantly influenced by socio-relational aspects of an adults present life continues (Cotter and Lachman, 2010).

This paper takes the novel perspective of considering middle aged adults' reported memories of PE in secondary school and takes a multi-disciplinary approach to investigate the wider contemporaneous socio-political and pedagogic literature to determine if there is validity in these memories. From the outset it was hoped that this investigation and research question, '*Was physical education as bad as people remember it?*' would offer important insights for educationalists, fitness trainers and health policy advisers into physical inactivity, its origins and ramifications.

The original observation

Anecdotal discussions during training sessions in a specialist personal training practice, serving middle aged to retired men and women in North West London UK, highlighted two potential patterns. On the one hand, there was a group of six clients that reported they had enjoyed physical education (PE) at school and continued age appropriate physical activity (PA) throughout their adult lives. Often only constrained by extrinsic lifecourse factors such as raising a young family or time consuming job promotions, this group disported a greater awareness of their body and believed wholeheartedly in its capacity to function effectively from childhood through adulthood.

On the other hand, the other group of eighteen clients, overwhelmingly reported that bad experiences of PE classes in secondary school had significantly undermined their attitude to physical activity and as a consequence had seemingly decided that 'PE wasn't for them'. Clients reported an unpleasant event happening to them during PE classes at the ages of 14-15. Many could cite specific negative events with clarity, even after all this time. The events varied from person to person, such as being embarrassed in front of their cohort because they could not do, or failed at a particular task. Some reported feeling physical pain when attempting, then failing, a task after having been harangued by a teacher to participate; always being the last to be picked for the team; or feeling incapable through constant jibes from a teacher. Others reported a number of minor events that cohered into a more amorphous loathing of the subject. Many had such extreme reactions to these events that they truanted during PE classes or arrived with inadequate kit so they would have to sit on the bench and watch their classmates continue without them.

These memories come from people who are now successful members of their communities and professions, but who have been so affected by their experiences, that they have done little or no serious exercise since, some 35-60 years ago. The clients were aware of the importance of exercise as part of a healthy lifestyle and acknowledged that their bodies have become so dissociated from their physicality overtime, that in order to be successful exercisers, they first have to develop a physical vocabulary (Evans et al., 2009), which they attempt to achieve through the guidance of a personal trainer. Although individual circumstances differed, clients essentially fell into one of these two thematic physical activity lifecourse pathways that both led back to school PE experiences. This observation was then researched and discovered to be prevalent across other personal training practices across North West London UK (Elliott et al., 2017)

Method

This study undertook a thematic review, utilising thematic networks (Attride-Stirling, 2001) and reported using the COREQ framework (Tong et al., 2007).

Databases were initially examined for relevant literature and material. However, the historical nature of the phenomenon being examined meant that the sources analysed included contemporaneous documents, government archives and pictorial evidence, as well as academic books and papers. Contemporaneous documents were preferred wherever possible with post period commentaries used as and when necessary.

The combined body of literature was used pragmatically to inform the research on an iterative basis (Cresswell, 1994) Evidence and material was grouped and sub-grouped thematically to form understanding concerning the contemporaneous context and environment of the research era. Further searches were undertaken as new themes emerged during the analytic process. Major themes identified included: The educational environment from the 1960s to the 1970s, the parallel experience of maths anxiety, teaching practice, navigating failure and economic implications.

The research question was only deemed to have been appropriately addressed when an extensive body of evidence and material had been fully examined.

Results

The educational environment 1960s-1970s – a time of change

The pertinent period of school attendance for the population under concern was between 1960 and 1975; a class ridden society in a period of political and social flux. Intellectually and institutionally, it followed on from a previous half century which in jettisoning many of the ideas and practices of 19th century, classical liberalism went on to embrace and conjoin heightened forms of interventionist public policy, not least in the areas of education and welfare.

Today, it may seem curious to recall, but this was a time when there was an increasing and influential alliance between many statist and often aristocratic Tories and the advocates of varying degrees of socialism (Semmel, 1960). As eugenics, social Darwinism, Marxism, and rationalistic notions of state planning conspired to inform varying types and degrees of paternalism across much of the political spectrum (Searle, 1971, Searle, 1986, Soloway, 1990), so the origins of the welfare state, including the 1911 National Insurance Act, looked less like altruism, and more like a degree of authoritarian social engineering in part for the sake of such concepts as ‘national strength’, ‘war’ and even ‘racial hygiene’ (Skocpol, 1992, Jamieson and Corr, 1990, Dwork, 1987).

In sport, recent history had given rise to politicised mass games and mass drills. At major international sporting events, everything from the British Empire Games, the 1936 Berlin Summer Olympics, and the impressive displays of mass sports drill in Stalin's Soviet Russia; all combined to articulate a world in which authority, the collective, and the transformative power of the state could unite and mobilise to deliver all manner of 'social progress' (Riordan, 1999) and education spearheaded such momentous changes.

