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Move for well-being in schools: Implementing physical activity in Danish public schools

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Abstract

In Danish Public schools, the former government initiated the biggest reshaping of primary and lower secondary schools in forty years emphasising that *45 minutes of exercise and physical activity must be part of the integrated school day at all year levels in order to further the children's and young persons' state of health and to support their motivation and learning in all subjects.* ***In the light of the focus on physical activity in schools, not only for health and learning but also for well-being, we launched a comprehensive research project focusing on the benefit of a multi-component physical activity intervention on well-being. This article presents the context, intervention and initial results of the project with a specific focus on implementation and the educator's experiences with the intervention.***

Danish public schools

There are 98 municipalities in Denmark with 1,605 municipal schools and a total of 595,573 students distributed in 28,591 classes making the average number of students per class 19.6 and the average teacher/student ratio 1:10.7. Classes must not exceed 28 students. In Denmark, public schooling is free. Public schools consists of a one-year, pre-school class and nine years from primary and lower secondary education, grades 1 to 10. Danish children start pre-school at age 6, meaning formal education caters for the 7 - 16/17-year-olds.

Education is compulsory for everyone but it is the decision of individual families to choose whether education is received in the public school, a private school or at home. All schooling in Denmark must meet the national standards of the 'Public School Act', which provides the overall framework for the school´s activities. This Act contains aims, subjects, regulations on the *Common Objectives* for the individual subjects as well as leadership and organization of the school system. Danish Public schools are not examination-oriented and students are grouped into classes by age. The process of evaluating the students' learning outcomes is met by a range of obligatory national tests that have been carried out since 2006.

Students must complete the following national tests:

- Danish, with a focus on reading in form levels 2, 4, 6 and 8.
- English in form level 7.
- Mathematics in form level 3 and 6.
- Geography in form level 8.
- Biology in form level 8.
- Physics/chemistry in form level 8.

Continuous assessment marks are given in years 8, 9 and 10 in Danish, Maths, English, German, French and a range of other subjects including Biology, Geography, Physics, Chemistry, History, Social Studies, Religious Education and, of course, Physical Education (PE).

Daily physical activity in Danish schools

In 2012, the former government in Denmark, with broad cross-party agreement, initiated the biggest reshaping of primary and lower secondary schools in forty years under the slogan *Make a good school better*. From the outset there has been broad agreement among political parties, employers and employees in the educational world and voluntary sports organizations that children and young people should be more physically active during the course of a school day. The reform states "*that a daily 45 minutes' exercise and physical activity (PA) must be part of the integrated school day at all form levels of the public school in order to further the children's and young persons' state of health and to support their motivation and learning in all subjects*". Of particular interest, not least to Physical Education (PE) teachers, is the way this intention regarding the children's well-being, physical activity (PA) and PE in the school reform translates into practice. Among other things, the reform explicitly states that "*the longer time spent in school makes it possible to ensure that all children are physically active and exercise every day*". Opportunities for more PA are provided for example in assisted learning, an increased number of PE and sports lessons in Year 1 and via PE examinations in Year 9. With this reform, the PE teachers' traditional target of *One Hour a Day*, as proclaimed by the 1814 Education Act, has been almost achieved for the first time.

The school as setting for PA interventions

In many countries, school-based approaches to PA have the obvious advantage that the children who

need it most are easily accessible, due to the fact that the vast majority of children and adolescents receive their primary education in public schools. Furthermore, **health and well-being is an integrated part of the public school curriculum, which means that there are qualified educators and an existing culture for teaching and learning activities related to health, well-being and PA.**

It is important to stress that children and young people who go to schools that have well-planned strategies and initiatives in the area of physical activity and physical education, delivered by competent professionals, may very well have better conditions for academic performance. Recent research suggests that physical activity and aerobic fitness levels are associated with improved cognitive function and academic attainment. It does not appear that time 'taken away' from academic subjects, to make room for physical activities, has a negative effect on the academic ability of children and young people. In other words: It´s not a 'zero-sum game'. Actually, it is more likely that academic performance and physical activity work in a synergistic manner (Skovgaard, 2015).

