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School-based physical activity interventions: a discourse analysis

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ABSTRACT

School-based physical activity (PA) interventions stand out as a highly valued knowledge technology in relation to attempts to promote daily physical activity (DPA) among school youth. The purpose of the paper is to explore technologies of knowledge that guide school-based PA interventions in lower secondary schools and discuss their power-related implications. Foucault's notion of discourse as the ensemble of regulated, deliberate, and finalised ways of doing things underpins the analysis of six school-based PA intervention studies that were identified in the literature between the years 2003 and 2021. The analysis concerned the scientific domain of the studies, their justification of school-based PA interventions, the purpose and results of the interventions, and problems with implementing the interventions. The analysis indicated a distinct narrative where researchers within medical science and psychology proposed that (a) young people's level of PA is too low and therefore they are increasingly exposed to the risk of lifestyle diseases; (b) schools appear as the obvious context for attempts to increase the PA of young people, for example through interventions; (c) contextual factors are often pointed out as significant for the success of the interventions, yet these factors are not systematically placed under the research magnifying glass; (d) few studies demonstrate any tangible change in student behaviour because of the interventions; (e) non-occurring behaviour changes are explained by contextual factors, or that school staff simply do not adhere enough to the intervention efforts. These results are discussed through Foucault's concept of governmentality, that is, the integration of technologies of knowledge, power, and the self. It is concluded that the examined research gain function within a neoliberal governmentality where scientific knowledge aims to change the individual self, rather than to change the social structures in which individuals live their lives.

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Introduction

Reports on increased sedentariness among children and young people have sparked an interest among both governments and researchers to find ways to promote daily physical activity (DPA) among students (e.g. Biddle et al., 2004; Janssen & Blanc, 2010; Poitras et al., 2016). In the case of Sweden, in 2003 instructions were issued at a national level for schools to promote DPA in nine-year compulsory school (SNAE, 2011). Similar initiatives have been taken in several other countries (for a European overview, see WHO, 2018; for the situation in the United States, see Centers for

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Disease Control and Prevention, 2023). Schools are typically targeted since all children and youth go to school (Cale & Harris, 2006a; WHO, 2022). In the efforts to create knowledge about how DPA can be promoted, *school-based physical activity (PA) interventions* have emerged as one of the most important research initiatives (Armour et al., 2013; Erwin et al., 2013; De Meester et al., 2009; Yuksel et al., 2020). Already some time ago, Stone et al. (1998) maintained that school-based PA interventions are useful because schools provide the necessary infrastructure for the interventions. Correspondingly, based on the number of school-based PA interventions, schools generally seem to have responded positively to the researchers' wish to conduct such research in schools.

Our interest in DPA and school-based PA interventions began in 2018 in connection with involvement in a research project aiming to provide knowledge about the role of schools in promoting DPA. In this project, a specific focus was placed on lower secondary schools and 13–16-year-olds, because this is an age where overall sport participation decreases (Findlay et al., 2009; Scheerder et al., 2006; Thedin Jakobsson, 2014). Quite soon, however, we realised that research involving school-based PA interventions mainly focus on primary schools (Cale & Harris, 2006b). While this research appeared at least initially to have been dominated by researcher-led interventions about physiological outcomes in individuals (Cale & Harris, 2006a), it seems to have gradually been supplemented with research also about the context of the interventions (Defever & Jones, 2021). Regarding the more limited research about interventions in secondary schools, the situation was different. Here, the role of schools is still largely unexplored. This may be due to that the area is less developed, or that older children and youth are assumed to be more autonomous and thus not in need of the support that the school context can offer children.

Earlier review articles in the area have reported that the results of school-based PA interventions in secondary schools are ambiguous, at least in the long-term perspective (Erwin et al., 2013; De Meester et al., 2009; Yuksel et al., 2020). However, an in-depth look at the critical literature showed that this was by no means a new insight. Nearly thirty years ago, Siedentop (1996) contended that school-based PA interventions showed poor results regarding long-term impact because they were not designed based on the whole school situation nor paying enough attention to pedagogical considerations. Ten years later, Cale and Harris (2006b, p. 411) concluded that 'despite growing support for the ecological perspective, [...] environmental and policy interventions are the least studied component of school health promotion.' Siedentop's insight has certainly attracted the attention of educational researchers. Kirk, for example, has contributed to the development of both a health-based *pedagogical model* (e.g. Haerens et al., 2006) and an *activist approach to PA* in schools (Oliver & Kirk, 2016). However, our ambition in this article is not to complement, criticise or 'correct' the research about school-based PA interventions. Rather, we are interested in the rationality that underpins research involving school-based PA interventions in secondary schools.