In British education, outside of the public school system (private and independent schools patronised by the upper classes), the post war world commenced with a tripartite system of selective grammar (often previously independent but now state funded school that retained a traditionalist ethos and was associated with the middle classes), secondary technical schools and secondary modern (state funded school with an emphasis on vocational training and associated with the working classes). Technical schools were not widely developed and so a strong bipartite system emerged. This was a more socialist version of its pre-war, class divided, Public and Elementary School predecessors (Aldrich, 2002). Although now controlled by the emerging middle classes, the values of the ruling elite still predominated over an education system in which grammar school teaching in particular was still infused with upper class moralities:

...continuative education through sport in a chivalrous code of sportsmanship ... involving honest rivalry and graceful acceptance of results ... may provide a respect for the rules and a sense of fair play will prevail (Arnold, 1968).

By the early 1960's, social and political tensions, that had developed since the war together with changing socio-moral attitudes, called for transformation. Comprehensive schooling (state funded schools but with no streaming by ability), had been tentatively experimented with since 1946 as it sought to address social iniquities, the waste of potential ability and improve social mobility (Crowther, 1959). It built traction till it was introduced by Anthony Crosland, the reforming Labour Secretary of State for Education and Science in 1965, who famously asserted, *'I'm going to destroy every f...ing grammar school'* (Crosland, 1982) in his bid to overcome divisions between labour and the professions. For some, it was Crosland's own middle class background that explains the decade long delay in the implementation of comprehensive schooling. Only in 1975 was the Comprehensive Education Bill passed to deliver wider implementation of the policy (Jones, 2003).

Before the Comprehensive Education Bill, the education system of selective grammar, secondary modern and experimental comprehensive schooling evidenced tensions at the heart of the class system and were a stage for visible change, exposing dichotomies in political argument and educational reform that would take years to play out. An example of this is the raising of the school leaving age from 15 to 16 (ROSLA), originally postulated in the 1944 Education act but not enacted until 1972 including having been postponed by the sitting labour government whose Treasury believed it would be too expensive. Another example is class and sexual prejudice. Arguments for single sex or mixed sex schooling reflected the differing paradigms and in mixed sex schools, subjects such as PE teaching brought out teachers' own gender prejudices (Scruton, 1986). Segregation by activity was not uncommon. In this world, boys played football whilst girls played netball.

Streaming by ability in grammar, secondary modern and comprehensive schools remained stubbornly entrenched. However, in the new spirit of social change, overt reform became state led. In 1964, the Schools Council was established after the Lockwood Committee to consider and reform the curriculum and examinations and in 1965, Antony Crosland, following the Newsom Report of 1963 and the National Advisory Council on the Training and Supply of Teachers report, expanded the

teacher training scheme. This shook up the status quo with the intent to reduce class sizes, have qualified teachers in all subjects, bring a more centralised approach to the curriculum, which previously had been seen as the domain of the teacher as professional. These adjustments were not universally embraced and adopted and the secondary school system was slow to develop and change (Whitehead and Hendry, 1976) and it would not be until 1988 Education Reform Act when the National Curriculum was made law.

In secondary modern schools, class divisions were overt. Intake was made up of pupils who had failed the '11 plus' examination and who were predominantly from working class backgrounds. An authoritarian approach seemed to prevail partly from the perceived notion of, '*... working people [being] the bearers of educationally disadvantageous behaviour*' (Halsey, 1968). This is exemplified when some secondary modern pupils were themselves interviewed for the Central Advisory Council for Education (1963). A 15-year-old school leaver commented, '*They couldn't control us because they treated us like children and even kept telling us we were only children*'. Insightfully, the Central Advisory Council concluded, children '*don't see the point of what they are being asked to do and are conscious of making little progress*' (1963 p14). After noting such a decline in interest and ability by many girls and boys by the age of 14, it recommended an urgent need for research into teaching techniques for overcoming the learning difficulties that had been created. This was reiterated eight years later by The Schools Council PE Committee (1971) who warned that if children of 13 and 14 years of age wanted to contract out of physical education, there must be something wrong with it,

If you tend to write children off they will appear to themselves to be written off. Physical ineptitude is surely more in the eye of the teacher than in the mind of the child'. They all have immense possibilities and need reassurance and the confidence, even self satisfaction, which physical education can give them if it is imaginatively taught.

It must be remembered that at this time PE was not an examined subject. It had poor academic grounding and virtually no scholarly content. It was just as likely to be taught by a physics teacher, or a dedicated PT instructor who had been trained in the wartime army, as anyone else. Specially trained PE teachers were rare (Arnold, 1968). Teaching was still fundamentally influenced by the Syllabus of Physical training for schools issued by the Board of Education in 1933 and revised by the later Ministry of Education 'Moving and Growing' in 1952 and 'Planning the Programme' in 1953 (French, 1984).