Well-being in Danish public schools

It has, over past decades, become ever more evident that regular physical activity contributes independently to strengthen both general well-being and specific aspects of physical, psychological and social health in children and young people (Biddle & Asare, 2011). Unfortunately, many children and young people exercise insufficiently to benefit from positive factors like the ones mentioned above (Eime et al., 2013). Bailey and colleagues also underlined that there is no "automatism" regarding the contribution of PA to well-being, as this is conditional to the context and especially the social climate generated by educators (Bailey, Hillman, Arent & Petitpas, 2013).

Well-being is one of the top priorities of the school agenda in Denmark. This

is evident when reading the newest public school reform, as mentioned above. In 2013 an expert group was put together as part of the apolitical policy agreement on the public school. This expert group on *The well-being of pupil in the Public school* were to develop and implement a national well-being questionnaire that all children in the Danish Public school should participate in every year. The results from this questionnaire are to be used by individual schools and municipalities to address problems within areas of school well-being, such as addressing student boredom, student motivation for school, class environment, concentration and noise in class. In line with these initiatives numerous conferences/professional development on well-being and boredom, well-being and health, and well-being among kids and youth are being offered to educators alongside several research studies regarding well-being as a goal or mediator for learning, motivation and health. With the Danish school reform informed by evidence from recent research on PA and well-being, the case for *Move for Well-being in Schools Project* was established.

The Move for Well-being in Schools (MWS) Project

The main aim of MWS is to develop, implement and evaluate a multi-component, school-based, physical activity intervention to improve psychosocial well-being among school-aged children and youths from Years 4 to 6 (ages 10-13) in the Danish school system. School PA is to a large extent focused on competition and performance motivation where the overall aim is to win, be the best or the fastest. This motivates the children that usually do very well, but if the goal is well-being for all, other ways to motivate are needed (Jensen, 2016). In Denmark, a recent survey of PE in public schools has documented a polarization of pupils as "sporty students" and "non-sporty students". The "sporty students" dominate PE and outperform the "non-sporty". Thus, there is a need for further development of approaches to integrate PA and develop movement competencies in the school day in ways that include all students, particularly non-sporty students, and promote their well-being (Skovgaard, 2015). Therefore the MWS project has a special focus on the group of children who are most at-risk of experiencing a 'vicious cycle' in physical activity at school, with potentially lower motivation and decreased self-confidence for engaging in normal PA activities in school.

A four-phased intervention – design, pilot, Randomized Controlled Trial (RCT) and evaluation - was carried out using guidelines from *The Medical Research Council* framework for the development of complex interventions (Craig et al., 2008). Knowledge translation is understood as a dynamic process that includes synthesis, exchange and application of knowledge to improve health and well-being and provide more effective services and were a key activity in all stages of the intervention

(Straus, Tetroe & Graham, 2013). For a number of years, it has been stressed that such processes must ensure the combination of the best available research evidence and local contextual knowledge by facilitating close interaction between researchers, end-users and other relevant stakeholders. 24 schools were randomly selected with a total study population consisting of 3124 children (baseline), who were followed over a period of 9 months. Student outcomes data were collected using an online questionnaire at baseline and at follow-up, 9 months later.

In the *design phase*, a number of structured group interviews were conducted with members of the target group in order to get further, contextual insight with regard to the needs, wishes, challenges and perceived qualities formulated by students aged 10-13. This is examined in relation to students engaging in and enjoying PA. Informed by findings from the previously mentioned materials, a preliminary intervention program was developed via four workshops in which researchers, school managers, teachers, pedagogues, and organizations dealing with school sport and PE participated. This group became known as the Project Development Group.

The output of the design phase was a comprehensive intervention program based on best available evidence, close collaboration with stakeholders and grounded in a rigorous theoretical approach, particularly focusing on motivation, as described by Edward Deci and Richard Ryan in their self-determination theory (SDT) (Ryan & Deci, 2000). According to SDT, human motivation is essentially based on three innate psychological needs: competence, autonomy and relatedness.

