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Attitudes towards and motivation for PE. Who collects the benefits of the subject?

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Abstract

Background and purpose: Due to attitudinal and motivational aims in the national curriculum, and to lack of research on adolescents' experiences with physical education (PE) in Norway, the purpose of this study was to (1) attain data on attitudes towards PE, and self-determined motivation for PE among a representative sample of adolescents (N=2010) in middle school (grade 8-10/ age 13-15) and high school (grade 11-13/age 16-19) in Norway, and (2) to explore the relationship between involvement in movement activities outside school and self-determined motivation in PE.

Findings: The results showed that 43% of the adolescents were not happy with how PE is taught in Norwegian schools, and that the variance in motivational regulations among students was substantial. Females reported a less positive attitude towards PE compared to males, and positive attitude tends to decrease with age for both sexes, both of which go against the intentions stated in the Norwegian core curriculum and in the PE-curriculum. However, the results showed that adolescents who reported involvement in organized competitive youth sports outside school reported significantly higher scores on attitude to PE and on self-determined motivation for PE compared to those who were not, even when eagerness to be involved in movement activity was controlled for. The results indicate that it is not gender per se that differentiates females from males with regard to self-determined motivation in PE, but rather their experience with competitive youth sports.

Conclusions: The study concludes that PE in Norway seems to favor students, and female students in particular, who are involved in competitive youth sports. Based on the results, it is hypothesized that PE coincides with the logic of competitive youth sports, that youth sport participants reap most of the benefits of PE, and thus, that PE may produce social inequity in health. In accordance with proposals from Van den Berghe et al. (2012), the results on motivation in particular are integrated in a broader pedagogical discussion. It is claimed that PE is experienced in context, and that research on adolescents' experiences of PE, and thus development through PE, should be approached from a relational developmental systems perspective.

Keywords: Adolescents; PE-experiences; attitudes; self-determination; youth sports; satisfaction of needs

Introduction

Education is per se a prospective matter and the core curriculum for all mandatory education in Norway states that “Education shall provide learners with the capability to take charge of themselves and their lives” (Norwegian Board of Education, 1997:5). The PE-curriculum agrees with the core curriculum guidelines, stating in the first line of the introduction to the subject that “PE shall inspire physical activity in all aspects of life and inspire lifelong enjoyment of being physical active” (Utdanningsdirektoratet, 2012). Due to this objective, concepts such as *enjoyment*, *attitude* and *motivation* for further involvement are present throughout the introduction to the curriculum.

The emphasis on lifelong joy and thus positive attitudes and self-determined motivation seen in the PE-curriculum seems to correspond with one major challenge western societies are faced with. Compared to earlier times, a sustainable physical activity level today has become more dependent on an individual *desire* rather than a *demand*, and as a consequence, *positive movement experiences* (Agans et al., 2013) have become a primary goal within public health (Kwan & Bryan, 2010). For young people in particular, this indicates that motion and involvement in movement contexts need to be associated with some kind of enjoyment (Dismore & Bailey, 2011; Hashim et al., 2008a), satisfaction of basic psychological needs, and self-determined motivation (Deci & Ryan, 1985; Ryan & Deci, 2000).

To support adolescents’ activity level and at the same time develop positive attitudes and self-determined motivation for further involvement, most nations provide and support movement activity for adolescents through two major developmental assets: Voluntary, extra-curricular sports outside of school, and compulsory physical education (PE) in school. However, statistics show that the drop out from organized sports outside school is severe (Seippel et al., 2011) and that the number of inactives increases during adolescence. This stresses the significance of PE as a subject at school (Good and Brophy, 2000) and that the subject succeeds according to the realization of the afore-mentioned objectives. PE represents a context in which biological, social, psychological and thus developmental gains associated with movement activities can potentially be promoted to large numbers of children and adolescents (Biddle & Asare, 2011). However, if PE fails to serve the developing adolescent with experiences that support their social and psychological needs, the PE class may become an arena where negative experiences regarding involvement in movement contexts are enforced (Bredahl, 2013).

