

DISSERTATION FROM THE
NORWEGIAN SCHOOL OF
SPORT SCIENCES
2020

Irina B. Erdvik

Physical education as a developmental asset in the everyday life of adolescents.

A relational approach to the study of basic need satisfaction
in PE and global self-worth development

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Kristiansand, June 2020

Irina Burchard Erdvik

Summary

Introduction

The Norwegian physical education (PE) curriculum describes PE as a subject concerned with students' positive development and learning (Utdanningsdirektoratet [the Norwegian Directorate for Education and Training], 2015b). From a process-relational perspective, positive development and learning require a "relational fit" (Säfvenbom, Wheaton, & Agans, 2018, p. 4) between the individual characteristics that students bring to PE (internal developmental assets) and characteristics relating to the PE context (external developmental assets). The quality of student ↔ subject fit is revealed by students' descriptions of their experiences of participation in PE. Prior research suggests that the quality of this fit depends on student involvement in leisure-time movement contexts (e.g., Kjønniksen, Fjørtoft, & Wold, 2009; Koka & Hein, 2003; Säfvenbom, Haugen, & Bulie, 2015; Viira & Koka, 2012). These findings contrast with the Norwegian Education Act and the Norwegian PE curriculum, which guarantees every student's right to an education that aligns with his or her individual abilities and aptitudes (Opplæringslova [the Norwegian Education Act], 1998) and which requires schools to offer students equal access to opportunities for positive development and learning in PE regardless of physical capability or sports competence (Utdanningsdirektoratet, 2015b).

Aim

In light of the contradiction between the above-mentioned research suggesting that sports-active students "reap most of the benefits" from PE (Säfvenbom et al., 2015, p. 629) and the concept of PE as a developmental asset for all, this thesis aims to develop knowledge on the relational fit between the PE subject and students with diverse leisure-time movement involvements. To achieve this, the thesis draws on theoretical perspectives from Relational

Developmental Systems metatheory (RDS) and Self-determination theory (SDT) and investigates students' experience of basic need satisfaction in PE and how it relates to their sense of global self-worth.

Methods and design

Positioned within the process-relational paradigm (Lerner, 2018), this thesis applies both quantitative (papers I, II, and III) and qualitative (paper IV) methods. Papers I and II are based on a quantitative observational study, whereas papers III and IV are based on a programme-assessment study.

Paper I applies a cross-sectional design based on T1 data from 2854 adolescents in lower and upper secondary school, and investigates potential differences in the level of basic need satisfaction in PE among students who differ in terms of leisure-time movement involvements. Paper I also investigates the potential relationship between students' level of basic need satisfaction in PE and their global self-worth as an explicitly stated purpose of PE (Utdanningsdirektoratet, 2012) and therefore an indicator of students' positive development and learning in this subject.

Paper II applies a longitudinal design, based on T1 through T3 data from 3398 students in lower and upper secondary school, to develop knowledge on the temporal relations between students' level of basic need satisfaction in PE and their global self-worth.

The programme-assessment study investigates students' experiences of participation in a didactical differentiation-programme called Interest-based PE. This programme was developed as a response to the discovery that students who were active in leisure-time sport and students who were not active in leisure-time sport did not benefit equally from PE, in an attempt to level the educational field in this subject. It aimed to optimize the relationship

between PE and students with diverse movement interests by letting the students choose between two approaches to learning in PE: an explorative approach and a sports approach.

Paper III applies a quantitative effect assessment of students' participation in Interest-based PE based on T1 (baseline), T2, and T3 data from 348 Interest-based PE participants in lower and upper secondary school, and 345 assigned controls. This paper aimed to investigate potential quantitative changes in students' basic need satisfaction over the course of the programme.

Paper IV applies qualitative semi-structured one-on-one interviews with 16 secondary school students (grade 13, ages 17-18) and aims to provide a deeper understanding of potential qualitative changes in the relations between the PE subject and students who were involved in Interest-based PE.

Results and discussion

Findings suggest that skills developed in football, track and field, and other leisure-time sports are important internal developmental assets (Benson, Scales, Leffert, & Roehlkepartain, 1999), which in turn give adolescents access to external developmental assets in PE, including the promotion of basic need satisfaction in PE and global self-worth (paper I). Even though the PE curriculum does not intend to benefit sports-active students (Utdanningsdirektoratet, 2012; 2015b), findings from papers in this thesis (paper I, III, IV) support prior research (Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012) indicating that sports-active students are systematically better off in PE than their non-sports-active peers. This suggests that the relational fit between students and PE is influenced by factors outside the context of PE, which relate to the context of organized leisure-time sport. This is further evidence (e.g. Aasland, Walseth, & Engelsrud, 2019; Annerstedt & Larsson, 2010; Evans, 2004; Hay & Macdonald, 2010a; Kirk, 2010; López-Pastor, Kirk, Lorente-

Catalán, MacPhail, & Macdonald, 2013; Säfvenbom et al., 2015) of the sports discourse's central role in PE. This discourse may seem problematic as it is incompatible with the PE curriculum (Utdanningsdirektoratet, 2012; 2015b) and the political requirement that PE serve as a developmental asset for all (Kunnskapsdepartementet [the Norwegian Ministry of Education and Research], 2007; Opplæringslova, 1998).

The persistence of the sports discourse in PE may explain why teachers developed Interest-based PE. However, the findings presented in paper IV suggest that PE teachers may have lacked awareness of the breadth and depth of the sports discourse and that Interest-based PE therefore was unable to challenge the sports discourse in PE. The fact that the sports discourse seemed to continue to regulate the student ↔ subject exchange in the Interest-based PE programme affected students' perceptions of this programme: not as a truly interest-based PE, but instead as a sports-centred, two-level PE. Because Interest-based PE did not change students' (and teachers') pre-existing ideas of PE as a subject concerned with the practice and learning of sports, separating the students into an explorative approach and a sports approach may have actually accentuated the sports discourse in PE and contributed to segregation on the basis of students' confidence, competence, and ability in sports.

The research presented in this thesis provides both quantitative and qualitative evidence of the sports discourse in PE. Our findings give reason to question whether didactical differentiation-programmes such as Interest-based PE are appropriate to optimize student ↔ subject-relations as long as the student ↔ subject exchange continues to be governed by the logic of sports.

Key-words: self-esteem, psychological wellbeing, Self-determination theory, organized sport, self-organized movement activity, choice, sports discourse, equal education, Relational Developmental Systems metatheory, relational analysis.

Sammendrag

Introduksjon

Den norske læreplanen i kroppsøving vektlegger at kroppsøving er et fag som omhandler elevens positive utvikling og læring (Utdanningsdirektoratet, 2015b). Fra et prosess-relasjonelt perspektiv forutsetter positiv utvikling og læring et “relasjonelt samsvar” (forfatters oversetting; Säfvenbom et al., 2018, p. 4) mellom individuelle karakteristikk som elevene bringer til kroppsøvingsfaget (interne utviklingsaktiva) og karakteristikk relatert til kroppsøvingsteksten (eksterne utviklingsaktiva). Graden av samsvar mellom elev og fag kommer til syne gjennom elevenes beskrivelser av egne erfaringer fra deltakelse i kroppsøving, og tidligere forskning ser ut til å indikere at graden av samsvar avhenger av elevenes involvering i bevegelsekontekster på fritiden (e.g., Kjønniksen et al., 2009; Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012). Slike funn står i kontrast til den norske opplæringsloven som sikrer elevens rett til en opplæring som samsvarer med hans eller hennes individuelle evner og forutsetninger (Opplæringslova, 1998) og den norske læreplanen i kroppsøving som ikke rettferdiggjør at elevenes tilgang til muligheter for positiv utvikling og læring i kroppsøvingsfaget skal avhenge av fysisk evne eller idrettskompetanse (Utdanningsdirektoratet, 2015b).

Mål

I lys av motsetningen mellom overnevnte forskning, som indikerer at idrettsaktive elever “høster de fleste fordelene” av kroppsøvingsfaget (forfatters oversetting; Säfvenbom et al., 2015, p. 629) og kroppsøvingsfaget som et utviklingsaktiva for alle, har denne avhandlingen som mål å utvikle kunnskap om det relasjonelle samsvaret mellom kroppsøvingsfaget og elever som deltar i ulike bevegelsekontekster på fritiden. For å få til dette baserer avhandlingen seg på perspektiver fra metateorien om relasjonelle

utviklingssystemer (Relational Developmental Systems metatheory; RDS) og selvbestemmelsesteorien (Self-determination theory; SDT), og ser på elevers erfaringer av grunnleggende psykologisk behovstilfredsstillelse i kroppsøving og hvordan dette relaterer seg til elevenes opplevelse av globalt selvvverd.