Arnold notes that rather than embracing change, many PE teachers hid behind the veneer of 'how' rather than 'why'. He notes that pupils commonly asked '*Why do we have to waste time with PE?*' or '*why are 'we' forced to do a particular activity rather than another?*' To answer these questions, the teacher would have to of had a "*thought out position of educational philosophy*". Such a position was rendered difficult given the PE pedagogic climate. However, there were tentative underlying attempts to address the existential problems of PE,

In recent years many physical educationalists have been at great pains to explain that they are concerned primarily with education 'through' the physical rather than 'of' the physical. The new concept introduced by the change in preposition has made the subject respectable in most schools and is now thought about in more comprehensive terms (Arnold, 1968).

Eras do not have clean divisions but instead often evolve from one set of seemingly incongruous leadership practices to another (Rickards and Clark, 2006). The fledgling comprehensive system that came to dominate so much of the future educational landscape, was itself ultimately overseen by the same professional elite as the existing two-tiered system. Yet again, even here, evidence highlighted

that it was the children from more middle class backgrounds who had improved chances of getting to university. Halsey argued this was due to comprehensive schools comparatively soft selection processes based on academic ability, class and culture (Halsey, 1968). Arguably, it was not until the 1980's and significant changes in pedagogic philosophy that many of these concerns were recognised, acknowledged and acted on (Jones, 2003).

The socio-political educational environment of the time the cohort of personal training clients in question went through secondary school was one of great flux. Society was in a process of redefining its values. Structures such as education became pivotal battlegrounds for divided philosophies and requirements. Syllabus approaches to PE teaching had moved from authoritarian disciplined routines of the pre-war to the personal domain of the teacher in the 60's to the falteringly centralised curriculum of the 70's. Pupils certainly had no agency and were prey to whatever local situation they found themselves in. However, in and of itself, this may not be strong enough evidence to fully explain a following lifelong avoidance of physical activity. No contemporaneous evidence was found that considered why PE was so disastrous for so many, so other school subjects were explored that might also have had a similar aversive effect into adult life. It was mathematics that evidenced parallel poor outcomes.

The Parallel experiences of Maths Anxiety

Just as under-achievement in school PE became the norm for many - there is also evidence that many pupils struggled in other subjects such as English, but it is mathematics that stands out when it comes to documented research and evidence (Chinn, 2007). Unlike PE, negative responses to mathematics have been exhaustively researched and investigated. Indeed, the labels 'maths phobia', 'maths aversion' and 'maths anxiety' have become widely recognised terms; so much so, that a standard test for measuring maths anxiety in school children (MARS-A) was introduced in 1982 (Suinn and Edwards, 1982) and remains in widespread use to this day.

Like PE, it seems that mathematical teaching-methods were an acknowledged cause for concern within the educational establishment: *'The state of mathematics teaching is so bad that all research efforts should be directed to classroom practice'* (Hart, 1983). Hart also noted that teachers' attitudes to their own subject were playing a relevant role: *'mathematics teachers are accustomed to seeing others fail in mathematics, and they often expect the children they teach to fail'*.

Intellectual deficits in children may go some way to explaining low attainment in mathematics (Haylock, 1991). Having poor sequencing skills, low concentration, poor capacity for abstracted thought and low working memory (Ashcraft and Kirk, 2001) could all have been contributory factors but they could not account for the high overall numbers failing this key subject.

Maths anxiety in pupils can often be attributed to three sets of factors: First, environmental factors, which included negative experiences in the classroom, parental pressure and the insensitivity of some teachers (Trujillo and Hadfield, 2009). *'The learner knows they will have to come back tomorrow and face humiliation in the classroom. The learner has a sense of pessimism and permanence'* (Chinn, 2007). Second, intellectual factors such as self doubt, lack of confidence and mismatched learning styles; or when challenging experiences have a subsequent, negative effect on motivation and performance (Struthers and Perry, 1996). Third, personality factors, where learners blame their personality for mathematical inability (Trujillo and Hadfield, 2009, Hendel, 1980).

Chinn (2007) invokes these three factors of environmental, intellectual and personality influences, applying them to surface the experiential realities of maths pupils. He cites three factors:

'Pervasive (I can't do this sum, I can't do any maths)

Permanent (I couldn't learn 12x tables last night, I'll never learn them)

Personal (I'm just thick)'. (Chinn, 2007)

These factors can also be similarly transposed to PE:

Pervasive (I can't run, I can't do PE)

Permanent (I couldn't do gym exercises/athletics, I'll never be able to do them)

Personal (I'm just not sporty).

Pupils that failed in mathematics often went on to make profound and far-reaching career decisions, with young adults picking their higher/further education course, college and/or job on the necessity for mathematical proficiency or lack thereof (Donady and Tobias, 1977). Anxiety was even recorded in nurses when it came to them having to do mathematical dosage equations (Walsh, 2008).