In Norway as in many other nations, teacher education institutions, policymakers and others who deal with health and education suffer from limited and incomplete knowledge of how adolescents experience PE at school (Jonskås, 2010). The primary goal of this study was therefore to explore Norwegian middle school and high school students’ 1) attitudes towards PE in terms of enjoyment and how they assess the provision of the subject, and 2) self-determined motivation to participate in PE. Likewise other nations, Norway needs data from national samples of adolescents that, in a straightforward and objective fashion, can explain what students think about how the subject is conveyed to them, to what extent they enjoy it, and how they are motivated to attend PE classes. In addition, research data on decreasing participation in traditional youth sports and the correlation between traditional youth sports and PE, has led us to explore the relationship between participation in competitive youth sports and autonomous motivation for PE. Due to the strong position of the Norwegian Olympic and Paralympic Committee in Norwegian society (Skille & Säfvenbom, 2011), the organization’s position as the hegemonic provider of sports to children and youth through the sport clubs outside of school (Skirstad et al., 2012), and the organization’s bonds to the educational system since World War II (Säfvenbom, 2010), the second aim of this study was to test the relationship between club sport participation and the adolescents’ attitudes and their self-determined motivation for PE, while controlling the effect on the data of variables such

as family activities, unorganized activities, total amount of time spent in movement activities, and eagerness to be involved in movement activities.

Attitudes and self-determination in PE

Development of positive attitudes and self-determined motivation will according to relational theories on human development (see Lerner, 1982; Säfvenbom, 2001) rely on a relational 'goodness of fit' between the adolescent and the PE-environment he or she is interacting with. Just as an adolescent brings his or her characteristics of individuality to the PE class, the developmental process is met by demands and requests from all the components that embrace the PE setting. The goodness of fit, the match or mismatch, will affect the interaction and the outcome of the interaction in terms of attitude towards PE and self-determined motivation for participation in PE.

Attitudes towards PE

Attitude is by nature relational and interactional. This means that development of attitudes towards PE should be seen to be as complex as any other relational and dynamic processes in human development (Overton & Müller, 2012). Attitudes towards PE emerge in the meeting between the student and the PE classes the student attends during education, and represent as such the relationship between the student's everyday life and how PE is perceived as a subject that the school provides. However, to be able to operationalize the concept of attitude, the PE literature (Dismore & Bailey, 2011; Kjøniksen et al., 2009; Subramaniam & Silverman, 2007) reduces the complex relationship to student's feeling (affection) and beliefs (cognition) about an attitude object (PE) in terms of content and structure. Dismore & Bailey (2011:500) regard attitude towards PE "as a construct that, though not directly observable, precedes behavior and guides choice and decisions for actions".

According to Subramaniam & Silverman (2007) a positive attitude towards PE impacts students' learning and enjoyment in PE and despite the "dearth of evidence" (Green, (2012:2) a positive attitude towards PE is considered as a necessary component in encouraging an active lifestyle (Dismore & Bailey, 2011; Hashim et al., 2008a; Kjønniksen et al., 2009; Prochaska et al., 2003). Most studies on attitudes to PE have approached the concept from the affective perspective of enjoyment, and studies from Hashim et al., (2008a; 2008b) show that enjoyment of PE represents a crucial factor in the creation of positive experiences of movement activities and thus further involvement. According to Rikard & Banville (2006) positive attitudes towards PE requires a variety of interesting activities that generate active participation and a sense of fun. However, a growing number of quantitative as well as qualitative studies reveal that some adolescents experience PE in negative terms (Hashim et al., 2008); that some adolescents hate PE (Carlson, 1995; Olafson, 2002); and that PE may have a devastating effect on adolescents' development (Blankenship, 2007; Ennis, 1996; Fisette, 2011). Olafson's (2002) study on female PE students revealed that some students truly hate PE, and that they try to protect themselves from PE as much as they can. However, the students in Olafson's study did not hate being active. On the contrary they enjoyed a variety of activities like walking, skateboarding and lugging, yet still they hated PE. The study concluded that the resistance was due to the official curriculum, the communication of the subject by the PE-teacher, intolerant peer relations and dominant cultural messages about femininity. Fisette's (2011) study on girls' lived experiences in PE shows that many girls are concerned about being watched, observed and judged based on their bodies and their skill abilities by their peers as well as by their teachers, and that this prevents them from feeling comfortable and safe. Even though most qualitative studies on negative experiences of PE are performed on female students, there is reason to believe that male students also suffer, but that their grievances are harder to document and have not been investigated by qualitative researchers (Fairclough et al., 2002). It also seems that attitudes towards PE in terms of

enjoyment are negatively affected by age (Prochaska et al., 2003). However, Kjønniksen et al. (2009), who have studied attitudes towards PE among Norwegian adolescents, found that “the mean level of attitude to PE during adolescence was high in boys and girls” (Kjønniksen et al., 2009:145) and that “boys scored slightly higher than girls” (ibid). The authors explain that their findings are impacted by the variety of activities and the context and form of how PE is practiced in Norwegian schools. They also identified a positive relationship between attitudes towards PE and involvement in physical activity in later life, but only for females.