Metode og design

Avhandlingen plasserer seg i det prosess-relasjonelle paradigmet og anvender både kvantitative (artikkel I, II, og III) og kvalitative (artikkel IV) metoder. Artikkel I og II er basert på en kvantitativ observasjonsstudie, mens artikkel III og IV er basert på en program-evalueringsstudie.

Artikkel I anvender et tverrsnittsdesign basert på T1 data fra 2854 ungdommer i ungdomsskole og videregående skole, og studerer potensielle ulikheter i opplevelsen av grunnleggende psykologisk behovstilfredsstillelse i kroppsøving blant elever som deltar i ulike bevegelseskontekster på fritiden. Artikkel I studerer også den potensielle sammenhengen mellom elevenes opplevelse av grunnleggende psykologisk behovstilfredsstillelse i kroppsøving og globalt selvvverd, der sistnevnte utgjør et spesifikt formål med kroppsøvingfaget og anses som en indikator på elevenes positive utvikling og læring.

Artikkel II anvender et longitudinelt design basert på T1, T2 og T3 data fra 3398 elever i ungdomsskole og videregående skole for å utvikle kunnskap om de temporale relasjonene mellom elevenes opplevelse av grunnleggende psykologisk behovstilfredsstillelse i kroppsøving og globalt selvvverd.

Program-evalueringsstudien undersøker elevenes erfaringer fra deltakelse i et didaktisk differensieringsprogram kalt Interessebasert kroppsøving. Dette programmet ble utviklet basert på erfaring som tilsa at elever som deltar og ikke deltar i idrett på fritiden ikke

drar samme nytte av kroppsøvingfaget, og representerte et forsøk på å jevne ut forskjeller i elevenes forutsetninger for positiv utvikling og læring i kroppsøvingfaget. Programmet hadde som mål å optimalisere relasjonen mellom kroppsøvingfaget og elever med ulike bevegelsesinteresser gjennom å la elevene velge mellom to tilnærminger til læring i kroppsøving: En eksplorativ tilnærming (kalt “bevegelsesglede”) og en idrettstilnærming (kalt “idrettsglede”).

Artikkel III representerer en kvantitativ effektevaluering av elevenes deltakelse i Interessebasert kroppsøving, basert på T1 (baseline), T2 og T3 data fra elever i ungdomsskole og videregående skole, der 348 elever deltok i Interessebasert kroppsøving og 345 elever utgjorde kontrollgruppen. Artikkelen undersøker potensielle kvantitative endringer i elevenes grunnleggende psykologiske behovstilfredsstillelse i løpet av programmet.

Artikkel IV anvender kvalitative semi-strukturerte én-til-én intervjuer med 16 elever i videregående skole (13. skoleår, alder 17-18), og har til hensikt å skape en dypere forståelse av potensielle kvalitative endringer i relasjonen mellom kroppsøvingfaget og elever som deltok i Interessebasert kroppsøving.

Resultater og diskusjon

Funn indikerer at ferdigheter utviklet på fritiden innenfor fotball, friidrett og andre idretter utgjør et viktig internt utviklingsaktiva (Benson et al., 1999) som ser ut til å gi elvene tilgang til eksterne utviklingsaktiva i kroppsøvingkonteksten, inkludert fremmingen av grunnleggende psykologisk behovstilfredsstillelse i kroppsøving og globalt selvværd (artikkel I). Selv om læreplanen i kroppsøving ikke gir fordel til idrettsaktive elever (Utdanningsdirektoratet, 2012; 2015b) samsvarer funn fra artikler i denne avhandlingen (artikkel I, III, IV) med tidligere forskning (Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012) som indikerer at idrettsaktive elever ser ut til å være systematisk bedre

tjent med kroppsøvingfaget enn sine ikke-idrettsaktive medelever. Dette tilsier at det relasjonelle samsvaret mellom elevene og kroppsøvingfaget er påvirket av faktorer utenfor rammen av kroppsøvingkonteksten, som relaterer seg til den organiserte idrettskonteksten. Dette er ytterligere dokumentasjon (f.eks., Aasland et al., 2019; Annerstedt & Larsson, 2010; Evans, 2004; Hay & Macdonald, 2010a; Kirk, 2010; López-Pastor et al., 2013; Säfvenbom et al., 2015) på idrettsdiskursens sentrale rolle i kroppsøvingfaget. Denne diskursen kan betraktes som problematisk fordi den er uforenelig med læreplanen i kroppsøving (Utdanningsdirektoratet, 2012; 2015b) og politiske intensjoner om at kroppsøving skal tjene som et utviklingsaktivt for alle elever (Kunnskapsdepartementet, 2007; Opplæringslova, 1998).

Idrettsdiskursen kan forklare hvorfor lærerne så det nødvendig å utvikle Interessebasert kroppsøving. Likevel tilsier funn i artikkel IV at kroppsøvingslærerne kan ha manglet bevissthet omkring bredden og dybden av idrettsdiskursen, og at Interessebasert kroppsøving derfor ikke var i stand til å utfordre idrettsdiskursen i kroppsøvingfaget. Det faktum at idrettsdiskursen fortsatte å regulere elev ↔ fag relasjonen under Interessebasert kroppsøving betød at denne diskursen kunne ta en sentral rolle i å forme elevenes oppfattelse av dette programmet: Ikke som interessebasert kroppsøving, men som en idretts-sentrert kroppsøving med to nivå. Interessebasert kroppsøving endret ikke elevenes (og lærernes) allerede eksisterende idéer om kroppsøving som et fag for praktisering og læring av idrett. Derfor kan faktisk fordelingen av elever i bevegelsesglede og idrettsglede ha fremhevet idrettsdiskursen i kroppsøvingfaget og ha bidradd til segregering basert på elevenes selvtillit, kompetanse og evne innen idrett.

I sin helhet bidrar denne avhandlingen med både kvantitativ og kvalitativ dokumentasjon av idrettsdiskursen i kroppsøving. Funnene gir grunn til å stille spørsmålsteget ved om didaktiske differensieringsprogrammer slik som Interessebasert kroppsøving er egnet

til å optimalisere elev ↔ fag relasjonen så lenge elev ↔ fag relasjonen fortsetter å være regulert av en idrettslogikk.

Nøkkelord: selververd, psykologisk velvære, selvbestemmelsesteori, organisert idrett, selvorganisert bevegelsesaktivitet, valg, idrettsdiskurs, likeverdig opplæring, metateorien om relasjonelle utviklingssystemer, relasjonell analyse.

List of papers

Paper I

Erdvik, I. B., Haugen, T., Ivarsson, A., & Säfvenbom, R. (2019). Global self-worth among adolescents: the role of basic psychological need satisfaction in physical education.

Scandinavian Journal of Educational Research. Advance online publication.

doi:10.1080/00313831.2019.1600578

Paper II

Erdvik, I. B., Haugen, T., Ivarsson, A., & Säfvenbom, R. (2018). *The temporal relations of students' basic need satisfaction in physical education and global self-worth*. Manuscript submitted for publication.

Paper III

Erdvik, I. B., Haugen, T., Ivarsson, A., & Säfvenbom, R. (in press). Development of basic psychological need satisfaction in physical education: effects of a two-year PE programme. *Journal for Research in Arts and Sports Education*.

Paper IV

Erdvik, I. B., Moen, K. M., & Säfvenbom, R. (2019). *Student experiences with Interest-based PE: a relational perspective on a systematic differentiation programme*. Manuscript submitted for publication.

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Abbreviations (alphabetically)

AIC	Akaike information criterion
BIC	Bayesian information criterion
BPN	Basic psychological need satisfaction
BPNES	Basic Psychological Needs in Exercise Scale
CFA	Confirmatory factor analysis
CFI	Comparative-fit index
EA	Explorative approach to PE
EA-control	Control group for the explorative approach to PE
GSW	Global self-worth
H_0	Null hypothesis
$H_1 - H_3$	Alternative hypotheses
MLR	Robust maximum likelihood
NSD	Norwegian Centre for Research Data
PE	Physical education
PE-only	Subsample of adolescents who only participated in PE
PE/OS	Subsample of adolescents who participated in PE and organized leisure-time sport
PE/OS/SO	Subsample of adolescents who participated in PE, organized sport, and self-organized movement activity altogether
PE/SO	Subsample of adolescents who participated in PE and self-organized movement activity
RDS	Relational Developmental Systems metatheory
REPAC	the Relevance of Physical Activity Contexts in the everyday life of adolescents

RMSEA	Root mean square error of approximation
SA	Sports approach to PE
SA-control	Control group for the sports approach to PE
SDT	Self-determination theory
SEM	Structural equation modelling
SPPA	Self-Perception Scale for Adolescents
SRMR	Standardized root mean square residual
TLI	Tucker-Lewis index

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1 Introduction

The Norwegian physical education (PE) curriculum describes PE as a subject concerned with students' positive development and learning (Utdanningsdirektoratet [the Norwegian Directorate for Education and Training], 2015b), and the Norwegian Education Act secures each individual student the right to an education that aligns with his or her individual abilities and aptitudes (Opplæringslova [the Norwegian Education Act], 1998). From a process-relational perspective (e.g., Lerner, 2018), the optimization of students' developmental and learning processes in PE requires a "relational fit" (Säfvenbom et al., 2018, p. 4), between the individual characteristics that students bring to PE and the characteristics of the PE context itself. Over time, the quality of this relational fit is considered to determine the nature of students' interactions with PE, and thus, their access to positive experiences, positive development, and learning in the subject (Lerner, 2018; Säfvenbom et al., 2015).