Dweck (2006) describes such actions as the result of having a 'fixed-mindset' where failures are rooted in the negative constructs of innate ability. This learned response might be as primordial as a Pavlovian conditioned reflex (Pavlov, 1960, Gray, 1979) repeating itself throughout the lifecourse. As Skinner (1972) comments, *'Behaviour is shaped and maintained by its consequences'*.

The more substantially research area of mathematics, suggests parallels with PE. Maths and PE aversions might engender forms of 'fear' that run deeply. Often entrenched in early life, the last word goes to Chinn's (2007) report, which is itself as disturbing as it is familiar. Here, maths and PE are interchangeable, he concludes,

I have known adults who have been driven close to depression by an unavoidable maths task. Even the memories of maths lessons can generate anxiety... Its not what he was saying that hurts me, but it is his harsh voice, his hostile body language and angry expressions, his cold staring eyes, his angry stamping on the floor, his way of saying my name, his tight angry lips, the hard finger poking my back while he yells out loud, blaming me for not being able to do mathematics.

Within English secondary schools, systemic subject problems were universal in at least two curricula subjects, classroom practice might be where they were centred.

Teaching practice and failure in the classroom

There was an implicit assumption that teachers held power over their classroom and were free to dictate what happened within it (Antaki and Brewin, 1982). It is in this context that forms of physical and psychological punishment were perceived as being within the bounds of normal practice, a

hangover from authoritarian practices of the mid war years. They were meted out to pupils unable to perform to an expected level that was itself often unspecified.

When pupils are asked to take the part of the teacher in role-playing experiments they reinforce a pattern of reward and punishment that is virtually identical to that proposed in teachers themselves (Covington and Beery, 1976).

Reactive teaching behaviours predominated (Robinson, 1990), with teachers classifying pupils on their perceived potential to establish, *'what is virtually an educational caste system'* (Antaki and Brewin, 1982). Low expectations of some pupils led to their achievement levels being pre-determined and placed into the existing streaming system (Covington and Beery, 1976, Antaki and Brewin, 1982). Pupils who were labeled in these ways often found it hard to escape the implications (Antaki and Brewin, 1982). For example, children who were streamed with low reading abilities often stayed low achievers for the remainder of their school careers (Covington and Beery, 1976). Teachers treated pupils whom they deemed to be low achievers differently. In the classroom, the evidence suggests that they often positioned pupils further away from the blackboard, expected less effort and work from them, paid less attention to them, including less eye contact and fewer response opportunities and generally spent less time on their development (Covington and Beery, 1976, Robinson, 1990).

Another throw back to the public school ethos and administration of knowledge in the 1920s and 1930s was an implicitly competitive and evaluative environment. Competition between pupils was not only a key feature of PE but embedded universally across the broader curriculum.

...such practices as grouping by ability...and calling attention to those students who are exhibiting specific exemplary performance...these competitive structures depict situations of "forced social comparison. (Robinson, 1990)

Such competitive achievement structures created a higher chance of failure in those less able pupils. Their formal evaluative procedures often compounding a pervading sense of failure amongst those already typecast as failure-orientated children. This made future success not only more unlikely (Robinson, 1990) but it created a personal perception of failure: *'If the teacher thinks I'm useless, I must be and will continue to be, however hard I try'*.

Significantly, children across the age range responded differently (Barker and Graham, 1987). Younger children often equated high effort with high ability and saw themselves as 'able' as long as they continued to try hard. This worldview may stay with children as they mature and be transmogrified into 'hard work means good grades or reports' and be linked to self-esteem. However, the evidence suggests that with many children it can take remarkably little to undermine this worldview. A judgmental authority figure or a poor grade that compares unfavourably when set against other more highly achieving peers can damage and undermine (Weisz and Cameron, 1985, Covington and Beery, 1976). In such an environment learning for average and low ability pupils can become a matter of survival.

In the classroom, pupils aptitude and ability to progress was based on subjective decisions of teachers early on in the pupils school career and once set, was difficult to change as pupils were placed into 'streams'. Pupils who were mediocre or expected to fail often did and were not offered opportunities to alter the course of their learning history. For these pupils 'failure' was an obstacle to be navigated on a daily basis.

Navigating failure

Given that the teaching environment was authoritarian and controlled by the personal preferences of the teacher, in the classroom, it is suggested that Seligman's (1975) Learned Helplessness model best reflects and accommodates the pedagogic processes described in this paper and their effects. In such a negative environment, the child will gradually realise that s/he has little sense of control, is powerless to effect change and therefore might as well give up straight away. This inevitably ends up in task failure and an unhappiness that in extremis can lead to depression.