The intervention program itself consists of three physical activity intervention components targeting recess, in-class and PE (See Table 1). The intervention program strives to improve the activities conducted and the social and pedagogical climate in which they are performed. For this reason, practitioners were equipped with a Tailored Activity Program (TAP), including educational materials, planning guides and course plans for incorporating PA throughout the school day.

In addition to the three PA components, the pupils were involved in the development of three theme days throughout the school year focusing on PA and well-being. Educators participated in two professional learning workshops where competence to implement the components into the school days were the focus. To help guide the implementation in schools, a local coordination group was formed at each school with representatives from every year level along with school management. The coordination group participated in a separate planning and

Brain breaks	Recess	Physical Education classes
2 activity breaks per day / 50 mins per week Brain breaks should be on the daily timetable and integrated into learning activities Differentiate purpose and focus: social, energy, relax and coordination	3 sessions per week, average 30 minutes per session Educators initiate an extra initiative in recess The initiative includes a bag of accessories for small games, play, and fun The educators are to support the pupil's engagement in being active together	6 tailored PE courses each of 4 x 90 min 2 courses are mandatory and the last 4 can be chosen from a variety of lesson plans Courses are clear in learning objectives and goals and a team and problem-based approach is dominant Pupils are involved in e.g. tactics, values, techniques etc.
Competence: more pupils involved and try activities they can participate in, and where mastering through practice is essential **Autonomy**: more pupils involved in deciding which activities they do, so they engage in something they like **Relatedness**: more pupils shall engage in activities where they are together and can help each other to become better		

Table 1: Sites of Physical Activity

scheduling workshop. The coordination group was also the direct connection between the school and the research team.

The *Pilot phase* was divided into a 'preparation phase' that lasted three months and an 'action phase' of four months, where the actual intervention was piloted at five schools. In the preparation phase, the Competency Development Program provided enrolled educators with knowledge and skills tailored to carry out differentiated instruction and teaching activities. This program had the aim of supporting pupil motivation for, and engagement in, school-based PA. The action phase was conducted at the same five schools that initially delivered members to the above-mentioned Project Development Group. In this way, stakeholders taking part in the design phase were given the opportunity to continue their involvement and, importantly, to secure further development via active feedback.

In the *RCT phase*, 24 schools were recruited and a randomized trial was conducted with 12 schools being control and 12 school intervention. The RCT phase consisted of a whole school year with data collection before, during and after for both effectiveness and process.

The *Evaluation phase* examined the final intervention program with a focus on both effectiveness and implementation: Did the intervention go as planned? What actually happened? Was the intervention effective in improving the psychosocial well-being of the target population? In addition to the effectiveness issue, the program evaluation provided insight on how the intervention was delivered, what barriers and opportunities it created for teachers, and how the intervention was experienced by the pupils.

Results

The students' school well-being, recess and PE

The following are selected results from the initial data analysis from the student survey before and after the intervention. Results include 2576 respondents with data from both baseline and follow-up, giving a response rate of 86.6%. For example, we asked questions that are also on the national well-being questionnaire mentioned earlier, like, "Do you like your school" and "Do you like your class?". The students in Years 4, 5 and 6 answered "often" 71-74% of the time, and "very often" 77-80% of the time. This is just above the national average and there were no significant differences between intervention and control. Students who were physically active in recess daily and took part in the breaks at school did so around 90% of the time. We saw a slight decrease in the amount of students who stated that the possibilities for being physically active in recess were good – for both our intervention and control schools. Around 87% of the students were always or almost always participating in PE classes but we found a decrease in our intervention schools in the number of students who "Like it a lot" or "Like it" on how they like PE-class. One of the goals of the research project was to increase the co-determination of activities in PE (i.e. increase student choice and decision-making), but the results show that the students' experience is that this is not the case and that student ideas were used to a lesser extent. This is in line with the national well-being questionnaire, where a general decline in co-determination between educators and students was evident the older the students were.