The quality of the relational student ↔ subject fit is revealed by students' descriptions of their experiences of participation in PE. Research shows that the majority of children and adolescents value the PE subject (e.g., Anderssen, 1993, p. 45; Balázs, Susan, Henriette, & József, 2016; Dismore & Bailey, 2011; Dismore, Bailey, & Izaki, 2006; Lagestad, 2017b; Larsson & Redelius, 2008; Moen, Westlie, Bjørke, & Brattli, 2018; Subramaniam & Silverman, 2007; Säfvenbom et al., 2015), indicating that most students experience a sense of relational fit with PE. However, research also indicates that some students experience a relational "misfit" with PE and experience the subject in less positive terms (e.g., Andrews & Johansen, 2005; Cardinal, Yan, & Cardinal, 2013; Carlson, 1995; Lauritsalo, 2012; Lauritsalo, Sääkslahti, & Rasku-Puttonen, 2015; Olafson, 2002; van Daalen, 2005). Analysis of a representative sample of Norwegian adolescents shows that 12% of the students in lower and upper secondary school dislike or hate PE, and that an additional 32% report that they

would like the subject to be taught differently (Säfvenbom et al., 2015). According to the authors, the amount of female upper secondary school students who either disapproved of PE or wanted the subject to be taught differently was identified to be as high as 50%. Other studies have yielded comparable findings, identifying girls and non-sports active adolescents as less likely to report positive relations to PE (Larsson & Redelius, 2008; Moen et al., 2018; Prochaska, Sallis, Slymen, & McKenzie, 2003). However, researchers have suggested that variance in students' PE experiences may be better explained by their involvements in leisure-time sport than by their sex per se (Lazarević, Orlić, Lazarević, & Janić, 2015; Redelius, Fagrell, & Larsson, 2009; Säfvenbom et al., 2015). This is supported by research showing that both boys and girls who do not participate in leisure-time sports relate to PE in less positive terms than their same-sex sports-active peers (e.g., Kjønniksen et al., 2009; Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012). This suggests that there is a lack of relational fit between non-sports active students and PE, and that youth sport participants "reap most of the benefits" of the subject (Säfvenbom et al., 2015, p. 629). This research contrasts with the stated goals of the Norwegian PE curriculum which asserts that students' access to opportunities for positive development and learning in PE should not be determined by their physical capability or sports competence (Utdanningsdirektoratet, 2015b). The above-mentioned research may indicate that contemporary PE practices are not sufficiently sensitive to adolescent diversity, and that there may be a gap between sports active and non-sports active students in terms of opportunities for positive development and learning in PE.

The above-mentioned research implies a relational misfit between the PE subject (as practiced in schools) and adolescents who are not involved in leisure-time sports, but more research is necessary to develop our knowledge of how this misfit relates to adolescents' potential for positive development and learning in PE. Given that existing research on the PE experiences of adolescents with diverse movement experiences is dominated by qualitative

and cross-sectional designs (e.g., Carlson, 1995; Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012), important questions remain unanswered. For instance, we do not yet know if – or how – variance in leisure-time sport involvement relates to adolescents' potential for positive development and learning in this subject. To understand whether students who differ in terms of their involvement in leisure-time movement contexts benefit differently from contemporary PE, there is a need for multi-contextual and longitudinal research that examines factors indicative of adolescents' positive development and learning in PE in relation to adolescents' involvements in leisure-time movement contexts. Increased knowledge in this area is important to ensure PE's role as a developmental asset (Benson, Scales, & Syvertsen, 2011) for all and a subject that secures the individual students' right to an education that is aligned with individual abilities and aptitudes (Opplæringslova, 1998).

1.1 Overall purpose

While the Education Act and the PE curriculum depict PE as a developmental asset for all, little research has focused on the subject's accessibility as a developmental asset in the lives of all adolescents. The overall purpose of this thesis is therefore to enhance our understanding of the relational fit between the PE subject and students with diverse leisure-time movement involvement to develop knowledge of PE's role as a developmental asset for all.

To achieve this purpose, the four research papers presented in this thesis provide both quantitative and qualitative data indicating the relational fit between students and the PE context. While one qualitative paper (paper IV) provides a more open-ended approach to the study of student ↔ subject fit, three quantitative papers (paper I, II, and III) provide data on psychological factors (basic psychological need satisfaction in PE and global self-worth) designated to indicate the quality of the relationship between the students and the PE context.

The thesis' four papers relate to two different sub-studies of the overall PhD project: An observational study (papers I and II) and a programme-assessment study (papers III and IV; see figure 1).

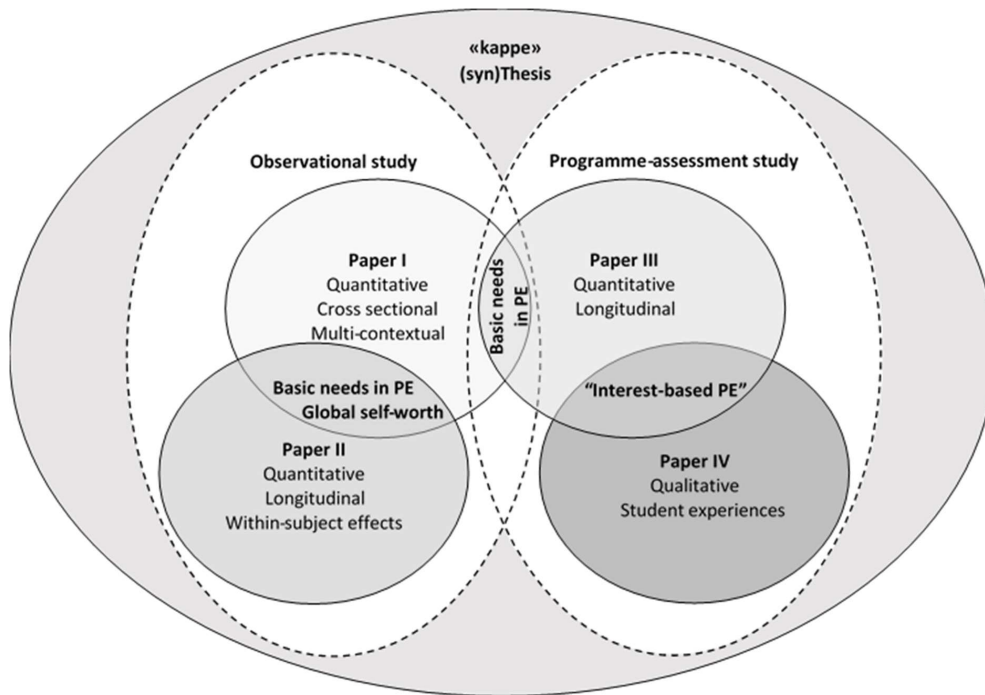


Figure 1. Overview of thesis. This thesis draws on two sub-studies: An observational study and a programme-assessment study. Each sub-study is represented by two papers. Participants in the programme-assessment study participated in data collections alongside participants in the observational study. At T1, participants in the programme-assessment study were not yet introduced to the Interest-based PE programme (please see p. 5 for further explanation), and therefore also provided cross-sectional data for the observational study.

The observational study provides quantitative data on the student ↔ subject fit among students who undertook “traditional” PE. It comprises both a cross sectional paper (paper I) and a longitudinal paper (paper II). Paper I assesses the level of basic psychological need

satisfaction (e.g., Ryan & Deci, 2017) experienced in PE by students with different involvements in leisure-time movement contexts. Students' sense of basic need satisfaction in PE was then treated as a predictor of their sense of personal worth (global self-worth; Harter, 2006) as a pervasive indicator of positive psychological development (Harter, 1993, 2006; Harter, Fischer, Harter, & Serwator, 1999) and as an explicitly stated purpose of PE (Utdanningsdirektoratet, 2012). Paper II also focuses on the relationship between basic need satisfaction in PE and global self-worth, but studies how these psychological factors evolve and relate over time.