The child has learned that when English words go up on the blackboard, nothing he does will be right. He falls farther behind, the helplessness deepens. Intelligence, no matter how high, cannot manifest itself if the child believes that his own actions will have no effect. (Seligman, 1975)

However, pupils differed in the degree to which they developed negative emotional symptoms in answer to stressful situations. Responses to fearful regimes had a commonality of failure and engendered widespread avoidance (Allen et al., 2014). Avoidance behaviours occur in order to reduce fear. Interestingly, the response is often not total inaction as this might elicit more punishment, and striving for success might bring about more failure, so doing a bare minimum is often deemed to be the safest path. This is in the knowledge that such behaviour will inevitably bring about a more long-term failure and that the best possible outcome would be mediocrity (Siddle and Bond, 1988, Covington, 1984). Snyder et al. (1981) in their egotism hypothesis suggest that if failure is inevitable, then giving up or reducing one's effort is a rational way to avoid a public humiliation and the stigma associated with the concept of low ability. Robinson (1990) argued that such behaviours were seen frequently in the world of physical education and would reinforce teachers initial decisions on ability.

This shifting of an intrinsic goal locus was named the 'level of aspiration' by Hoppe (1942) and Himmelweit (1947). Hoppe showed behaviour was dynamically reactive to external events: almost pragmatic in nature. For example, Maracek and Mettee (1972) and Storms and McCaul (1976) found that a confirmation of poor self image in children is sought from their peers to elicit a social identity. Confirmation gives it validity. Failure can become a way of life. This can become so entrenched that children will actively sabotage or deny success when it occurs (Covington and Beery, 1976, Struthers and Perry, 1996). They can also give up tasks quickly or show performance decrements after initial failure (Butkowsky and Willows, 1980, Diener and Dweck, 1978, Robinson, 1990) in order to keep a sense of stability: *'individuals have a tendency to maintain a consistent and stable self image even if it's a negative one'* (Jones, 1973).

Such models can explain the personal, daily experiences of numbers of pupils with middle to low ability and are reflected in adults' narratives of PE.

Economic Implications

If, over any given five year electoral period, just 20% of the health costs associated with obesity, being overweight, and physical inactivity could be causally ascribed to the historic failings of inactivity, then the cumulative costs involved would easily exceed £6 billion; or £1.2 billion each and every year. In 2015-16 this equated to enough money to fund more than 2.3 million people's disability living allowances per year in the UK - three quarters of the total spend (De Castella, 2015). In other high-income countries such as the US, given ongoing pressures on Medicaid and Medicare, not to mention off balance liabilities concerning Social Security, a similar cost benefit analysis would likely render similarly significant sums of money.

Limitations

This investigation originated in experiential practice and sought answers to observations in a wider body of academic knowledge. As systematically as the research has been conducted, it has been found to have limitations that might be addressed in future developments. The review was exhaustive but cannot claim to be comprehensive. The research has looked at middle aged to retired people because this group experienced a polemic educational environment at a point of post war social and educational change. As yet, it is not known if the findings are transferable to other age groups or countries, who might have different educational experiences due to the development and reforms of social and pedagogic practice in PE.

Discussion

The inactive clients, seen in a fitness practice, appear to represent the tip of an iceberg in a national policy and economic context of huge and costly rises in non-communicable diseases, such as obesity, hypertension and diabetes type 2 bought about by sedentary lifestyles (Eastwood, 2013b, Eastwood, 2013a). Indeed, the personal training practice clients are in the minority. They proactively try to change their fitness outcomes and improve their health by joining gyms and/or employing personal trainers who are perceived by both the government and public as appropriate professionals in this field (UK Active, 2014). However, the lack of physicality and motivation to exercise in this age group means retention and adherence to exercise in the early stages is low and if not appropriately handled will end in failure. An understanding of this group's perspectives and approaches to physical activity could have profound implications for the wider inactive national population and be a basis for effective exercise prescriptions for practitioners. It is in this context that evidence for clients' anecdotal thematic narratives of negative experiences of physical education were sought, identified and explored in the contemporaneous literature for evidence of corroboration.

1960's to 1970's England was found to be a time of political and social upheaval. The Second World War had shifted the political landscape with control for all divisions of society being contested. The established ruling aristocratic and middle classes were increasingly challenged by an emerging socialistic movement. Education was one of the platforms this social change played out on, tentatively transitioning from the grammar/secondary modern system to a more comprehensive system. The early 70's saw education policy move towards a unified curriculum, smaller class sizes and fully trained teachers, but they were not universally embraced as they challenged a status quo and were slow to be incorporated. Aldrich (2002), Arnold (1968), Armstrong and Sparkes (1991), Halsey (1968), Gurney (1989), Scraton (1986), Central Advisory Council for Education (1963) and the Schools Council PE Committee (1971) chronicled a secondary school environment where poor achievement was rife.