Self-determined motivation for PE

For decades, attitude and motivation have been seen as closely related concepts (Peak & Jones, 1955). Enjoyment is seen as an affective element associated with self-determined motivation to engage in physical education (Hashim et al., 2008; Yli-Piipari et al., 2009). A theoretical framework known as Self-Determination Theory (SDT: Deci & Ryan, 1985; 2000) has frequently been used to explore students’ approaches to PE by analyzing the presence of self-determined motivation (Van den Berghe et al., 2012). SDT is a meta-theory comprising different mini-theories (Vansteenkiste, Niemiec, & Soenens (2010) that seek to explain human motivation and behavior, and a major focus of SDT has been to supply a more differentiated approach to motivation, by asking what kind of motivation is being exhibited at any given time.

Self-determination theory (SDT) maintains that an understanding of human motivation requires a consideration of innate psychological needs for *competence*, *autonomy*, and *relatedness* (Deci & Ryan, 2000). The desire to fulfill these basic psychological needs is what drives motivation which in turn can lead to health and learning benefits in terms of psychological freedom (Quarrick, 1989), greater use of meta-cognitive strategies (Larson & Rusk, 2011) and development of reasoned anticipation and self-regulation (Bandura, 2006; Lerner et al., 2011).

The need for *competence* implies that individuals want to interact effectively with their environment in order to experience a sense of competence in producing desired outcomes and preventing undesired events (Deci & Ryan, 1985; Vallerand & Perreault, 1999). The need for *autonomy* implies a sense of volition; that individuals want to feel free from pressures and have the possibility to make choices among several courses of action (Guay et al., 2000) The need for *relatedness* refers to interpersonal attachments and bonds developed between individuals, and is based on a fundamental striving for contact with others (Guay et al., 2000).

Contexts supportive of autonomy, competence, and relatedness have been found to foster greater internalization and integration than contexts which thwart satisfaction of these needs (Deci & Ryan, 2000), but each factor affects motivation differently. Listed on a continuum from high to low levels of self-determination, these kind of motivations are described in later publications as *autonomous motivation* and *controlled motivation* (Vansteenkiste et al., 2010). Autonomous motivation includes identified regulation, integrated regulation and intrinsic motivation and “involves regulation of behavior with the experiences of volition, psychological freedom and reflective self-endorsement” (Vansteenkiste et al., 2010: 118) while controlled motivation (including external regulation and introjected regulation) is associated with “experiences of pressure and coercion to think, feel, or behave in particular ways” (ibid).

Autonomous motivation and controlled motivation are both contrasted with amotivation (lack of motivation to engage in a specific behavior) which is initiated and regulated by forces beyond the person’s intentional control. Further, involvement in a particular activity context may be regulated by both autonomous and controlled motivation, and they both may create

high involvement, but the two types of motivations have different qualities. The degree to which an individual is *autonomously motivated* (see Vallerand, 2007) represents an indication of satisfaction of needs and thus developmental health, and it has consequences for learning, performance, personal experience, and well-being (Vallerand, 1997; Vallerand & Perreault, 1999). The relationship between satisfaction of needs and motivation is one major keystone in SDT (Deci and Ryan, 2000). This has recently been confirmed in studies on PE included in a review by Van den Berghe et al., (2012). However, although research shows that many students do get their basic personal needs satisfied and thus are autonomously motivated to participate in PE classes, there are many that participate in mandatory PE most of all because they have to, and that lack of need support enhances the controlled motivation and reduces the autonomous motivation even further. (Barkoukis et al., 2010; Ntoumanis, 2005; Webster et al., 2011). In a study of amotivation among adolescents in compulsory PE in the UK, Ntoumanis et al., (2004) showed that amotivation, displayed as nonattendance and low involvement, was mainly caused by learned helpless beliefs and low need satisfaction. To reduce amotivation the students proposed an increased focus on enhancement of positive affect, need satisfaction and structural changes. In line with Ntoumanis' study, Hashim and colleagues (2008a; 2008b) claim that students in PE should have the option of showing their bodily competence in whatever mode suits them best.