The social forces that govern research and knowledge production is a key theme in the work of the philosopher and historian of ideas Michel Foucault. In the late 1970s, Foucault developed a research theme under the designation power-knowledge (Foucault, 1980), which in the early 1980s evolved into *governmentality*. The concept of governmentality will be elaborated below, but in brief it is about the integration of technologies of power, knowledge, and the self, where the term 'technology' designates the application of scientific knowledge to the practical aims of human life (Foucault, 1991). In this article, we direct empirical attention to one dimension of governmentality, namely technologies of knowledge that govern school-based PA interventions in lower secondary schools. The results are subsequently discussed in relation to the broader concept of governmentality. The article is based on a review of literature about school-based PA interventions in secondary schools which forms the basis of a discourse analysis, Foucault's method for studying governmentality.

School-based physical activity interventions in power-knowledge networks

Science and politics are mundanely regarded as two separate domains. To be objective, which is a common scientific ideal, research must be free from political influence (Park et al., 2020). However,

this idea (and ideal) came to be questioned during the 1970s by scholars such as David Harvey (1974) and Michel Foucault (1980). During the 1980s and up until his untimely death in 1984, Foucault continued to elaborate the research theme power-knowledge under the designation *governmentality*, a concept he created by adding a new ending to government, much as the word technicality has sprung from the word technology. As was mentioned above, governmentality concerns the integration of technologies of power, knowledge, and the self (Foucault, 1991). It crystallises that knowledge production is 'at the same time constitutive to, existing in and emanating from networks of power relations. Science [...] both conditioned by and constitutive to certain governmental needs' (Larsson, 2013, p. 335). From this perspective, scientific knowledge is not just a passive description of reality but is rather about making the world a *manageable* reality. Moreover, knowledge production, as well as governance, implies that people understand themselves and relate to their reality in specific ways. Hence the addition of a third aspect: the self. Several of Foucault's most famous works deal with the paradigmatic shift from one form of governance to another and how this shift has a corresponding shift in knowledge production and the view of the human self (see, e.g. Foucault, 1997).

Foucault (1997, 1991) showed how the governance of people in modern societies is mainly done 'in the name' of the citizens, rather than 'against' or 'over' them. More generally, this characterises a liberal governmentality, which in modern societies exists in at least two versions. In the social liberal version, the community is in focus (society is responsible for its citizens); in the neoliberal version, the individual is in focus (the individual has a personal responsibility that society must ensure). Later, other scholars have contributed to explore the workings of neoliberalism (e.g. Rose, 1999, concerning governance more broadly; Markula & Pringle, 2006, concerning the governance of sport and PA; Popkewitz & Brennan, 1998, concerning the governance of education). According to Rose (1999), neoliberal governmentality promotes the idea of humans as autonomous individuals who make choices in a free market based on objective knowledge. Since the community, i.e. state, according to neoliberalism should intervene in the lives of individuals as little as possible, technologies of government 'at a distance' are devised that aims to arrange life 'for the good of people' (Rose, 1999). Importantly, neoliberalism should not be understood as a pejorative term. It is simply designating the currently dominant governmentality.

While there is extensive research on the governance of individuals in and through sport, fitness and other types of PA (e.g. Markula & Pringle, 2006; Mattioni et al., 2021; Powell & Gard, 2015), there is still a dearth of research on the production of knowledge that will serve to make the world of young people's PA habits manageable. In one of few studies with this focus, Piggini and Bairner (2016, p. 135) considered 'the growing field of physical activity scholarship as a potent policy domain.' They examine how the problem of what among some researchers is called a physical inactivity pandemic 'is rhetorically constructed and how solutions are proposed.' Piggini and Bairner (2016) conclude that PA scholars need 'to reflect on what stories are being (and should be) told about physical activity, in order to develop a more nuanced approach to engaging with it' (p. 143). From previous research, yet based on a different theoretical framework, we get some indications about the reality – and the object of government – that school-based PA intervention research make manageable. The focus of individual behaviour and physical performance (Cale & Harris, 2006a) indicates that the research is primarily conducted within a scientific framework which ties into, at least implicitly, assumptions about individual autonomy, where people who have access to knowledge are assumed to make the 'right' life choices. Such research can be interpreted as expressing how knowledge production functions in a neoliberal governmentality.