Classroom teaching was found to be a significant determining factor in pupil failure across the curriculum. Throughout the 60's and 70's, pupils were streamed by perceived ability and the teacher decided what was to be taught and how. Reactive teaching behaviours predominated which included haranguing and causing embarrassment for pupils who were unable to perform. Teachers were found to foster competitive reward and punishment structures, which for some pupils became an issue of daily survival. Antaki and Brewin (1982), Covington and Beery (1976), Robinson (1990) and Weisz and Cameron (1985) described classroom environments of harassment, bullying and widespread discrimination. There was low expectation of pupil achievement levels in those that had been deemed 'unable' and they received fewer learning advantages than their more able peers. Those who were labelled 'low achievers' were unable to break such stigmatisation throughout their school careers.

In parallel, Chinn (2007), Hart (1983) and Trujillo and Hadfield (2009), describe mental states such as ‘maths anxiety’ in terms of being the logical outcome of teachers’ responses to pupils, which had profoundly adverse effects on people’s careers choices. The ongoing ill-treatment, week in and week out with no hope of escape, is consistent with the conditions that would allow ‘learned helplessness’ to develop (Maier and Seligman, 1976) amongst other models. As a result, degrees of mental withdrawal resulted from continued exposure to failure.

Maths anxiety research is fulsome. Sadly, PE was not so privileged by such a strong bank of contemporaneous evidence, most likely because it was not deemed to be an academic or qualification subject at the time and not given such importance in people’s future lives. The authors believe this was a mistake. As this study has shown, the effects of peoples experiences with PE resonate through their lives and directly affects their physical health choices and outcomes in middle age and beyond. The body is partly a social construct located in a particular culture and time (Burkitt, 2012). An inability to be proficient at mathematics could create tensions in an environment where success in mathematics is held in high esteem by significant others or an individual’s sense of physicality will be affected if performance ability is shown to be low in a public arena such as group based exercise.

Relationships with other people and organisations constantly mediate the internal sense of self. Moreover, an elastic perspective on the concept of self, stresses an ongoing process of evolution and change and raises the prospect of a world in which individuals redefine themselves over time (Grogan, 2008). In order to make individual sense of such evolutionary shifts, systems of constructs are continually created, that are either accepted or challenged by passing experiences (Kelly, 1955) and modified to fit present circumstances. If individual’s have developed a negative paradigm of physicality at an early age, they may well attempt at points in the lifecourse to challenge their beliefs and re-engage with exercise but unless the new experiences are so profound as to wipe out established fears, failure will be expected and reinforced.

It is with all of this in mind that these findings substantiate the claims of personal training clients’ anecdotal memories of negative experiences of physical education in secondary school. While it highlights models that go some way to explain people’s aversion to physical activity through their lifecourses into middle age, the evidence centres on the relationship between the teacher and the pupil. It is in this context that further research is required.

Given historic pedagogical and policy failures in PE and their ongoing implications for huge numbers of people in today’s society, more detailed economic analysis is required. However, even without such numbers, it is reasonable to assert that similar and combined failings in other developed democracies could be globally costing hundreds of billions of dollars each and every year when preventable health costs and loses in economic productivity are included.

Is is suggested here that it is a mistake for politicians and policy makers to view the production and dissemination of PE through the short term and simplistic prism of cost. From a broader socio-economic perspective, the quest to overcome the pitfalls of inactivity and to deliver high quality PE in the secondary school setting makes for wise investment. In extending lives, lowering long-term health costs and encouraging proactive economic engagement, such ventures make for a multiplicity of beneficial gains.

To invest resources for effective long-term use, policy makers have to champion effective innovation. Today, thankfully, we know much more about what works in secondary PE than we did between the 1960s to mid 1970s. Socio-economically, the real challenge and opportunity is to identify and implement the most effective practices for rewards in the future.