The educators' experience with the intervention

The associated teachers and pedagogues on the intervention schools were asked both during and at the end of the intervention period about their experiences with both the implementation of the program and their general beliefs regarding the impact of the activities on the well-being of the pupils. Of a total of 137 educators, 93 completed the end-survey (with a response rate of 67.9%). They were, among other things, asked about their beliefs as to whether brain breaks, the project PE lessons and recess initiatives would have an impact

on pupil well-being. About one-third of the educators believed that brain breaks to a high degree promoted well-being and about half believed this to some degree to be true (see Figure.1).

About 28% of educators thought that the recess initiatives promoted students school well-being (see Figure 2) to a high degree and another 50% to some degree. As for the PE teachers, about 12% believed that the project PE lessons to a high degree promoted well-being, but an impressive 78% thought this was the case to some degree (see Figure 3).

In addition to asking the educators their beliefs in regard to the effects, we also asked about their experiences. Among other things, we asked if educators experienced or witnessed more students being physically active in recess. This was their experience for 75% of the educators to a high degree (see Figure 4).

Among the PE teachers, no fewer than 91% had the experience that PE in either some or to a high degree had strengthened the subject knowledge in PE classes (see Figure 5). Finally,

To what degree do you believe that brain breaks promote well-being

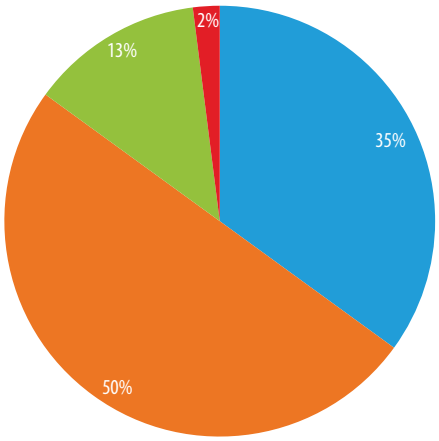

Figure. 1: Brain breaks promote well-being

To what degree…do you believe that the recess activities can promote well-being

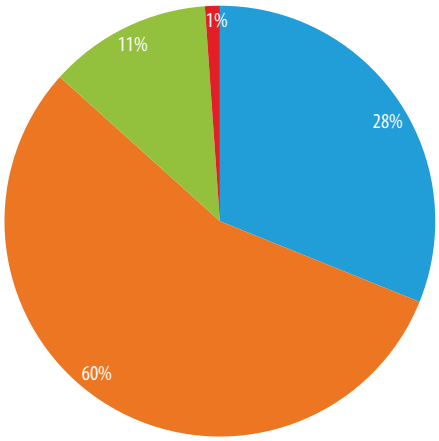

Figure. 2: Recess promotes well-being

To what degree…do you believe that the project PE lessons can promote well-being

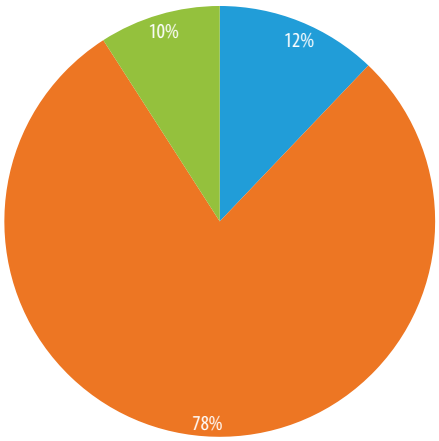

Figure. 3: PE lessons promote well-being active

To what degree... do you experience that the activity interventions have made pupils more active in recess