Attitudes and self-determined motivation in context

PE is experienced in context, meaning that adolescents' attitudes towards PE and self-determined motivation for PE may be affected by a variety of more or less confounding variables such as gender, age, family, and involvement in extracurricular activities (Van den Berghe et al., 2012). Due to the "for all" educational perspective and the prospective perspective in the PE curriculum, variables such as gender and age are of significant importance. In addition it seems crucial to identify any associations with organized competitive youth sports as performed in sport clubs outside school. If PE is presented more or less in line with how organized youth sport is presented outside school, this will probably affect those who are familiar with competitive sport contexts differently from those who have never participated in extracurricular athletic activities, or who have ended their participation due to negative experiences.

Prior studies show ambiguous results regarding the influence of adolescents' participation in organized sports and the significant drop-out rate caused by the adolescents' self-perception of a lack of competence (Biddle et al., 2011, Whitelaw et al., 2010). Dropping out of organized youth sport is most often caused by lack of ability or competence, lack of success, performance anxiety, loss of interest or a lack of enjoyment (Slater & Tiggeman, 2010; Scanlan, et al, 2005; Frazer-Thomas & Côte, 2009; Strandbu & Bakken 2007; Telama and Yang, 2000). In line with these findings, a recent review concluded that physical activity has the potential to improve healthy development in young people, but that 'it is best not to take the relationship as a "given"; it can be difficult to achieve; and can only be realised in association of a series of conducive "change mechanisms"' (Whitelaw, et al., 2010:65). Due to prior studies which show that traditional youth sports have dominated PE for decades (Fairclough et al., 2002; Smith et al., 2007) it is suggested that the elitism (Säfvenbom et al., 2013) seen in extra-curricular sports (combination of aims, methods, assessment) also are apparent in PE (Larsson & Redelius, 2004; Hardman, 2008; Vlieghe, 2011). There is even reason to believe that school PE, because it is generally mandatory, causes an increase in negative peer reactions, gossiping, and bullying, and may be a more vulnerable context for

social-psychological processes (e.g. body identity construction) compared to organized sports. If so, the mandatory aspect of PE becomes a double-edged sword which can either gently push the adolescent to develop and thrive as a resilient individual, or quite the opposite, prevent the adolescent from leaving a harmful context and thus produce learned helplessness and an overall negative attitude to movement contexts (Säfvenbom, 2010).

From what is mentioned above, there is reason to believe that young people who have dropped out of organized sports due to the long or short term risks of being involved (Linver, et al., 2009) will not respond positively to PE if PE is experienced as an extension of the logic, the practice, and the didactic experienced in organized sports (Skirstad et al., 2012). In other words, if the PE class overlaps too much with what is going on in competitive sports settings, this will enforce positive experiences, attitudes, motivation and behavior among those already involved in this type of activity, while reinforcing the same factors in a negative way among those who have bad experiences or those who have no experience at all with the logic of organized performative sports cultures. However, within the strong social democracy of Norway the principle of equal education has been exalted for decades (Telhaug, 2005; Thuen, 2010) and it is stated by law that all students regardless of their qualifications, abilities and social background should receive equal opportunities through an equal education, and that every student has the right to receive an education which is adapted to the student's skills and capabilities (Kunnskapsdepartementet, 1998). In addition, PE is first of all a formative subject, and the general part of the physical education curriculum emphasizes movement as an important part of humanity and involvement in movement cultures as an important part of a person's formation. The PE-curriculum comprises a health perspective as well as a skill or performance perspective, and all of these perspectives are embraced by a developmental perspective that aims to develop self-governing and resilient people who are able to live an exploratory life in active interaction with their surroundings (see Hills, 2007).

Research questions

Due to the lack of knowledge regarding adolescents' experiences of PE in Norway the aim of this study was to investigate what students think about how the subject is conveyed to them, to what extent they enjoy it, and how they are motivated to attend PE-classes. Due to the perspective of equity and the prospective perspective in the curriculum and recently performed studies indicating stable and positive attitudes towards PE among males as well as among females, the study aimed to reveal female and male adolescents' assessment of PE in middle school (grade 8-10, age 13-15) and high school (grade 11-13, age 16-19) in terms of attitude and self-determined motivation.

Due to the strong position of the Norwegian Olympic and Paralympic Committee in the Norwegian Society and the organization's bonds to the educational system the second aim of this study was to explore the relationship between movement activity involvement outside school and self-determined motivation for PE in school when family activities, total amount of time in movement activities, and eagerness to be involved in movement activities were controlled for.

Materials and methods

Participants

This study was conducted as part of the "Goodness of fit in Norwegian Youth Sport" study. A total of 2,971 pupils from 38 different schools in Norway were invited and stratified in accordance to school level and geographic area. A total of 2,116 (71%) adolescents (1,020 boys and 1,085 girls) from the ages of 12 to 19 (mean age 15.3 years) completed the self-report questionnaire during school time. The amount of missing values varied across

variables. The Norwegian Social Science Data Service (NSD) approved the study, and parents and children gave their written informed consent before their participation in the study.