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REFERENCES

- ALDRICH, R. 2002. *A Century of Education*, London, Routledge Falmer.
- ALLEN, M. S., GREENLEES, I. & JONES, M. V. 2014. Personality, counterfactual thinking, and negative emotional reactivity. *Psychology of Sport and Exercise*, 15, 147-154.
- ANTAKI, C. & BREWIN, C. 1982. *Attributions and psychological change*, London, Academic Press.
- ARMSTRONG, N. & SPARKES, A. 1991. *Issues in Physical Education.*, London, Cassell.
- ARNOLD, P. 1968. *Physical Education and Personality Development.*, London, Heinemann.
- ASHCRAFT, M. H. & KIRK, E. P. 2001. The relationship among working memory, math anxiety and performance. *Journal of Experimental Psychology*, 130, 224-237.
- ATTRIDE-STIRLING, J. 2001. Thematic networks: an analytic tool for qualitative research. *Qualitative Research*, 1.
- BARKER, G. P. & GRAHAM, S. 1987. Developmental study of praise and blame as attributional cues. *Journal of Educational Psychology*, 79, 62-66.
- BURKITT, I. 2012. *Social Selves*, Los Angeles, Sage.
- BUTKOWSKY, I. S. & WILLOWS, D. M. 1980. Cognitive-motivational characteristics of children varying in reading ability: Evidence for learned helplessness in poor readers. *Journal of Educational Psychology*, 72, 408-422.
- CARDINAL, B. J., YAN, Z. & CARDINAL, M. K. 2013. Negative Experiences in Physical Education and Sport: How Much Do They Affect Physical Activity Participation Later in Life? *Journal of Physical Education, Recreation & Dance*, 84, 49-53.
- CENTRAL ADVISORY COUNCIL FOR EDUCATION 1963. Half our Future. The Newsom Report. In: NEWSOM, S. J. (ed.). London: H.M.S.O.
- CHINN, S. 2007. *The Trouble with Maths*, London, Routledge Falmer.
- COTTER, K. A. & LACHMAN, M. E. 2010. No Strain, No Gain: Psychosocial Predictors of Physical Activity Across the Adult Lifespan. *J Phys Act Health*, 5, 584-594.
- COVINGTON, M. V. 1984. The Motive for Self-worth. In: AMES, R. E. & AMES, C. (eds.) *Research on Motivation in Education: Student Motivation*. Orlando: Academic Press.
- COVINGTON, M. V. & BEERY, R. G. 1976. *Self Worth and School Learning*, New York, Holt, Rhinehart and Winston.
- CRESSWELL, J. W. 1994. *Research Design: Qualitative and Quantitative Approaches*, Thousand Oaks, Sage.
- CROSLAND, S. 1982. *Tony Crosland*, London, Cape.
- CROWTHER, G. 1959. 15 to 18 : a report of the Central Advisory Council for Education (England). London: Central Advisory Council for Education
- DE CASTELLA, T. 2015. Election 2015: What does a billion pounds actually buy the nation? *BBC News* [Online]. Available: <https://www.bbc.co.uk/news/magazine-32309311>.
- DIENER, C. I. & DWECK, C. S. 1978. An analysis of learned helplessness: Continuous changes in performance, strategy, and achievement cognitions following failure. *Journal of Personality and Social Psychology*, 36, 451-462.
- DONADY, B. & TOBIAS, S. 1977. Math anxiety. *Education Digest*, 43, 49-52.

- DWECK, C. S. 2006. *Mindset: The New Psychology of Success*, New York, Random House.
- DWORK, D. 1987. *War Is Good for Babies and Other Young Children*, London, Tavistock Publications.
- EASTWOOD, P. 2013a. Is the Adult Population in England Active Enough? Initial Results. In: NATCEN (ed.). London: Health and Social Care Information Centre.
- EASTWOOD, P. 2013b. Statistics on Obesity, Physical Activity and Diet. London: Health and Social Care Information Centre, Lifestyles Statistics,.
- ELLIOTT, A., VOLANTE, M., WATT, J. & COHEN, R. 2017. *A Multi-Method Investigation into Physical Activity in Middle-Age through a Lifecourse Perspective*. PhD, Middlesex University.
- EVANS, J., DAVIES, B. & RICH, E. 2009. The body made flesh: embodied learning and the corporeal device. *British Journal of Sociology of Education*, 30, 391-406.
- FRENCH, B. 1984. *Physical Education in the middle years of schooling*. PhD, Loughborough University.
- GRAY, J. A. 1979. *Pavlov*, Brighton, The Harvester Press.
- GROGAN, S. 2008. *Body Image*, London, Routledge.
- GURNEY, P. 1989. Review. *School Psychology International*, 10, 311-312.
- HALSEY, A. H. 1968. New dimensions in higher education. *New Society*, 11, 575.
- HART, K. M. 1983. I know what I believe; do I believe what I know? *Journal for Research in Mathematics Education*, 14, 119-125.
- HAYLOCK, D. 1991. *Teaching Mathematics to Low Attainers, 8-12*, London, Paul Chapman Publishing Ltd.
- HENDEL, D. D. 1980. Experiential and affective correlates of math anxiety in adult women. *Psychology of Women Quarterly*, 5, 219-230.
- HIMMELWEIT, H. T. 1947. A comparative study of the level of aspiration of normal and of neurotic persons. *British Journal of Psychology*, 37, 41-58.
- JAMIESON, L. & CORR, H. 1990. In: JAMIESON, L. & CORR, H. (eds.) *State, Private Life and Political Change*. London: Macmillan.
- JONES, K. 2003. *Education in Britain 1944 to the Present*, Cambridge, Polity Press.
- JONES, S. C. 1973. Self and interpersonal evaluations: esteem theories versus consistency theories. *Psychological Bulletin*, 79, 185-199.
- KELLY, G. A. 1955. *Outline of the Psychology of Personal Constructs*, New York, Norton.
- MAIER, S. F. & SELIGMAN, M. E. P. 1976. Learned helplessness: Theory and evidence. *Journal of Experimental Psychology: General*, 105, 3-46.
- MARACEK, J. & METTEE, D. R. 1972. Avoidance of continued success as a function of self esteem, level of esteem certainty and responsibility for success. *Journal of Personality and Social Psychology*, 22, 98-107.
- OFFICE FOR HEALTH IMPROVEMENT AND DISPARITIES 2019. Physical activity: applying All Our Health (Guidance). London: Office for Health Improvement and Disparities,.
- PAVLOV, I. P. 1960. *Conditioned Reflexes*, New York, Dover Publications Inc.
- RICKARDS, T. & CLARK, M. 2006. *Dilemmas of Leadership*, London, Routledge.
- RIORDAN, J. 1999. *The International Politics of Sport in the Twentieth Century*, Oxford, Routledge.
- ROBINSON, D. W. 1990. An attributional analysis of student demoralization in physical education settings. *Quest: National Association for Physical Education in Higher Education*, 42, 27-39.
- SCHOOLS COUNCIL PE COMMITTEE 1971. *Physical Education 8-13*, London, Evans Methuen.
- SCRATON, S., J. 1986. Images of femininity and the teaching of girls' physical education. In: EVANS, J. (ed.) *Physical Education, Sport and Schooling. Studies in the Sociology of Physical Education*. Lewes: Falmer Press.