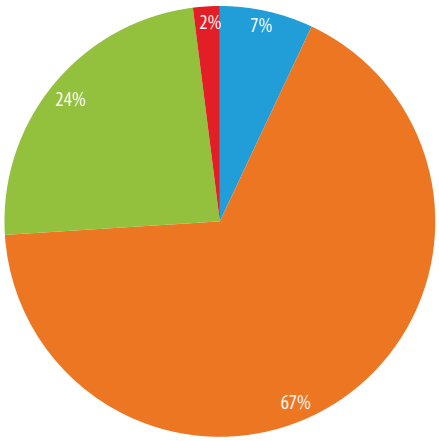

Figure. 4: PA activities make students more

To what degree…do you believe that the project PE lessons can promote well-being

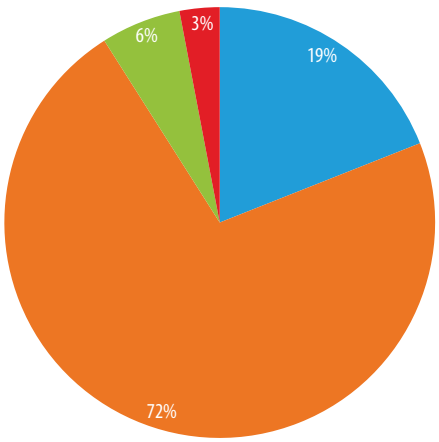

Figure. 5: Project has strengthened PE knowledge

To what degree... do you experience that the activity interventions have made pupils more active in recess

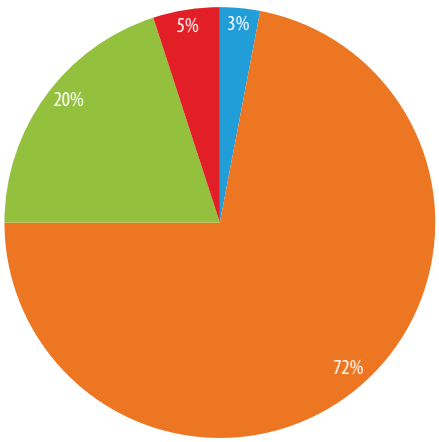

Figure. 6: Project has promoted well-being

To a high degree To some degree To a small degree Not at all

when asked about the impact of the physical activity interventions, 3% of the educators answered that these interventions to a high degree have promoted well-being and 72% believed this was true to some extent (see Figure 6).

Discussion

The intervention focused on the mental health benefits of physical activity at school, which has been a rather neglected theme in health promotion research during recent decades. Applying a cluster RCT study design, evaluating the real-world effectiveness of the intervention, this study is one of the largest physical activity intervention projects promoting psychosocial well-being among children and youths in Denmark. Through a comprehensive effectiveness evaluation and a similar substantial process evaluation, this study is designed to gain knowledge on a broad variety of implementation issues and give detailed information on project delivery and challenges at the school level – among other things to better inform future practice.

The process evaluation regarded dimensions of implementation and delivery challenges have revealed a differentiation in the various activity components. As for implementation of two daily brain breaks, there were several challenges when the initial enthusiasm ranges from fear of lost curriculum time to difficulties in maintaining a structure for their execution. In classes where brain breaks are maintained throughout the project period, we see a clear structure in both execution and planning – meaning that brain breaks are put into the timetable and not used as either reward or punishment. They followed an arrangement where everyone knows the time limit, who is in charge and the purpose of the brain break. As for the recess intervention, we saw schools with a culture and policies related to recess activities and where the bag of equipment was integrated and used extensively. There was great variation in regard to playground opportunities and equipment between the different schools which caused some schools to have difficulties in, for example, giving

students the opportunity to integrate an indoor sports hall when the weather is bad. Finally one of the biggest challenges was to change the mindset of the teachers from seeing the recess as their "own time" and going from just being attendant to engaging in and initiating activities.