We now shift the focus from Foucault's research themes to his overall methodological approach. In the study of governmentality, the notion of *discourse* takes a central role (Foucault, 1998). Discourse is a frequently used term, which has led to a plethora of interpretations of it. Some time ago, Ball (1990) proposed that '(d)iscourses are about what can be said and thought, but also who can speak, when and with what authority' (p. 2). While pedagogically appealing, this definition in some sense limits the meaning of discourse to speaking and thinking. The Foucauldian notion of discourse was somewhat different. It included:

the ensemble of more or less regulated, more or less deliberate, more or less finalized *ways of doing things*, through which can be seen both what was constituted as real for those who sought to think it and manage it and the way in which the latter constituted themselves as subjects capable of knowing, analyzing, and ultimately altering reality. (Foucault, 1998, p. 463; our emphasis)

Considered in this way, discourse includes, but is not restricted to, the regulated, deliberate, and finalised ways of speaking and thinking. It comprises, for example, of ways of asking questions and collecting, analysing, and drawing conclusions from empirical information. Since the concept of discourse crystallizes what is included in a practice, it can also be used to infer what is excluded. In relation to our knowledge interests, this refers to the research questions *not* asked, the information *not* collected and analysed (the research methods not used), and the conclusions that were *not* drawn. This perspective applies to all research, including our own, which means that our questions, analysis, and conclusions can be seen in the same light.

Method

To gain knowledge about school-based PA interventions that aims to change the way lower secondary schools accommodate DPA, we began the research by conducting a review of literature based on this premise. We were mainly interested in PA occurring outside of the subject PE. This is because PA is already a key aspect of PE, but also because PE, as a subject (at least within a Swedish context), encompasses content that does not necessarily involve PA. As was stated earlier, since the review indicated that the schools were not the target of the interventions but rather the young people, our research took a new direction. Nevertheless, below we will explain the search strategy and eligibility criteria of our review of literature. We then move on to how we proceeded with the discourse analysis.

Search strategy and eligibility criteria

The electronic literature search was conducted using four databases: ERIC, SPORT Discus, Psycinfo and Academic Search Premier. Our search was limited to empirical articles written in English and published in peer-reviewed journals between January 2003 and December 2021. The following subject terms were used: ('physical activity' OR 'exercise' OR 'play' OR 'health promotion') AND ('adolescents' OR 'teenager' OR 'young people' OR 'youth') AND ('school') AND ('program' OR 'intervention').

The literature search was based on the following principles: studies were included if they:

- appeared in peer-review journals from January 2003 to December 2021.
- were written in English.
- focused on lower secondary school (students aged 13–16 years).
- dealt with PA during the school day
- included some form of intervention.
- involved students in general, or at least not narrowly defined groups.

Articles were excluded if they:

- lacked information about the intervention or did not involve any obvious intervention (other than that school children were recruited to participate in the study).
- essentially served as a platform for measuring, e.g. obesity and self-efficacy among school children.
- targeted narrowly defined groups of students.
- focused on after school activities, club sport participation, or PA outside school, for example transportation to school.
- focused on PE.

The year 2003 was selected somewhat arbitrarily, but it was deemed appropriate since this year the Swedish government issued recommendations about DPA in schools (SNAE, 2011). Moreover, since some articles had a broader scope than PA, e.g. diet and obesity issues, all articles that at least to some extent concerned PA interventions in schools were initially collected for closer inspection following the below criteria.

The electronic search was done by the authors and yielded 271 articles; 230 after 41 duplications were removed. Titles and abstracts of the 230 articles found were screened 'inclusively' by both authors; if there was any doubt about their relevance for the literature review, they were included. The screening meant that 190 articles were omitted because they failed to meet the inclusion criteria. The remaining 40 full-length articles were then independently evaluated by both authors for eligibility considering the inclusion criteria. After discussion between the authors a further 26 articles were omitted. A second evaluation was done of the remaining 14 articles and after that, only six articles met all the inclusion criteria.