Measures

Attitudes towards PE

The students' attitudes towards PE were measured through two questions ($\alpha = .70$) developed for this study. The two items covered the immediate enjoyment factor: 'How do you enjoy PE?' and the more reflective assessment of how they viewed the provision of the subject: 'What do you think about the PE classes?' Responses on the immediate factor were measured on a 7-point likert scale from (1) 'I don't enjoy it at all' to (7) 'I enjoy it a lot'. Due to the aim of the study; to gain straightforward and unquestionable data the responses to the question 'What do you think about the PE-classes?' was measured according to four categorical answers: (1) 'I think PE is awful'; (2) 'I don't like PE'; (3) 'I like PE, but it could be provided differently'; and (4) 'I like PE, and the subject should remain as is'. In the presentation of the results, alternative 1 was added to alternative 2 and presented as 'I don't like PE'. When presenting students' assessments of PE the latter variable is treated as a categorical variable.

Self-determined motivation

The 16-item Situational Motivation Scale (SIMS; see full scale in Guay et al., 2000) was used to evaluate the adolescents' self-determined motivation in PE. The SIMS has been shown to be a valid and reliable tool for measuring autonomous vs. controlled motivation on many accounts (factor validity, internal consistency, and multigroup invariance), and in many physical activity contexts (Stantage et al., 2003). The respective sub-dimensions of the measure were assessed as following based on the stem 'Why do you participate in PE?': (1) Intrinsic motivation (IM: e.g., 'because I think this activity is interesting'); (2) Identified regulation (IDR: e.g., 'because I am doing it for my own good'); (3) Extrinsic motivation (EM: e.g., 'because it is expected that I do so'); and (4) Amotivation (AM: e.g., 'I don't know; I don't see what this activity does for me'). Responses were measured on a 7-point likert scale from (1) completely untrue to (7) completely true. Analyses showed satisfactory alpha values in all four dimensions (IM: .92; IDR: .84; EM: .78; AM: .82)

The PE-Self-Determination Index (SDI) was constructed by a summation of specifically weighted scores from the different motivational subscales in accordance to their position on the self-determination continuum. Data were reduced as specified by Vallerand & Ratelle (2002) by first calculating each subscale score via the mean of its items and then further reduced by calculating the SDI-score via the following formula: $[SDI = +2 (IM) + 1 (IDR) - 1 (ER) - 2 (AM)]$, (see Vallerand & Ratelle 2002 for support for the validity of the index). The SDI, representing the strength of one's self-determination, is a straightforward weighting – the higher the number, the stronger the self-determination. The scores for the SDI can vary from -18 to +18.

Parental support for physical activity

Physical activity and parental support for this type of activity were measured according to 5 different questions that assessed the adolescents' perceived verbal and behavioral support from parents regarding physical activity and exercise across everyday life, weekends and holidays (e.g. 'How often do your parents encourage you to play, exercise or involve in sports?' / 'How often do your parents take you out for outdoor activities during weekends?'). Responses were measured on a 4 point ordinal scale, yet reliability analyses confirmed a

satisfying internal consistency between the five questions ($\alpha = .74$) and mean scores were computed.

Amount of physical activity

Participation in, and amount of physical activity was reported in two different contexts: organized youth sport and unorganized movement activity. The adolescents were asked a similar question in both contexts: ‘How many hours per week do you play or exercise enough to make you sweat or breathe hard’: ‘0, 1-2, 3-4, 5-7, 8-10 or 11 hours or more per week’? The six original categories were coded 0, 1,...5, and the sum score of the two ordinal variables indicates the total amount of PA, ranging from 0 to 10. Sagatun (2010) reported that this question correlated fairly well with other measures, and that it best predicted physical activity measured by accelerometer. The score is regarded as continuous data.