The effects upon well-being of Physical Education was interesting as the results above indicate, it is by far the area with the highest differentiation in response – with a very high belief that PE classes can promote well-being and a likewise very positive experience towards the project have strengthened the subject knowledge in PE. On the other side, we see a tendency, although not significant, that the students to a lesser extent like PE after the PE intervention. The process evaluation points towards a "counterculture" and resistance in changing "PE as we know it", perhaps driven by the "sporty kids" and traditional PE teachers who like and prefer competitive PE. Of course, this was not the case in all students and teachers, but to some extent, this was one of the conclusions of the process evaluation. This is something we were not able to change within the period of the project, and it may require more time, not least when PE at the same time has to adapt to the changes when school reforms are instituted, such as when PE becomes an examinable subject at Year 9.

Where do we go from here?

Naylor et al. (2015) suggest that there are several factors that need to be addressed if a successful implementation of PA in school is to be fulfilled. These include that:

1. Educators are given time and space in the developing process,
2. School leaders and jurisdictions ensure educators possess the acquired competencies and are included in the project development,
3. The PA components are thoroughly described in regard to aim, form and content,
4. The components are tailored to the individual school and,
5. The school formulates a joint vision in regard to PA that is articulated by the school management (Naylor et al. 2015, p.113-114).

Move for well-being in Schools has taken these factors into account in the design phase and the first results suggest that the project has had positive effects on implementation and quality of PA components. At the same time, it is evident that there are still significant steps to be taken in regard to "optimal" ways to implement and integrate movement for well-being in schools.

Some of the essential ingredients for successful implementation that have become evident in *Move for well-being in Schools* are:

- There should be broad agreement within the school community to engage in the project.
- The development of both competence and confidence for those who deliver activities.
- Clear structures on who, when and how to lead these programs. This includes putting it on the timetable and engaging pupils.
- The appointment of a Coordination Group within the school whose role is to engage, motivate and share ideas.
- The development and implementation of a Multi-component Activity Program that is versatile and is inclusive of all students.
- The school community should commit to it for the long run.

There is no quick fix when implementing PA in a meaningful way for all children. We must remember the links between sport, exercise, well-being, health and learning are not just about keeping the child/young person fit and in good physical condition. In schools it is a matter of reinforcing and focusing on individual, social and structural resources, which can support and develop children and young people in their everyday life. It goes without saying that a task such as this cannot be achieved within a single subject area such as PE. Physical activity, whether as a subject or as a phenomenon, has much to offer when it comes to promoting well-being, health and learning among children and adolescents - a point worth stressing at a time when the most sweeping school reform for decades in Denmark is being turned into reality.

References

Bailey, R., Hillman, C., Arent, S., & Petitpas, A. (2013). Physical activity: an underestimated investment in human capital? *Journal of Physical Activity & Health*, *10*(3), 289-308.

Biddle, S.J., & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British Journal of Sports Medicine,* 45(11), 886-895.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., Petticrew, M., & Medical Research Council G. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *British Medical Journal,* 337: a1655.

Eime, R.M., Young, J.A., Harvey, J.T., Charity, M.J., & Payne, W.R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport. *Interbational Journal of Behaviour, Nutrition & Physical Activity,* 10, 98.

Jensen, S.M. (2016). Flere veje til motivation. *MOV:E, 3,* 16-33.

Naylor, P., Nettlefold, L., Race, D., Hoy, C., Ashe, M., Wharf, H. et al. (2015). Implementation of school based physical activity: a systematic review. *Preventative Medicine, 72*, 95-115.

Ryan R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78.

Skovgaard T. (2015). Physically active school 2020: New pathways and possibilities. *Idrottsforum.org, 2015-03-18.*

Straus, S., Tetroe, J., & Graham, I.D. (2013)(Eds.). *Knowledge translation in health care: moving from evidence to practice*. Milton, Aus: Wiley Blackwell.

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Søren Smedegaard is a senior lecturer in PE at the teacher education institute (University College Lillebaelt) in Denmark. He is currently writing his Ph.D. at the *Research and Innovation Centre for Human Movement and Learning,* University of Southern Denmark, concerning PA, PE and well-being in school, using data from the MWS Project. Søren was a visiting scholar at Griffith University in the School of Education and Professional Studies and presented his research at the ACHPER Brisbane Conference in August 2016.