Analysis

The first steps of the analysis resemble a thematic analysis as suggested by Braun and Clarke (2006; see also Braun et al., 2016). They frame thematic analysis as an exploration of 'patterns of meaning across a qualitative dataset' (Braun et al., 2016, p. 191). Initially, we were guided by the first five of Braun and Clarke's (2006; see also Braun et al., 2016) six phases of thematic analysis. We started by (1) familiarising ourselves with the content of the empirical material by both researchers reading through the articles several times. Familiarisation transitioned into (2 and 3) creating themes. These initial phases were done individually by both authors. In the fourth phase (4), the authors met to discuss and problematise the themes; a critical and creative process that (5) flowed into defining and naming themes. In this final phase, the second author acted as a critical friend to the first author who was responsible for text production.

The themes resulted from a number of questions which we posed based on the overall ambition to explore the technologies of knowledge that govern school-based PA interventions: why PA interventions?; why school-based interventions?; what kinds of interventions?; what were the results of the interventions? Regarding the justification of PA interventions, for example, it was apparent that the research approach in all publications was based on a rather narrow account which includes a frequent use of reinforcement words, such as 'alarmingly' and 'unfortunately' (see the results section). Moreover, while structurally narrow, the account highlighted to varying extents physical inactivity, insufficient physical activity, overweight, and obesity. The first theme presented in the results section, regarding the scientific domain, was established later in the process. It resulted from a curiosity about the scientific domicile of the researchers and the scientific journals where the studies were published. The same goes for the last theme, problems of the implementation, which stood out as a particular theme in relation to the question about the results of the interventions.

The next step in the research was more clearly based on Foucault's concept of discourse. We regard the empirical themes as reflecting discourse, that is, ensembles of regulated, deliberate, and finalized *ways of doing things* (Foucault, 1998) – which also means that there are ways of *not* doing things. The themes reflect technologies of knowledge operating in research involving school-based PA interventions. According to governmentality, discourse links technologies of knowledge to technologies of power and the self, that is, specific kinds of governance and specific ways people understand themselves (Foucault, 1991). This step in the research is here presented in the form of a speculative discussion; a discussion that does not aim to criticise or correct the examined research but is meant to highlight further consideration about a research approach which appears to many as 'objective,' i.e. politically and ideologically independent. We now turn to the result of the thematic analysis. Subsequently, we discuss the results in relation to governmentality.

Results

The scientific domain

The six publications in our selection can be found in six different scientific journals: *American Journal of Preventive Medicine*, *BMC Public Health*, *Health Education Research*, *International Journal of Behavioural Nutrition and Physical Activity*, *Journal of Sport & Exercise Psychology* and *Preventive Medicine Reports*. These journals present research in the intersection between what could in more classical terms be called medical science and psychology. Based on the research focus and methods used, it appears that it would be possible for researchers in these two areas to publish in any one of the mentioned journals. The structure of the publications is essentially the same, with relatively short introductions, little or limited theoretical framework, extensive methodological description, use of measurements to assess PA among individuals, preferably in as experimentally designed situations as possible, and quantitative analysis. The further analysis will deepen this brief outline by pointing to additional features that seem to be consistent with this kind of research.

Justification of physical activity interventions

The narrative concerning the need for PA interventions in secondary schools is short and concise. There seems to be a large consensus in the scientific field regarding the nature of the problem. All studies provide similar justifications for PA interventions:

- Adolescents are (becoming) too little physically active,
- which leads to increased risk of obesity and other lifestyle diseases.
- PA is beneficial for several health-related factors.
- Efforts are therefore needed to increase PA among adolescents.

In addition to the often brief, concise, and unambiguous introductions, reinforcement words, such as 'alarmingly,' 'considerable,' 'drastically,' 'high-risk,' and 'unfortunately' are common, which is evident from the quotes below:

Unfortunately, physical inactivity has become a global problem, with more than half of the world's population not achieving modest physical activity recommendations [...]. It is of particular concern that physical activity levels decline drastically during adolescence. (Lubans & Sylva, 2006, p. 252)

Overweight and obesity among children and adolescents has increased alarmingly and has become a serious public health problem. (Haerens et al., 2006, p. 911)

Adequate physical activity reduces the risk of a range of non-communicable diseases. Despite this, only 20% of adolescents accumulate the necessary amount to meet the recommended 60 min of moderate to vigorous physical activity (MVPA) per day. [...] few interventions have targeted this high-risk group. (Sutherland et al., 2016, p. 196)

The language used in the examined studies emphasises certainty concerning the background to the need for augmented efforts to increase PA among adolescents. Not only are reinforcement words common, but the language is also distinctly pathogenic. It focuses on the risks which are associated with 'too little' PA, or as Seibert et al. (2018) put it: 'An increasing number of children and adolescents are now classified as obese and fail to meet minimum recommendations for physical activity [...] To reverse population trends in obesity and physical inactivity, public health interventions to create healthier physical movement environments for children is needed' (p. 60).