The programme-assessment study (papers III and IV) provides both quantitative and qualitative data on student ↔ subject fit among students who were involved in a didactical differentiation-programme called Interest-based PE. Interest-based PE was implemented in the fall 2014 semester by teachers who felt that their students did not benefit equally from a “one-size-fits-all” approach to the subject. The programme was an attempt to improve the relational fit between diverse students and the PE subject, and thereby support positive development and learning. In this thesis, the programme-assessment study includes both a quantitative (paper III) and a qualitative paper (paper IV). The study began in spring 2014 before the implementation of the Interest-based PE programme and continued to follow students in the programme in spring 2015 and spring 2016. Paper III aims to examine changes in student ↔ subject fit over time as indicated by changes in students' sense of basic psychological need satisfaction in PE. Paper IV is based on student interviews and aims for a deeper insight into how this didactical differentiation-programme intervened in the relations between the students and the PE subject.

This thesis synthesizes findings from the two sub-studies and each of the four papers in an attempt to increase our understanding of PE's ability to promote positive development (basic need satisfaction in PE and global self-worth) among students with diverse types of

leisure-time movement involvement (see figure 1). The synthesis is guided by the Relational Developmental Systems metatheory (RDS; Lerner, 2018), which has been outlined by developmental researchers as a useful framework to aid the understanding of adolescents' development in general (Lerner, 2018; Lerner & Steinberg, 2009) and adolescents' development in movement contexts in particular (e.g., Agans, Säfvenbom, Davis, Bowers, & Lerner, 2013). This thesis gives much attention to psychological factors such as basic need satisfaction in PE and global self-worth, which RDS considers to be elements of a fused human developmental system. Although RDS permits research focused on particular parts of the human developmental system, it encourages the integration of perspectives from multiple disciplines such as biology, psychology, sociology, and philosophy, acknowledging that development cannot be studied without consideration to context, history, and the passage of time (Lerner, 2018). As such, from a process-relational perspective, psychological empirical data should not only be discussed in relation to existing psychological research, but also in relation to research from other scientific disciplines such as sociology and history, which emphasize contextual and historical aspects. This thesis will therefore not only discuss research findings in relation to psychological research, but also offer a broader discussion that integrates findings from the four papers of this thesis into a unified whole by incorporating perspectives from a variety of disciplines, such as psychology, sociology, and philosophy. In keeping with process-relational thinking, the four papers emphasize multi-contextual, historical (biographical), and processual dimensions relating to student ↔ subject fit. While all of the papers are based on process-relational reasoning they differ in their explicit theorizing of RDS. This part of the thesis (section 1 - 9) therefore includes a synthesis of these papers in the light of this process-relational framework. RDS represents the metatheoretical framework while theories on global self-worth and basic psychological needs provide the theoretical approach to empirical analyses in three of the four papers.

1.2 Outline of this thesis

To prepare the ground for the presentation of the specific research questions and findings of this thesis, the next section introduces the reader to the thesis' scientific position and theoretical framework as it elaborates on the process-relational paradigm and RDS metatheory (section 2). Section 3 focuses on the PE context, as RDS argues that students' access to positive movement experiences and thus, positive development and learning in PE requires taking into account the subject's embeddedness in history (3.1) as well as its relations to contemporary policy inside and outside the field of PE (3.2). The thesis then outlines some of the challenges that are facing contemporary PE, as highlighted in the research literature (3.3), before it introduces the reader to the concepts of basic need satisfaction in PE (section 4) and global self-worth (4.1). A short review of research on the relations between adolescents' basic need satisfaction in PE and global self-worth is offered (4.2), before the reader is presented with the specific research questions in this thesis (papers I-IV; section 5). Then follows a short overview of research methods (section 6) and findings (section 7) pertaining to the thesis' four papers, before the findings are synthesized and discussed from the perspective of RDS in relation to existing PE research (section 8) and the thesis concludes (section 9).

2 Scientific position and theoretical framework

RDS (Lerner, 1991, 2006, 2018; Lerner & Steinberg, 2009) has been described by Overton (2012) as a metatheory developed to achieve a more complete understanding of human developmental processes. RDS is recognized as subordinate to a broader, process-relational metatheory (Overton, 2015) or paradigm (Lerner, 2018, p. 11). This paradigm was developed as an alternative to dominant, reductionist, Cartesian-dualist split formulations (such as nature versus nurture, continuity versus discontinuity, stability versus instability), by researchers who sought to “integrate variables from biological through cultural and historical levels of organization across the life span into a synthetic, coactional system” (Lerner, 2018, p. 23; Lerner, Agans, DeSouza, & Hershberg, 2014; Overton, 2015). Where the Cartesian realist paradigm views nature as a uniform, split, dualistic, fixed, and static substance, the process-relational paradigm considers nature to be organized, fused, pluralistic, inherently active, and changing, thus requiring a relational understanding and the incorporation of multiple perspectives and explanatory forms (Overton, 2015). Causadias, Updegraff, and Overton (2018) argue that the process-relational paradigm does not view nature–nurture, continuity–discontinuity, and stability–instability as splits, but rather as equal polarities on the continuum of a unified relationship (“identity of opposites”). That said, research within the process-relational paradigm may focus on separate parts of the system (“opposites of identity”) given that they represent unique differential qualities which are stable within a dynamic system, and thus form a relatively stable platform for empirical inquiry (Causadias et al., 2018). Lerner (2018) emphasizes however that the ultimate goal within the process relational paradigm is the reintegration of parts in a unified whole (“synthesis of wholes”). Examples of opposites of identity can be found in papers I through IV, which apply psychological perspectives to the study of adolescent ↔ context relations, while the overall thesis constitutes an attempt to integrate these papers in a “synthesis of wholes”. This reflects

the ultimate goal of the process-relational paradigm which is to replace dichotomies with holistic synthesis, and thus, to view every entity in the universe as dynamically evolving in interaction with everything else (Overton, 2015).

Rooted within the process-relational paradigm, RDS seeks to understand the complexity of relations within and between individuals, between individuals and the variety of contexts they are part of in their everyday life, and the dynamics of these relations over the life course (Lerner, 2018). RDS adheres to the process-relational understanding of humans as inherently active, self-creating, self-organizing, self-regulating, nonlinear, complex, and adaptive organisms (Lerner, 2018). The human developmental system is described as ranging from the inner, biological level, through the psychological and the proximal social relational level, to the sociocultural level and the natural and designed physical ecologies of human development (Lerner, Lewin-Bizan, & Warren, 2011). History (time) is a crucial element in the human developmental system, and “the embeddedness of all levels within history provides a temporal component to human development” (Lerner, Dowling, & Roth, 2003, p. 413). While the passage of time makes temporal change inevitable (Lerner et al., 2011), the historical level also illustrates that an understanding of developmental processes requires consideration for the embeddedness of both individuals and their ecologies in a wider, historical context (Lerner, 2018). In other words, individuals see the world through the lens of their personal histories, while their surrounding ecologies may work as a function of that particular context’s historical origin and traditions. This illustrates the interrelatedness of different levels of the human developmental system, characterized by relative plasticity, which implies the potential for change in both individuals and their ecologies (contexts). Relative plasticity is considered a relational phenomenon as the relatively plastic relations between the multiple levels of the human developmental system provide the potential for systematic change, optimization of developmental processes, and positive human

development across the life course (Lerner, 2018). Plasticity in the characteristics of both individuals and their ecologies may contribute to the improvement of relational fit between individual and contextual characteristics, which again will influence the potential for various contexts to support individuals' positive development.

The fused and dynamic nature of the human developmental system, that includes everything from individual microbiology to international affairs and the development of all these systems over time, illustrates the importance of relationism in RDS. Within this framework, the study of human development in its most basic form is through the analysis of bidirectional relations between individual characteristics and contextual specificities, with the understanding that these relations are continually changing over time (Lerner, 2015; 2018, p. 23; Lerner et al., 2011). The rules that govern these bidirectional relations are commonly referred to as “developmental regulations” (Brandtstädter, 2006; Lerner et al., 2011, p. 18), and from the perspective of political documents pertaining to PE, the exchange between students and PE should be regulated by the PE curriculum. If developmental regulations, such as the PE curriculum, benefit both the individual student and the PE context, they are considered adaptive. Adaptive developmental regulations are crucial in PE as they, according to Lerner (2018), may promote student equity by enabling all to “more effectively act at being active producers of their positive development” (p. 45). The promotion of adaptive developmental regulations of student ↔ PE relationships is therefore key to ensuring students' access to equal opportunities for positive development and learning and thus, PE's role as a developmental asset for all.