Present involvement in movement contexts

The adolescents’ movement activities were computed into a three-category variable along the lines of participation vs. nonparticipation and organized vs. unorganized participation: Group 1 (PE-only) includes adolescents indicating no present experience in organized youth sports contexts or unorganized movement activity contexts outside school; Group 2 (Unorg-only) includes adolescents with present experience from unorganized activity contexts only; and Group 3 (Org-sport) includes adolescents with present experience of organized youth sport contexts (and in certain instances, additional experience from unorganized contexts)

Eagerness for physical activity

Eagerness for physical activity was measured using the final version of the Eagerness for Physical Activity Scale (EPAS: Authors A, in review). EPAS is a one-dimensional scale including items assessing four significant correlates with involvement in movement activities, sports and exercise: 1) Identity (e.g. ‘I see myself as a physically active person’); 2) emotional experience (e.g. ‘I am always happy when I have been into some kind of movement activity’); 3) cognitive evaluation (e.g. ‘From my point of view, physical activity is the most meaningful activity to do’) and 4) behavior (e.g. ‘I will always be involved in some sort of movement activity’). Responses were measured on a 7-point likert scale from (1) completely untrue to (7) completely true. An article validating the EPAS is under review (Authors A). Based on three former studies, this article shows a satisfying internal consistency ($\text{Alpha} = .93$) and predictive validity with regard to maximal voluntary oxygen uptake.

Results

In this section analyses regarding attitudes and how attitudes are related to gender, age and participation in movement activities outside school will be presented first. Then the same procedure is repeated with self-determined motivation as the dependent variable.

Attitudes towards PE

The adolescents’ enjoyment of PE, and their reflections regarding provision of PE classes are shown in Table 1. The right hand side of the table shows that 56% of the adolescents in middle school (grade 8 – 10) and high school (grade 11 - 13) were satisfied with how PE is provided today while 44% reported experiencing some reservations. While 32% reported that the subject should be provided differently, 12% reported that they did not like PE. On the scale from (1) I don’t enjoy PE at all to (7) I enjoy PE a lot the adolescents reported the average score 5.74 (left side of table 1).

Descriptive analyses indicated that male adolescents ($M=5.98$) reported higher scores on level of enjoyment ($t = 6.9 / p < .001$) compared to females ($M=5.51$) as well as more positive responses regarding provision of the subject in class ($Chi-Square 15.8 / p < .001$). In addition, adolescents at the middle school level ($M=5.86$) reported higher scores on level of enjoyment ($t=3.5 / p < .001$) compared to adolescents in high schools ($M=5.61$), as well as more positive responses regarding provision of the subject ($Chi-Square= 6.4 / p < .05$). A one way ANOVA showed that adolescents' activity involvement outside school was related to enjoyment in PE ($F=78.1 / p < .001$), and a post hoc Bonferroni test indicated that adolescents who reported involvement with competitive youth sport outside school reported higher scores ($p < .001$) of enjoyment in PE ($M=6.07$) than adolescents who reported involvement in unorganized movement activities outside PE ($M=5.32$), both of which groups reported higher levels of enjoyment ($p < .001$) than adolescents who reported no involvement in any extra-curricular activities at all ($M=4.82$).

(Table 1 near here)

Experience of self-determination in PE

To identify variance in self-determined motivation for PE and to measure the associations with gender, age and participation movement activity outside school, an overall regression analysis was performed. To control for confounding variables, gender, school attendance (middle school vs. high school), parental support for physical activity, students' actual activity level outside school, and overall eagerness for physical activity were included in the analysis. Table 2 shows the descriptives for the major study variables. Descriptive analyses indicated gender differences in weekly physical activity level, and in two of the sub-dimensions of the Self-Determination Index. The analyses also indicated significant relationships between extra-curricular activity involvement and parental support, total amount of physical activity, eagerness for involvement in various types of movement activity, SDI in PE, and all sub-dimensions of SDI in PE (see Table 2).

(Table 2 near here)

The overall multivariate regression analysis can be seen in the upper part of Table 3. The overall model explained 29% of the total variance in SDI ($F = 81.9 / p < .001$) and the table shows gender differences but no significant difference between middle school and high school. The model also shows that when gender, parental support, total amount of physical activity during week, and general eagerness to be involved in movement activities were taken into account, involvement in unorganized movement activities showed no significant relationship with the adolescents' Self-Determination Index in PE, yet that reported involvement in organized extra-curricular youth sport did have a significant effect ($StB. = .120 / p < .001$).

(Table 3 near here)

Separate sub-analyses for males and females indicated an interaction effect between involvement in organized youth sport and gender on self-determined PE. The results presented in the lower part of Table 3 show that the presence of organized youth sport participation had a significant effect on female adolescents' motivation for PE ($StB. = .135 / p < .001$) while the association between youth sport participation and self-determined PE among male adolescents proved to be hardly significant ($StB. = .088 / p < .05$). Additional descriptive analyses showed no significant differences between female ($M=1.9$) and male

($M=2.6$) SDI-scores among adolescents who reported no extra-curricular movement attendance. In the group who attended unorganized movement activities in addition to PE, female adolescents ($M=4.8$) showed significantly lower scores on the SDI ($t=3.3 / p<.001$) compared to males ($M=7.2$) while no gender differences were seen among adolescents who reported involvement in organized youth sport ($M= 9.0 / 9.0$).