Justification of school-based interventions

Schools appear to be the obvious place for PA interventions. At least, no alternatives to school interventions are discussed in the examined publications. All young people are in school for a large part

of the day, which is deemed influential for the youth's behaviour. Moreover, references are made to previous studies that highlight school interventions as a reasonable alternative:

One way in which we may positively influence the physical activity patterns of children and youth is through the school system, as a large portion of each child's day is spent in that setting. (Bremer et al., 2018, p. 2)

Children and adolescents spend high amounts of time at school and the school environment is recognized as having a powerful influence on their physical activity [4, 5] and eating [6, 7] behaviours. (Haerens et al., 2006, p. 911)

There is thus no doubt within the reviewed research that schools are a reasonable place for PA interventions. While some authors are more assertive regarding the chances of success of school interventions (Sutherland et al., 2016), others raise some concern about the issue:

Few interventions have been completed in secondary schools and even fewer have involved students in their final year. This may be due to competition for curriculum time, lack of student interest, or a combination of reasons. Despite difficulties, recent secondary school interventions [...] have demonstrated that secondary schools are appropriate settings for interventions. (Lubans & Sylva, 2006, p. 253)

Some authors also emphasise the need to appropriately contextualise the interventions in the school's activities as well as the importance of connecting the interventions to the young people's homes and their parents:

Evidence from systematic reviews [4, 5] show that the most effective school-based interventions among adolescents used whole-of-school approaches that link curricula activities with the broader school environment and local community. (Okely et al., 2017, p. 2)

Through schools, a direct link can also be established with the home environment. (Haerens et al., 2006, p. 911)

The issue of contextualisation is important, and we will return to it in the subsequent discussion.

The purpose and implementation of school-based physical activity interventions

In contrast to the background and theoretical grounding of the research, the interventions and how these have been evaluated are described extensively in the reviewed articles. Since our analysis does not concern the quality of the research but rather the underpinning rationale, we will sometimes make use of short descriptions of the design taken from the abstracts. It will be clear which quoted formulations come from abstracts and which come from the main body of the articles.

Regarding *the design of the interventions*, PA is included in all these. In some studies, PA is also supplemented by, for example, eating habits, but here we will focus only on PA. Several of the studies take into account previous research stating that 'Researcher-led programs typically do not require a high degree of buy-in for implementation (beyond gaining access initially) from schoolteachers and administrators, as they are led by the research team or involve considerable support for training incentives' (Bremer et al., 2018, p. 2). Therefore, Bremer et al. (2018) sought to implement and evaluate 'the impact of a DPA program consisting of 20 min of teacher-led DPA for 20 consecutive weeks' (p. 1, abstract). Sometimes, the researchers take steps to support school staff even more. Seibert et al. (2018), for example, point out that 'School staff received training, software, and support to perform Fitnessgram® testing including PACER determination at the schools and to securely upload de-identified student fitness data' (Seibert et al., 2018, p. 61).

In some of the studies, the intervention is designed more as a complete program, consisting of several interconnected parts:

In 10 schools, an intervention, combining environmental changes with computer-tailored feedback, was implemented over 2 school years. In five intervention schools, increased parental support was added. (Haerens et al., 2006, p. 911, abstract)

Using a Health Promoting Schools and Action Learning Frameworks, each school formed a committee and developed an action plan for promoting physical activity among Grade 8 girls. The action plan incorporated

strategies in three main areas – i) the formal curriculum, ii) school environment, and iii) home/school/community links ... (Okely et al., 2017, p. 1, abstract)

While no specific theoretical framework is outlined in several studies, the opposite is sometimes the case:

Students in the control group ($n = 40$) participated in unstructured physical activity in a health and fitness center. Students in the intervention group ($n = 38$) participated in a ten-week structured health and exercise program based on Bandura's social learning theories. (Lubans & Sylva, 2006, p. 252, abstract)

The intervention was guided by social cognitive and social-ecologic theories and utilized the WHO's Health Promoting Schools framework. The framework recommends strategies addressing the school curriculum, school environment, and partnerships and services. (Sutherland et al., 2016, p. 196)

While theory was sometimes used to guide the implementation of the interventions, it seemed to have marginal impact of how the interventions were evaluated.