For PE to function as a developmental asset in adolescents' lives, students' experiences with PE should to serve as “building blocks” supportive of adolescents' positive development (Benson, Scales, Hamilton, & Sesma, 2006, p. 899; Scales et al., 2013). A developmental asset may, according to Benson et al. (2011, p. 204), be described “an agent or

characteristic of the individual or his/her developmental ecologies (e.g., family, peer group, neighbourhood, school, community) that is related to the increased probability of positive outcomes”. School contexts are generally considered important sources of developmental assets in adolescence, and the ability of PE to act as a developmental asset in the lives of all students is implicitly or explicitly assumed in the educational policy of many nations (e.g., Opplæringslova, 1998; Utdanningsdirektoratet, 2015b). Nevertheless, research has shown that many adolescents do not have the internal developmental assets (personal skills and capacities) that are required to access important external developmental assets (supportive features) of their contexts (Benson et al., 1999), and therefore do not have a solid foundation for positive development. This has led researchers to suggest “that the national scaffolding of developmental processes does not necessarily function as the society would like to believe” (Säfvenbom, Geldhof, & Haugen, 2014, p. 444).

A central requirement to ensure PE’s role as a developmental asset for all is that internal developmental assets of the individual student and external developmental assets of the PE context are aligned (Benson et al., 2006; Lerner, 2018). Such alignment is necessary to enable adaptive developmental regulations of student ↔ PE relations and thus, students’ access to positive movement experiences in PE (Agans et al., 2013; Lerner, 2018). Positive movement experiences are considered to influence development positively, resulting in long-term physical, psychological, and social benefits, encouraging positive feedback loops including more positive movement experiences, continued participation, positive development, and learning (Agans et al., 2013). From the perspective of RDS, all students may access positive movement experiences and thus, positive development and learning in PE as long as the relation between the individual student and the PE context is characterized by adaptive developmental regulations (Agans et al., 2013). Thus, for PE to act as a developmental asset for all – in agreement with contemporary policy and legislation – all

students should experience a relationship with PE characterized by adaptive developmental regulations that allow them to access opportunities for positive movement experiences, positive development, and learning in the context of PE.

3 The PE context

PE is not only a central movement context in the everyday life of adolescents, but also a school subject embedded in the school system and the broader, constantly changing society. Within the Norwegian school context, PE is governed by various laws and regulations and represents a subject characterized by long historical traditions. To give context to the analysis of student ↔ PE relations in this thesis, the next sections provide a short introduction to some historical and political perspectives on PE in Norway, before outlining some of the challenges that are facing contemporary PE in Norway and internationally.

3.1 A historical view of PE in Norway

Applying a relational perspective to PE requires consideration of history and the passage of time. Some insight into PE's origin and historical past is therefore necessary in order to understand students' experiences in contemporary PE. Historically, a number of different discourses or, in RDS terms, regulations, have dominated Norwegian PE. When the subject was first introduced in 1848, its purpose was to prepare young men for military service (Augestad, 2003). Other central influences in the early days of Norwegian PE were *Centralforeningen for Udbredelse af Legemsøvelser og Vaabenbrug* (today known as the Norwegian Olympic Committee and Confederation of Sport, NIF), and the system of gymnastic exercises developed by Per Henrik Ling (Augestad, 2003). Augestad (2003) describes how PE, in the period from 1848 to 1925, was dominated by military exercises like line-ups, marching, and shooting. However, games were also included in PE for the purpose of teaching students to obey rules and norms (Augestad, 2003). As such, Augestad (2003) argues that PE was not exclusively a political military exercise, and that this subject was also considered a tool to train students' bodies in a special way, to stimulate discipline as well as to develop "Bildung" (dannelse), a type of learning that goes beyond the

acquisition of vocational skills and contributes to the transformation of the whole person (Quennerstedt & Larsson, 2015, p. 5; Tinning, 2015). School hours spent on PE were considered to improve students' learning ability and result in more efficient education (Augestad, 2003).

PE was for many years reserved for young men; girls attending schools in the cities were eventually allowed to participate in PE in 1889 (Augestad, 2003). It was not, however, until 1936 that PE became a mandatory subject for all students, regardless of sex or whether they grew up in the city or in the countryside (Augestad, 2003). As the natural sciences gained influence in PE (Aasland, Walseth, & Engelsrud, 2016), the subjects' focus on discipline and character gradually changed to a focus on health education (Augestad, 2003). This is evident in the 1922/1925 curriculum, which stated that the overall purpose of PE was "a healthy soul in a healthy body" (Augestad, 2003; By, 1998, p. 2). In the period from 1925 to 1960, a medical discourse dominated PE, as can be seen in PE's increased concern for students' hygiene (Augestad, 2003; Lesjø, 2008) and physical fitness (Aasland et al., 2016).

After the second world war, the Norwegian sports movement became increasingly inspired by the ideas of Rolf Hofmo, who emphasized "sports for all" as a "good capital investment" (Goksøyr, 2008, p. 120) in the health of the general population and thus, the national economic production. Such "public health" discourses added to the importance of the sports movement in Norwegian society (Goksøyr, 2008), and in these years, sport activities became increasingly central elements of PE (Aasland et al., 2016; Augestad, 2003). Across Western Europe, the sports discourse became increasingly evident in PE, characterized by teachers' evaluation of their students' abilities in the performance of sports (López-Pastor et al., 2013). Closely aligned with the sports discourse is the performance discourse (Tinning, 2010), which emerged in many western countries in the 1960s, emphasizing the training and

“objective” testing of students’ physical abilities and performances (López-Pastor et al., 2013).

The history of PE remains an integral part of the subject and therefore provides an important perspective when understanding contemporary PE, especially in the context of the continued influence of different historical discourses in the subject till this day. The continued role of these discourses in shaping the nature of PE is, however, also a central source of critique in today’s PE research in Norway (Aasland & Engelsrud, 2017; Aasland et al., 2016; Solesnes, 2010; Säfvenbom, 2010; Säfvenbom et al., 2015) and internationally (Kirk, 2010; Tinning, 2010), because of the disparity between historical discourses and current social and political expectations for PE in schools.

3.2 A political view of contemporary PE in Norway

In addition to an acknowledgement of PE’s relationship to its historical past, a political view of contemporary PE in Norway is necessary when situating PE in its wider social and political contexts, including the school system and the broader society. At the heart of educational policy in Norway is “education for all” and students’ rights to equal opportunity through equal education (Kunnskapsdepartementet [the Norwegian Ministry of Education and Research], 2007, p. 5). The Norwegian government finances education from ages six to eighteen. To ensure that all students have an equal opportunity for education, the Norwegian Education Act states the individual’s right to receive an education that is adapted to his or her abilities and aptitudes (Opplæringslova, 1998, §1-3).

PE is one of several mandatory subjects in Norway, and a subject that students have from their very first school year until the end of their compulsory education. All Norwegian students are required to participate in PE on a weekly basis, and the course amounts to 701 hours over ten years of compulsory schooling (ages 6 to 15), with an addition of 168 hours for

students who go to upper secondary school (ages 16 to 18; Utdanningsdirektoratet, 2018a). In terms of number of hours, PE is considered the third most prominent subject in grades one to ten (Moen, 2011; Walseth, Aartun, & Engelsrud, 2017).

Norwegian PE is governed by the Norwegian Education Act (Opplæringslova, 1998), and the Norwegian national curriculum (“Kunnskapsløftet”), including amongst others the Core curriculum (Utdanningsdirektoratet, 1994) and the Curriculum for PE (Utdanningsdirektoratet, 2015b). Although Norwegian PE has historically been legitimized on the basis of promoting military discipline, health, and physical fitness, these discourses no longer reflect the primary goals of the contemporary PE curriculum. During the last decades, the PE curriculum has gained an increased emphasis on students’ social learning (Annerstedt, 2008), and the current curriculum describes PE as a subject concerned with the promotion of students’ general Bildung (allmenndannelse), and the development of positive global self-worth and lifelong enjoyment of physical activity (Utdanningsdirektoratet, 2015b). According to the PE curriculum, these purposes should (during the final three years of mandatory education) be pursued through students’ engagement with “sport activities”, “outdoor life”, and “exercise and lifestyle”-activities, which constitute the three main subject areas in Norwegian PE (Utdanningsdirektoratet, 2015b, p. 3). In relation to each of the three main subject areas, PE is guided by specific curricular competence aims for students to achieve through their education. These competence aims include emphasis on “fair play and collaboration”, “bodily learning”, “self-management and implementation”, as well as “competence and understanding” (author’s translation; Utdanningsdirektoratet, 2015a, pp. 3-4). Curricular competence aims are considered the basis for all student assessment (Leirhaug & Annerstedt, 2016), and the curriculum does not emphasize a single standard for student achievement or their relative development of sport competencies (Utdanningsdirektoratet, 2015a). Rather, the curriculum emphasizes that students’ ability to accommodate to the

curricular competence aims should be considered in relation to their prerequisites for learning (Utdanningsdirektoratet, 2015b).