Discussion

Physical Education in Norway is a mandatory and goal oriented subject with standards of attainment. The subject is taught to the students once or twice a week in a co-educational setting. The relatively high scores on enjoyment in PE presented in this paper tend to confirm prior studies indicating that Norwegian students in general report positive attitudes towards PE. However, our study show a significant decrease in positive attitudes from middle school to high school and that females report less positive attitudes compared to males. Our categorical data regarding students' assessment of how PE is provided prove also a less positive portrayal of adolescents' attitude to PE compared to prior studies from Norway (Kjønniksen et. al., 2009). Our results show that the relative number of adolescents who express that they do not like PE at all increases by 40% from middle school to high school, and that more than 50% of the females in high school dislike PE or feel that the subject should be provided differently. According to the study of Kjønniksen et al., (2009) which claimed that females' attitude to PE is the strongest predictor for participation in physical activity four years after finishing mandatory education, the attitude development among females shown in this study should be of great concern (see also Scheerder et al.,2006).

The group that claims to like PE, but expresses that the subject should be provided differently has an interesting response, and their attitude merits further research. Representing one third of the adolescents, it is somewhat reassuring that, although this large group does not enjoy the way that PE is taught, they enjoy it anyway, in spite of the way it is taught. However, the results indicate a discrepancy between what the adolescents need and want in terms of interaction with the subject, and what they actually get. This discrepancy represents the improvement potential of the subject and it is one of the ways that our results contradict those of Kjønniksen et al. (2009), who explain positive attitudes towards PE as a result of the variety of activities and the context and form of how PE is practiced in Norwegian schools. Our categorical data did not allow advanced statistics, yet descriptive statistics indicated that adolescents who are not involved in extracurricular movement activities and who could particularly benefit from positive movement experiences in PE seem to assess the subject in less positive terms.

The revealed variance in the adolescents' attitudes towards PE was supported by the adolescents' reported PE-self-determination and thus motivation for involvement with the subject. The great variance in the Self-Determination Index in PE reveals a huge range of opinion in terms of how the subject relates to the everyday life of the adolescents and thus, how it affects them. The prediction models in the study revealed, as expected, that in addition to gender, parental support for involvement in movement activity at home, and total activity level, adolescents' overall eagerness to be involved in movement activities is one of the major predictors of reported self-determination in PE. However, when these variables were taken into account, the results also revealed that while alignment with unorganized (self-organized) extra-curricular movement activities showed no association with adolescents' self-determined motivation in PE, alignment with organized, competitive youth sport contexts showed a significant association with adolescents' self-determined motivation in PE.

According to SDT, the results of the present study indicate that adolescents who may be eager for movement activity in general yet who are not involved in competitive youth sports do not get their basic psychological needs satisfied in PE compared to those who participate in organized, competitive youth sports contexts. This indicates on the one hand that the logic and value system offered in PE coincides with the logic and the value system in organized youth sports and that the subject is most beneficial for adolescents who respond to this logic. On the other hand the results indicate that there is reason to be concerned that adolescents who do not share an interest in the organized and competitive ethos of youth sports may, as a consequence of participation in compulsory PE over years, develop a negative attitude towards, and an externally regulated motivation for participation in movement activities. To document whether this concern is justified or not, longitudinal studies are needed.

In addition to the broad relationship between youth sport participation and self-determined motivation for PE, the results indicated a greater discrepancy between female youth sports participants and non-participants compared to the discrepancy between male youth sports participants and non-participants. No difference in self-determined motivation for PE was found between female and male adolescents in the group of organized youth sports participants while female adolescents who reported no extra-curricular movement activity or involvement in unorganized activity reported significantly lower scores on self-determined PE compared to males in the same group. The nuances in the data indicated that both female and male adolescents who are not inclined to competitive youth sports and thus do not participate in this type of extra-curricular activity may suffer from fewer experiences of need satisfaction in PE, and that female adolescents seem to suffer this lack even more than male adolescents. Further research is needed to validate our assumption about this relationship.