Regarding *the design of the evaluations* of the interventions, unlike in the interventions themselves, focus is almost entirely placed on behavioural responses among the youth. As was stated above, the researchers use objective data obtained from accelerometers (Okely et al., 2017; Sutherland et al., 2016), or subjective data obtained from questionnaires (Bremer et al., 2018; Lubans & Sylva, 2006; Seibert et al., 2018), or both (Haerens et al., 2006). In addition, Seibert et al. (2018) state that they also used a prospective observational trial, where students 'had CVF assessed by Fitnessgram (PACER), a 20-meter shuttle run' (p. 60, abstract). Compared to the description of the interventions, where the context is made visible to a greater extent, the focus in the evaluations, though, falls to a greater extent on behaviour outcomes.

The results of the interventions

Overall, the behavioural changes investigated in the reviewed research are described as limited or completely absent:

There was no significant overall effect of the intervention ... (Bremer et al., 2018, p. 1, abstract)

The *Girls in Sport* intervention had no effect on reducing the decline in physical activity. (Okely et al., 2017, p. 9)

Haerens et al. (2006) report some changes resulting from the first-year intervention, but not from the second year in their two-year intervention. Seibert et al. (2018) similarly report that 'During the first-year, there was a significant increase in the mean PACER score [...] Subsequently, however, a significant negative trend [...] occurred so that over the 3-year study period, the intervention did not increase overall CVF' (p. 60, abstract).

In the study by Lubans and Sylva (2006), the intervention resulted in statistically significant increase in MVPA, but over the three-year period, also the control group had increased their PA levels 'and there was no longer a statistically significant difference between the two groups' (p. 263). Only Sutherland et al. (2016) could report more unambiguous results:

At 24-month follow-up, there were significant effects in favor of the intervention group for daily minutes of MVPA. The adjusted mean difference in change in daily MVPA between groups was 7.0 min ... (p. 195, abstract)

Overall, the results of the studies examined here point to limited success in using school-based interventions to increase PA among youth in secondary schools. How do the researchers interpret these results?

Problems with the implementation

A consistent theme in the researchers' discussion of the results is that there were problems with the implementation of the interventions. Bremer et al. (2018) state that 'Teacher-reported adherence to the program was poor with only 21% of the teachers adhering to the program' (p. 1, abstract). Also,

Okely et al. (2017) point to difficulties for the schools to adhere to the ambitions of the intervention. They provide the following account as explanation:

First, schools found it difficult to overcome barriers such as resistance to changing the school culture among some staff, changes in staff who were on the school committee or who were the program champions, and low commitment levels from some school executives. [...] Second, many schools found it challenging to sustain the initial momentum of change. [...] ...an inability of schools to respond during the intervention period to suggestions made by girls in the formative research ... (p. 10)

Haerens et al. (2006) point out that as the level of school/teacher autonomy increased, 'the second intervention year did not result in an increase or decrease of intervention effects' (p. 916). Moreover, they bring to light that 'the huge incomes secondary schools receive from shops and vending machines were used as a motive for school boards to neglect the importance of a healthy school environment' (p. 919). There are apparently many forces in schools that influence the outcome of school interventions.

In a somewhat self-reflexive way, Seibert et al. (2018) suggest that 'either the CVF intervention is not robust enough to meaningfully increase CVF or implementation challenges limit its effectiveness in real world settings' (p. 62). In a similar vein, Lubans and Sylva (2006) point out that 'programs should be realistic and situation specific. School-based physical activity promotion programs should be suitable for the school environment and designed to be implemented by physical education (PE) teachers' (p. 263).

In summary, and to some extent reiterating the narrative provided in the background section, the examined publications provide a narrative where:

- young people's level of PA is too low and therefore they are increasingly exposed to the risk of lifestyle diseases.
- schools appear as the obvious context for attempts to increase the PA of young people, for example through interventions.
- contextual factors are often pointed out as significant for the success of the interventions, yet these factors are not systematically placed under the research magnifying glass.
- few studies demonstrate any tangible change in student behaviour because of the interventions.
- non-occurring behaviour changes are explained by contextual factors, or that school staff simply do not adhere enough to the intervention efforts.