- SEARLE, G. R. 1971. *The Quest for National Efficiency*, Oxford, Oxford University Press
- SEARLE, G. R. 1986. *Social Hygiene in Twentieth Century Britain*, London, Croom Helm.
- SELIGMAN, M. E. P. 1975. *Helplessness on Depression, Development and Death*, San Fransisco, W.H. Freeman and Co.
- SEMMELE, B. 1960. *Imperialism and Social Reform: English Social-Imperialist Thought, 1895-1914*, Dambridge MA, Harvard University Press.
- SIDDLE, D. A. T. & BOND, N. W. 1988. Avoidance learning, Pavlovian conditioning and the development of phobias. *Biological Psychology*, 27, 167-183.
- SKINNER, B. E. 1972. *Beyond Freedom and Dignity*, London, Johnathan Cape.
- SKOCPOL, T. 1992. *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States*, Cambridge MA, Belknap Press / Harvard University Press.
- SNYDER, M. L., SMOLLER, B., STRENTA, A. & FRANKEL, A. 1981. A Comparison of egotism, negativity, and learned helplessness as explanations for poor performance after unsolvable problems. *Journal of Personality and Social Psychology*, 40, 24-30.
- SOLOWAY, R. A. 1990. *Demography and Degeneration: Eugenics and the Declining Birthrate in Twentieth Century Britain*, Chapel Hill, University of North Carolina Press.
- STOCKWELL, S., TROTT, M., TULLY, M., SHIN, J., BARNETT, Y., BUTLER, L., MCDERMOTT, D., SCHUCH, F. & SMITH, L. 2021. Changes in physical activity and sedentary behaviours from before to during the COVID-19 pandemic lockdown: a systematic review. *BMJ Open Sport Exerc Med*, 7, e000960.
- STORMS, M. D. & MCCAUL, K. D. 1976. Attribution processes and emotional exacerbation of dysfunctional behaviour. In: HARVEY, J. H., ICKES, W. J. & KIDD, R. F. (eds.) *New Directions in Attribution Research*. Hillsdale: Lawrence Erlaum Associates.
- STREAN, W. B. 2009. Remembering instructors: play, pain and pedagogy. *Qualitative Research in Sport and Exercise*, 1, 210-220.
- STRUTHERS, C. & PERRY, R. 1996. Attributional style, attributional retraining, and inoculation against motivational deficits. *Social Psychology of Education*, 1, 171-187.
- SUINN, R. M. & EDWARDS, R. 1982. The measurement of mathematics anxiety: The mathematics anxiety rating scale for adolescents - MARS - A. *Journal of Clinical Psychology*, 38, 576-580.
- THOMPSON, A. M., HUMBERT, M. L. & MIRWALD, R. L. 2003. A longitudinal study of the impact of childhood and adolescent physical activity experiences on adult physical activity perceptions and behaviors. *Qual Health Res*, 13, 358-77.
- TONG, A., SAINSBURY, P. & CRAIG, J. 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19, 349-357.
- TRUJILLO, K. M. & HADFIELD, O. D. 2009. Tracing the roots of mathematics anxiety through in-depth interviews with preservice elementary teachers. *College Student Journal*, 33.
- UK ACTIVE 2014. *Turning the Tide of Inactivity*. London: UK Active.
- WALSH, K. A. 2008. The relationship among mathematics anxiety, beliefs about mathematics, mathematics self-efficacy, and mathematics performance in associate degree nursing students. *Nursing Education Perspectives*, 29, 226-229.
- WEISZ, J. R. & CAMERON, A. M. 1985. Individual differences in the Student's sense of control. In: AMES, C. & AMES, R. (eds.) *Research on Motivation in Education: The Classroom Milieu*. Orlando: Academic Press.
- WHITEHEAD, N. & HENDRY, L. B. 1976. *Teaching Physical Education in England*, London, Lepus.