Our study results indicate that it is not only gender per se that differentiates females from males with regard to self-determined motivation in PE, but also their experience with competitive youth sports. Therefore, Kjønnsen et al.'s (2009) claim that positive experiences of PE are the strongest predictor for females' involvement in physical activity in the years after finishing mandatory education while for males, participation in organized youth sport represented the strongest predictor may be true but it may also be misleading. Our own results show dramatic differences in self-determined motivation for PE among females due to involvement or uninvolvement in organized, competitive youth sports ($M=9.0$ vs. $M=1.9$), leading us to hypothesize that female involvement in youth sports represents a major predictor of their involvement in physical activity in the first years after compulsory PE in school, but that their youth sports experiences are mediated through their experiences of PE. The results confirm Van den Berghe et al.'s., (2012) review of SDT-studies in PE, claiming that to increase the ecological validity of SDT-studies in the future, more contextual factors and their links with SDT-related variables should be included in study designs. Along these lines it should be emphasized that possible effects of experiences from organized sport participation, PE, family-organized and self-organized movement activities in the long term may fade into a broader category of movement experiences, a "sport habitus" (Engström, 2008: 332) which together with the cultural capital formed during adolescence may be a good predictor for the coming generation of adults' involvement in physical activity.

Limitations of a sportified PE.

The results from the present paper confirm, first of all, prior research which claims that PE is influenced by competitive youth sports, that the subject—at least in Norway—is dominated by a sports discourse (Solesnes, 2010) and that this discourse may not correspond with either

the stated aim of PE or that of educational legislations. The results imply a sportified PE (Vlieghe, 2011) which may limit the potential of the subject as a developmental asset for all.

Säfvenbom (2010) explains the sportification of PE in Norway under the influence of the Norwegian Olympic and Paralympic Committee and Confederation of Sports (Norwegian abbr: NIF) since World War II. According to recent research on physical education teacher education in Norway (Dowling and Kårhus, 2011; Mordal Moen 2011), the sportification of PE is maintained and developed in the physical education teacher education (PETE), or more precisely in the dynamics between the lived PE experiences among the PE teacher students and the content of the PETE. In her case study, Mordal Moen (2011) showed that the physical education teacher educators followed standards for teaching skills developed by NIF and that teacher-centered teaching styles (instruction) were preferred when teaching practical subjects. Hence, the educators referred to students who performed well in sports as good students and Mordal Moen concluded that physical education teacher education “neither shakes nor stirs” physical education teaching students’ opinions about PE as a subject for developing traditional sporting skills.

According to Säfvenbom (2010), the consequence of a sportified PETE is that PE teachers are trained primarily to look for neuromuscular functioning and athletic performance, that they have a narrow understanding of ability (see also Wellard, 2006) and that they too often neglect other interactive dynamic systems of the human body and how these systems affect the developmental process and behavior. The author calls for a more exploratory, basic needs-centered and thus autonomy-oriented PE focusing on adolescents’ ability to explore a variety of movement experiences with regard to their own lived lives. This recommendation is supported by recent research that shows that in the context of physical education there is a significant relationship between perceived competence, autonomy and relatedness on the one hand, and physical self-conceptualization, self-esteem and self-determination on the other (Cox, 2008; Garn et al., 2012; Standage et al., 2005).

Conclusions

This paper confirms that gender differences play a role in attitude towards PE, and that positive attitude towards PE tends to decrease with age, both of which go against the intentions stated in the Norwegian core curriculum and in the PE-curriculum. Based on the identified relationship between participation in competitive extra-curricular youth sport and autonomous motivation in PE it is reason to hypothesize that PE coincides with the logic of competitive youth sports, that youth sports participants are the main beneficiaries of PE, that youth sport participation mediates gender differences, and that PE may be one source of inequity in health behavior. In the future, longitudinal or intervention studies should be performed to test these hypotheses. In addition there is a need for further study of the way students interpret PE in terms of concepts such as ability, mastery and competence (see Wellard, 2006; Wright & Burrows, 2006) and what they identify as the dominant discourses in PE.

At the theoretical level this paper gives support to relational developmental systems theories of human development, claiming that understanding adolescents’ development requires an integration of biological, psychological, social, and behavioral factors, at several integrated and reciprocal levels (Overton & Müller, 2012). PE is experienced in context, which means that experiences of PE, and thus development through PE, cannot be studied in isolation. More studies on students’ experiences with PE are needed and we suggest that that they should rely on this perspective.

As emphasized in this paper, PE in Norway seems to favor those who are already involved in movement activity and those who are involved in competitive youth sports in particular. For the rest, there is reason to believe that the discrepancy between what adolescents need and what they get represents the potential for PE to improve.

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