Discussion

The results section presented a number of themes that we regard as reflecting a dominating technology of knowledge, or ways of doing things, in research involving school-based PA interventions. In other words, it is about what researchers have opted in regarding their research. In this section, following our understanding of discourse and discourse analysis (Ball, 1990; Foucault, 1998), we discuss the relationship between what the researchers have opted in and out respectively – and what is the relationship between knowledge production, governance, and the self, i.e. governmentality (Foucault, 1991; Rose, 1999).

Concerning the scientific domain, the features of the research indicate that it is foregrounded by a positivist discourse with short introductions, brief or no theoretical framework, extensive methodological description, experimental design, and quantitative analysis. Positivist research aims to formulate abstract and universal laws about how the social universe operates (Turner, 2001). While 'positivism' designates a philosophy of science, we use the term 'positivist discourse' to denote the *ways of doing research*. In the attempts to formulate abstract and universal laws, researchers need to produce concise, coherent, and unambiguous narratives, which sometimes involve reinforcement words to underscore the veracity and concern of the research. In comparison, social science researchers are sometimes warned against using such words because they could be

perceived as expressing political and ideological bias. Within a positivist discourse, however, there seems to be no need for such reservation. This could be because the research starts from an assumption that PA is good for people and therefore, they should be regularly physically active. It may also be that reinforcement words are taken to indicate that the research is assumed to be politically and ideologically independent, which shifts the political normativity of reinforcement words towards objective normativity. Within the social sciences, normativity is typically perceived rather as expressing a political stance (cf., Piggin & Bairner, 2016).

In research foregrounded by a positivist discourse, matters of context and process takes on a secondary meaning in relation to what is the primary research interest: here, the measurable outcomes of school-based PA interventions in individuals. The limited focus on context may relate to that experimental designs are indicative of high-quality research in this scientific domain, with Randomised Controlled Trials (RCTs) as the gold standard (Hariton & Locascio, 2018). In medical science, when RCTs are conducted *in the laboratory*, it is assumed that they can be controlled for contextual influence. In real-life contexts, as is the case with school-based PA interventions, this possibility of controlling for the influence of external factors is far more difficult (Park et al., 2020), but RCTs still appear to be the gold standard.

The marginal emphasis of context has far-reaching consequences for the analysed research. Firstly, it affects how the PA habits of children and young people are depicted. According to the here studied research, young people are too little physically active, and the trend is negative. However, this is portrayed as a simple fact and the reader is left in the dark regarding why this situation has arisen. The historical and societal conditions that frame young people's opportunities for PA is thus left out (cf. Gould, 2019; Scheerder et al., 2006).

Secondly, the marginal emphasis of context also affects how the school interventions are evaluated. The researchers generally seem to proceed from the rather unproblematised assumption that youth spend a lot of time in school and that schools offer a beneficial infrastructure for conducting school-based PA interventions (Stone et al., 1998). Information about the whole school situation is, however, largely missing (cf. Siedentop, 1996). Such information could include, for example, school structure (e.g. mission, organisation, budget, demography), school culture (e.g. school climate, working environment), and leadership (Höög et al., 2011). Indeed, some authors in our study considered that schools might need help to succeed with the interventions. Haerens et al. (2006), for example, underlines that 'extra sports materials were made available' (p. 914), and that schools were encouraged to make this material available during breaks, at noon and during after school hours. In a similar vein, Bremer et al. (2018) arranged a workshop which 'was intended to increase teachers' confidence to implement DPA through the use of the manual and supporting material' (p. 3). This type of assistance reflects the limited emphasis on contextual factors that go beyond the individual teachers involved in the intervention.

Some studies indicate awareness about that contextual factors probably also influence the outcome of the interventions. Haerens et al. (2006), for example, highlight that schools were encouraged 'to create more opportunities to be physically active during breaks, at noon and during after school hours,' and 'to vary content of physical activities offered to reach all pupils. Organization of non-competitive activities was encouraged to increase engagement of less talented children' (p. 914). In a similar vein, Sutherland et al. (2016), whose intervention was successful, speculate that 'The contrasting positive effects observed in this study relative to the findings of past interventions may be attributable to a number of the design elements: and extended intervention duration [...]; the use of a theory-based intervention; the inclusion of multiple physical activity promotion strategies; and the inclusion of multiple strategies, particularly the in-school physical activity consultant, to support school implementation of the intervention strategies' (p. 202). It is significant that such design elements, which express the intervention as process, do not fall within the research question, but remain secondary to it and are therefore not empirically investigated.