As a whole, the Education Act and the PE curriculum describe not only the purposes of PE, but also how PE should be assessed in order to achieve these purposes. However, several researchers have found indications that the official policy of PE, as stated in the Education Acts and the PE curriculum, does not necessarily serve as the foundation for PE teachers' educational practice, raising this as one of the major challenges of contemporary PE (e.g., Aasland & Engelsrud, 2017; Aasland et al., 2016; Green, 2000; Mordal-Moen & Green, 2014a).

3.3 Current challenges facing PE in Norway and internationally

Although PE is supposed to be governed by curriculum and legislation, researchers have expressed concern about the influence of contemporary public discourses on PE in Norway (Aasland et al., 2016; Moen & Rugseth, 2018; Mordal-Moen & Green, 2014a; Walseth et al., 2017) and internationally (Kirk, 2010; Redelius & Larsson, 2010; Tinning, 2010, p. xv). The fact that military, performance, sports, and health discourses remain influential in today's PE illustrates that the subject is strongly connected to its historical roots. The continued dominance of these discourses, and PE's apparent difficulty to renew itself and adapt to contemporary society, has been highlighted by researchers as perhaps the most prominent challenge facing PE today (Kirk, 2010). This concern is related to the fact that the society has gone through severe changes during the last decades, also with regard to movement culture and understandings of the body. According to Kirk (2010), the fact that these changes do not seem to be reflected in contemporary PE suggests that this subject could be in danger of becoming irrelevant in today's society. Consequently, these enduring discourses do not correspond with the purpose of today's PE (Utdanningsdirektoratet, 2015b).

Green (2000) argues that the longevity of the above-mentioned discourses in PE may be related to PE teachers' philosophies of physical education, which influence their personal conceptions of PE, regardless of curricular guidelines. This has been considered a possible explanation for PE teachers' emphasis on enjoyment, sports performance (Green, 2000), and health benefits (Mordal-Moen & Green, 2014b) as desired outcomes of PE. Research also suggests that teachers find it difficult to teach in agreement with the PE curriculum because they struggle to define student learning goals (Redelius, Quennerstedt, & Öhman, 2015) and clarify what they consider "important knowledge" in the subject (Redelius et al., 2009, p. 252). Research has also shown that teachers who base their education on clearly defined learning goals in accordance with the curriculum do not necessarily communicate these goals to their students during class (Redelius et al., 2015). Nyberg and Larsson (2014, p. 127) have argued that the lack of clarity concerning the object of learning in PE may lead the students to experience some sort of "hidden curriculum", and research has shown that students' beliefs about the purposes of PE may not correspond with the national curriculum (Smith & Parr, 2007) or with their teachers' interpretations of this curriculum (Cothran & Ennis, 1998). As such, research illustrates the importance of PE teachers' and PE teacher educators' reflexivity "regarding the 'real' nature and purposes of PE" (Mordal-Moen & Green, 2014a, p. 430) as well as teachers' need to communicate the learning goals and purposes of PE to their students in order to help them recognize the educational aspects of the subject (Redelius et al., 2015).

Researchers have argued that the apparent incongruity between the curriculum and teachers' and students' comprehension of this curriculum may have consequences for student assessment in PE. Research on Swedish PE teachers shows that student moral and leadership were of central importance for teachers evaluating their students (Redelius et al., 2009). Yet, Redelius and Hay (2009) argue that students' authority to exercise leadership in PE may be dependent on their physical and sports-related competencies (Redelius & Hay, 2009). As

such, students' access to high grades in PE may not only require students' effort, but also the demonstration of physical competence in the form of "sporting results" (Aasland et al., 2019; Hay & Macdonald, 2010a; Redelius et al., 2009, p. 256). This is supported by researchers' identification that "relative age effects" are not limited to sports contexts, and that age and physical growth regulate students' access to high grades in PE (Aune, Pedersen, Ingvaldsen, & Dalen, 2017; Dalen et al., 2017; Roberts & Fairclough, 2012). Because research shows that sport activities dominate PE (Moen et al., 2018), and that boys typically prefer leisure-time sports more than girls, researchers have also argued that the dominance of sport activities in PE may contribute to make gender a "liability" in this subject (Hay & Macdonald, 2010b, p. 283; Redelius et al., 2009). This is supported in research by Ligestad (2017a) which showed that girls are less likely to receive high grades in PE than boys. All in all these findings suggest that despite several reforms and curriculum changes the subject seems to remain in the past, practiced in manners which allow students' physical abilities to influence the outcome of assessment in PE, potentially violating the regulations of the Education Act (Opplæringslova, 1998) which entitle students to equal opportunities in this subject.

If teachers and teacher educators understand their students' abilities from a sports perspective, this has implications for students' educability and achievement potential in PE (Hay & Macdonald, 2010a). In these circumstances, more physically abled students (e.g. Fitzgerald, 2005) and students who engage in leisure-time sports (Cothran, 2010; Hay & Macdonald, 2010a) become privileged in terms of access to opportunities for learning and success in PE. According to Nyberg and Larsson (2014, p. 127) this could mean that adolescents implicitly learn that "sporting abilities" are the most valued asset for a student in PE (Redelius et al., 2009). Such lack of recognition of different sorts of "abilities" may lead students to feel incapable of succeeding in PE, "not because they lack ability per se but rather because their abilities are not recognized or transactable for high achievement grades in the

field” (Wilkinson, Littlefair, & Barlow-Meade, 2013, p. 148). PE researchers have therefore argued for the importance of working to identify what should be understood as “ability” in PE (Kirk, 2010; Nyberg & Larsson, 2014) and how PE may promote positive movement experiences among a wider range of students to ensure PE’s role as a developmental asset for all (Säfvenbom et al., 2015).

4 Basic need satisfaction in PE and global self-worth

According to the theoretical framework presented earlier, there is reason to believe that PE's ability to act as a developmental asset for all in terms of promoting positive development and learning depends on the relational fit between the students and the PE context, and thus, on the curriculum and pedagogy that regulates this relationship. As relational mechanisms are complex, RDS allows for the study of different relations within a particular part of the human developmental system as long as they represent relatively stable, unique differential qualities ("opposites of identity") and provided that the findings are also discussed in relation to a wider social context in an ultimate "synthesis of wholes".

Self-determination theory (SDT; Ryan & Deci, 2017) and its sub-theory on basic psychological needs (Basis Needs Theory, BNT; Ryan & Deci, 2017) represent psychological theories that may help us to understand the relational fit between students and the PE context. More specifically, the theory of basic psychological needs supports the argument in this thesis that PE can optimize students' learning process by satisfying their basic psychological needs in PE and thus, promote global self-worth, which could serve as an indicator of students' positive development and learning.

Central to SDT is the idea that all humans have three basic psychological needs that are essential, interdependent nutrients for human growth and wellbeing that apply across cultures, contexts, demographics, and developmental epochs (Ryan & Deci, 2017). They include the need to feel autonomous, the need to feel competent, and the need to feel related to significant others. These three needs are equally important and essential to psychological growth and wellbeing (Ryan & Deci, 2017). More specifically, the need for autonomy concerns an individual's need to experience volition and psychological freedom, as well as to self-organize experience and behaviour so that it is compatible with an integrated sense of self (Deci & Ryan, 2000). The need for competence is commonly referred to as the need to feel

effective and to experience mastery through interaction with the social environment (Deci & Ryan, 2000; White, 1959). The need for relatedness concerns the need to feel connected to others, to be cared for, and to experience a sense of belonging with significant others (Deci & Ryan, 2000; Ryan & La Guardia, 2000).

From the perspective of SDT, basic psychological need satisfaction is important for students' holistic development in schools and may influence learning and educational outcomes (Ryan & Deci, 2017, p. 352). Students' basic psychological need satisfaction in PE is considered the antecedent of autonomous motivation, which researchers have identified as positively related to many aspects of positive development. These include general well-being (Bagøien, Halvari, & Nesheim, 2010), feelings of global self-worth (Garn, McCaughtry, Martin, Shen, & Fahlman, 2012; Standage & Gillison, 2007), increased quality of effort (Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2006; Taylor & Lonsdale, 2010), concentration (Erturan-İlker, Quedsted, Appleton, & Duda, 2018; Ntoumanis, 2001, 2005) persistence (Standage et al., 2006), preference for challenging tasks (Standage, Duda, & Ntoumanis, 2005), experience of positive affect (Standage et al., 2005), feelings of flow (Stormoen, Urke, Tjomsland, Wold, & Diseth, 2016), and intentions to take part in optional PE (Ntoumanis, 2005) as well as leisure-time physical activity (Chen, 2014; Erdvik, Øverby, & Haugen, 2014; Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2003). Further, basic need satisfaction and autonomous motivation in PE have been found to be inversely related to boredom (Ntoumanis, 2001) and negative affect (Ntoumanis, 2005; Standage et al., 2005). As a whole, this research suggests that positive basic need satisfaction in PE may encourage students to participate in PE and make them more receptive to learning. Research also suggests that basic need satisfaction in PE relates to students' global self-worth, and thus may be necessary to ensure that PE serves a specific curricular purpose (Utdanningsdirektoratet, 2015b).