The question now is, how does the positivist discourse that underpins school-based PA interventions relate to governance and the self? While this can hardly be proven in any strict sense, we argue

that the positivist discourse fits well within a neoliberal governmentality which promotes the idea of humans as autonomous individuals who make choices in a free market based on objective knowledge while at the same time devising technologies of government 'at a distance' that aims to arrange life 'for the good of people' (Rose, 1999). Put simple, the interventions do not aim at changing the schools but the individual youths directly. We regard this as a key part of government 'at a distance.' For comparison, sociological educational research often starts from the opposite perspective: it is the school and society that must change, not the youth, and therefore such research does not fit a neoliberal governmentality. Arguably, such research fits better with social liberal governmentalities and therefore finds it increasingly difficult to assert itself in a knowledge market that is increasingly dominated by neoliberalism. To fit a neoliberal governmentality, the research must be taken to be 'unpolitical.' The limited focus on context in the here investigated research may thus relate to the assumption that while the context (society) is regarded as political (it is governed by political considerations), the individual is not. Neoliberal governmentality assumes that the individual operates based on her own responsibility and reason (Rose, 1999).

Our interpretation that school-based PA intervention research can be seen as an integral part of a neoliberal governmentality does not include any assumptions from our part about political ulterior motives or conspiracies on the part of the researchers. On the contrary, for neoliberal governmentality to become truly powerful, it is important that researchers continue to emphasise the importance of scientific knowledge and its separation from ideological assumptions, or what is often characterised as unscientific practice (Park et al., 2020; see also Harvey, 1974; White & Willis, 2002). Research which is underpinned by a socially critical discourse, as expressed in critical theory or critical pedagogy, is sometimes perceived as 'political' in nature just by the fact that it problematises contextual conditions. This could be why it does not match the technologies of government inherent in neoliberalism, which typically target the individual. It could also be why it currently does not reach the same public and political impact as medical and psychological research.

Conclusion

Our interest in knowledge about ways to promote DPA among lower secondary school students led us to research about school-based PA interventions. We discovered that interventions aim to change individuals and their behaviour rather than school environments and their workings (cf., Cale & Harris, 2006b; Siedentop, 1996). This seems to happen despite that researchers within the same research tradition have underscored the importance of 'school infrastructure' (Stone et al., 1998; see also Booth & Okely, 2005), and despite developments in corresponding research on younger children (Defever & Jones, 2021). In line with Foucault's (1991) concept governmentality, we began to ask critical questions about how the technologies of knowledge in the studied research related to technologies of power and the self.

The results indicated that knowledge about school-based PA interventions was produced in a research context which has emerged in an environment where controlled laboratory experiments and RCT studies constitute the golden standard, and which is heavily dominated by a positivist discourse. Moved from the laboratory to real-life situations, this yields research where limited emphasis is placed on contextual conditions. Consequently, school-based PA interventions do not aim to change the school to better meet young people's PA needs and interests, but to change young people's PA behaviour (cf., Piggin & Bairner, 2016). Moreover, a limited focus on contextual conditions also limits the researchers' opportunities to understand the school staff's chances to work successfully with the interventions. Instead, school staff must bear the brunt in the research for 'poor adherence' to the interventions, or for 'resistance to changing the school culture.'

Why is the type of research studied here so dominant after all? Our interpretation is that precisely this type of research, with a strong emphasis on individual behaviour and a limited focus on the context and the sociocultural conditions that frame physical activity habits among young people matches neoliberal governmentalities (Foucault, 1991; Rose, 1999). Within neoliberal technologies

of governance, emphasis is strong on individual responsibility and choice (cf., Powell & Gard, 2015, regarding the governmentality of childhood obesity). It is the individual self, rather than its social context, that are the focus of neoliberal governance. However, this matching between research, governance and the self should not be interpreted as a deliberate alliance between research and politics. On the contrary, the strength of neoliberal governmentalities lies rather in the perception that research and politics are separate domains and that the knowledge that research produces is objective in nature.

Our approach may be read as critical, but it is not a given that the criticism should be directed one-sidedly at the researchers who work with school-based PA interventions based on a medical perspective of PA and humans. Perhaps even more concerning is the rather watertight gap between medical science and social science (Kretchmar, 2008). Arguably because of this gap, many critical social science researchers seem to prefer to sit in the stands and work with critical analyses at an appropriate distance from school-based PA interventions rather than getting their hands dirty by working concretely with questions about DPA, for example in schools.

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