4.1 PE as an asset in adolescent global self-worth development

Global self-worth develops from adolescents' relations with a multitude of contexts. As a central movement context in adolescents' lives and a school subject which explicitly aims to promote global self-worth, PE has both the potential and the obligation to promote global self-worth among all adolescents (Utdanningsdirektoratet, 2015b). Researchers use the term global self-worth to describe a person's overall evaluation of their own worth or value as a person (Harter, 2006) and a general sense of happiness with the way one is as a human being (Harter, 2012). In the research literature, terms like global self-worth (Harter, 2006), global self-esteem (Harter, 2006; Rosenberg, 1979), and general self-concept (Marsh & Jackson, 1986; Shavelson, Hubner, & Stanton, 1976) are often applied interchangeably when referring to peoples' overall perceptions of personal worth (Harter, 2006).

The promotion of global self-worth is considered important for healthy development, and global self-worth constitutes one of the most frequently cited and studied indicators of mental health during adolescence (Tolman, Impett, Tracy, & Michael, 2006; Trzesniewski, Donnellan, & Robins, 2003). More specifically, global self-worth has been positively related to happiness in life (Bum & Jeon, 2016) and reversely related to depression (Bos, Huijding, Muris, Vogel, & Biesheuvel, 2010; Bum & Jeon, 2016; Sowislo & Orth, 2013), reduced physical health (Orth, Robins, & Widaman, 2012; Stinson et al., 2008), eating pathology (Bos et al., 2010), and risk of suicide (Sharaf, Thompson, & Walsh, 2009; Singh & Pathak, 2017). Because global self-worth is both an explicitly stated purpose of PE and an important indicator of students' healthy development, it constitutes an important aspect of students' learning in PE. Research on the relations between various aspects of positive PE experiences (such as basic need satisfaction) and adolescents' global self-worth development is therefore important to increase our understanding of PE's role as a developmental asset in adolescent lives.

4.2 Adolescents' basic need satisfaction in PE and its relation to global self-worth development

Several researchers have studied how basic psychological need satisfaction in a variety of movement contexts (e.g., organized sports, PE, general physical activity) relates to different indicators of wellbeing, such as subjective vitality (e.g., Adie, Duda, & Ntoumanis, 2012; Gagne, Ryan, & Bargmann, 2003; González, Tomás, Castillo, Duda, & Balaguer, 2017; Mouratidis, Vansteenkiste, Sideridis, & Lens, 2011; Reinboth, Duda, & Ntoumanis, 2004), life satisfaction (e.g., Leversen, Danielsén, Birkeland, & Samdal, 2012), and global self-worth (e.g., Amorose, Anderson-Butcher, & Cooper, 2009; Coatsworth & Conroy, 2009; Gagne et al., 2003; Garn et al., 2012; Standage & Gillison, 2007). While these terms may seem closely related, they could also be considered conceptually distinct, reflecting different aspects of wellbeing. More specifically, the research literature refers to subjective vitality as a “positive feeling of aliveness and energy” (Ryan & Frederick, 1997, p. 529), while life-satisfaction has been described as “the global, cognitive judgments of one’s life” (Leversen et al., 2012, p. 1589). However, feeling energetic or happy with one’s life may not necessarily reflect one’s overall appraisal of worth or value as a person (Harter, 2006, 2012), and this thesis has therefore focused on research that specifically emphasizes global self-worth.

Prior research on the relationship between basic need satisfaction within movement contexts and adolescents’ global self-worth tends to focus on the domain of organized sports (Amorose et al., 2009; Coatsworth & Conroy, 2009; Gagne et al., 2003). Standage and Gillison (2007) and Garn et al. (2012) appear to be the only researchers who have studied the relationship between students’ basic need satisfaction in PE and global self-worth. Their findings are in alignment with SDT in that they identify a significant positive relationship between basic need satisfaction in PE and adolescents’ sense of global self-worth. Yet, given the cross-sectional character of these studies, it remains unclear whether basic need

satisfaction in PE relates to global self-worth over time and what drives what in this relationship. Existing research has identified sports active students as more likely to experience basic psychological need satisfaction in PE than their non-sports active peers (Viira & Koka, 2012). More knowledge on this relationship is therefore of key importance to ensure that all students enjoy the right to equal opportunities for positive development and learning, and thus increased global self-worth in PE, as highlighted in the PE curriculum.

5 Specific research questions in this thesis

As outlined in the introduction, the overall purpose of this thesis is to develop knowledge about PE's role as a developmental asset for all, through the study of students with diverse leisure-time movement involvements. More specifically, this thesis seeks to contribute to the understanding of (a) how students who differ in terms of leisure-time movement involvements experience and develop basic need satisfaction in PE, and (b), how experience and development of basic need satisfaction in PE relates to adolescents' global self-worth, which is seen as an indicator of students' positive development and learning, and an area of focus in the PE curriculum. A related goal for the thesis was (c) the study of statistical effects and student experiences of participation in a didactical differentiation-program, which was intended to optimize the relationship between students with diverse movement interests and PE. In order to address the specific aims of this thesis, four papers were developed.

The two first papers of this thesis are based on the observational study and aim to study potential differences in basic need satisfaction in PE between adolescents who are involved in different movement contexts, and further, to study the potential relationship between students' basic need satisfaction in PE and their global self-worth. More specifically, *paper I* aims to investigate the possible relationship between students' involvement in various leisure-time movement contexts and their experience of autonomy, competence, and relatedness in PE, as well as their sense of global self-worth, specifically asking:

Research question 1: Do adolescents who participate in different movement contexts differ in autonomy, competence, and relatedness-need satisfaction in PE and in global self-worth? (Paper I)

Additionally, as research by Standage and Gillison (2007) and Garn and colleagues (2012) has suggested that students' basic need satisfaction in PE is related to their sense of global self-worth, paper I also investigates whether students' autonomy, competence, and relatedness-need satisfaction in PE relate to their sense of global self-worth when also

autonomy, competence, and relatedness need satisfaction in leisure-time movement contexts is accounted for:

Research question 2: Does adolescents' sense of autonomy, competence, and relatedness need satisfaction in PE relate positively to global self-worth, regardless of adolescents' sense of autonomy, competence, and relatedness need satisfaction in the various leisure-time movement contexts in which they are involved? (Paper I)

Paper II builds on paper I, and aims to investigate the longitudinal relationship between adolescents' trajectories of basic need satisfaction in PE and their trajectories of global self-worth, in order to further understand what drives what over time:

Research question 3: What are the temporal relations between adolescents' basic need satisfaction in PE and their sense of global self-worth? (Paper II)

Paper III and IV are based on the programme-assessment study and aim to understand how students experienced the two-year Interest-based PE programme, which allowed them to choose between two approaches to PE: a sports approach (SA) and a less sports centred, explorative approach (EA). Interest-based PE was a local didactic differentiation-programme, developed by teachers who felt that their students did not benefit equally from PE class and who wanted to level the educational field in the subject. **Paper III** aimed to investigate students' trajectories in autonomy, competence, and relatedness need satisfaction in PE over the course of this two-year programme, to identify whether this programme was able to improve student ↔ subject fit. The study also sought to identify whether students who did and did not participate in leisure-time sport benefited differently from Interest-based PE.

Specifically, the following research questions are addressed:

Research question 4: Does the two-year Interest-based PE programme affect students' satisfaction of the three basic psychological needs for autonomy, competence, and relatedness in PE? (Paper III)

Research question 5: Are student trajectories of autonomy, competence, and relatedness need satisfaction, through the two-year Interest-based PE programme, contingent on participation in leisure-time sport? (Paper III)

Paper IV is based on one-on-one interviews and aims to get a deeper understanding of changes in students' PE experiences resulting from their involvement in Interest-based PE, asking:

Research question 6: How did the Interest-based PE programme intervene in the relations between the students and the PE subject? (Paper IV)

The next sections elaborate on methodology and findings from each of the papers individually, before they are all synthesized and discussed from the perspective of RDS.

6 Methods

6.1 Research design of thesis

This thesis is part of a multi-methodological and multi-contextual research project entitled “the Relevance of Physical Activity Contexts in the everyday life of adolescents” (REPAC; see figure 2, p. 30). The REPAC-project comprises two sub-studies: a quantitative observational study, and a quantitative and qualitative programme-assessment study, which both form the basis for the current thesis. While the observational study focuses on students’ experiences with organized sports, self-organized movement activity, and with PE in particular, the programme-assessment study focuses on students’ experiences from a didactical differentiation-programme called Interest-based PE.

This thesis contains two papers from each of the two studies. While the two papers based on the observational study (paper I and II) were developed in chronological order, the qualitative interviews in paper IV were completed and had been subject to initial coding procedures before the quantitative effect analysis of paper III was performed. This means that the two papers pertaining to the programme-assessment study (paper III and IV) were developed alongside each other.

The following section presents an overview of the research design of this thesis, before it offers information on participants and data collection procedures, instruments, interview guide, analyses, and ethics pertaining to the two sub-studies and the four papers. For more detail, please refer to the four papers enclosed at the end of this thesis. A brief summary of research design and methods pertaining to each of the four papers can be found in table 1, p. 44.

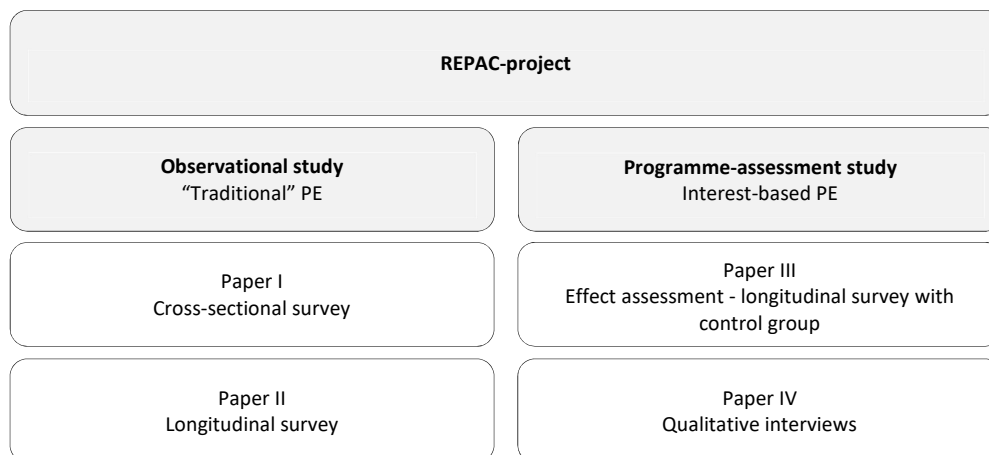


Figure 2. Overall research design of the thesis

6.1.1 The observational study

The observational study was based on a quantitative survey presented annually for students during their three years at lower or upper secondary school. Data were collected at the end of each school year (T1, T2 and T3). While paper I applied a cross-sectional research design based on T1 data, paper II applied a longitudinal design based on T1, T2, and T3 data. Both papers focused on the possible relations between students' sense of basic need satisfaction in PE and global self-worth (see table 1, p. 44).

6.1.2 The programme-assessment study

Paper III of the programme-assessment study was based on the same survey as the observational study and developed alongside the observational study. Participants in the programme-assessment study received traditional PE for the first school year of lower/upper secondary school (T1), but were introduced to an alternative approach to PE in their second school year, known as Interest-based PE. While, paper III is a quantitative effect study of the Interest-based PE programme, paper IV aimed to gain a deeper insight into how the Interest-

based PE programme intervened in the relations between the students and the PE subject (see table 1, p. 44).

The two-year Interest-based PE programme was developed by PE-teachers and local university college PE teacher education lecturers who experienced that students who were active in leisure-time sport and students who were not active in leisure-time sport did not benefit equally in PE. Like other local, didactical projects developed in the everyday life of teachers, Interest-based PE had limited access to scientific expertise and financial funding. Therefore, the study of Interest-based PE is sorted as a programme-assessment study and not as a classic intervention study (please see paper IV for further elaboration). The Interest-based PE programme aimed to optimize the relationship between students and PE and thus, promote increased basic need satisfaction, by offering the students a choice of two different PE approaches: an explorative approach and a sports approach. Both PE approaches were based on the Norwegian PE curriculum and the therein described competence aims (Utdanningsdirektoratet, 2012; 2015b). While EA and SA were designed to offer students different approaches to learning in PE, central aspects of PE – such as assessment procedures and the communication of purposes and learning objectives – were not explicitly target by the Interest-based PE programme. Students who chose SA were offered traditional sporting activities and ballgames, and were allowed to play the sports according to the traditional rules, techniques, and logics of sports. On the other hand, students who chose EA were offered a less sports-centred and more explorative and playful approach to movement activity (for more information, please refer to paper III and IV, and to Tangen & Husebye, in press).

6.2 Participants and data collection procedures

As shown in figure 3, three waves of data collection were performed for this thesis: three quantitative data collections in the spring of 2014 (T1), 2015 (T2), and 2016 (T3), and one qualitative data collection in the winter of 2016.

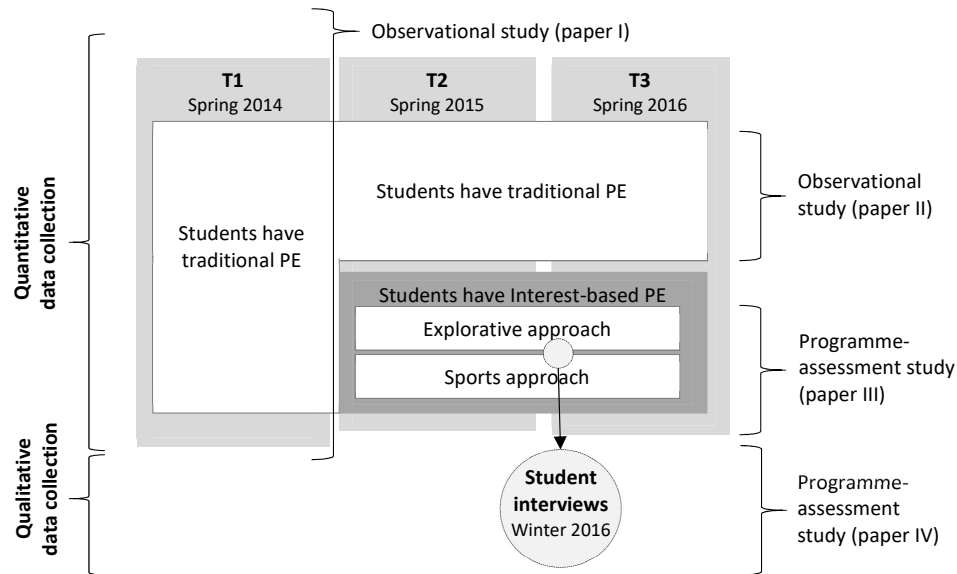


Figure 3. Overview of data collections for this thesis

The quantitative REPAC data-material comprised data from two birth cohorts of adolescents who were students at 44 different schools located in the Norwegian counties of Aust-Agder, Vest-Agder, Oslo, and Østfold. The sample was drawn according to a cluster sampling procedure, with schools as the basic unit, and schools were stratified according to region, study program, number of students and centrality. The data were collected by means of electronic questionnaires, in which adolescents provided data on their experiences from PE in particular, yet also on their experiences from organized sports and self-organized movement activity. Data was collected during regular school hours, and students needed approximately 60-90 minutes to answer the questionnaire. Each student entered a personal ID

code that allowed for the pairing of data across time points. A project researcher was present during the data collection to answer students' questions related to the survey.

As shown in figure 3, all students involved in the REPAC-project received traditional PE at T1. At T2 and T3, most students continued to have traditional PE (providing data for the paper II of the observational study). Yet some of the students were offered the alternative Interest-based PE (providing data for paper III and IV of the programme-assessment study).

A total of 3049 adolescents were involved during the first round of data collection. Among these, 2854 adolescents (47.5/52.5% boys/girls, 52.2/47.8% lower/upper secondary school) provided data on the central study variables pertaining to paper I of the observational study, forming the basis for subsequent cross-sectional SEM analyses (for more information, please refer to section 6.5.1 and paper I).

Among the participants who only received traditional PE throughout the REPAC study, 3496 students were involved in the study at one or multiple time points (T1 and/or T2 and/or T3). Paper II of the observational study was based on data from 3398 of these adolescents (48.5/51.5% boys/girls, 50.2/49.8% lower/upper secondary school) who provided data on central study variables pertaining to this paper, forming the basis for longitudinal SEM analyses. (For more information, please refer to section 6.5.2 and paper II).

At T2, students at five lower secondary schools and four upper secondary schools in Østfold were enrolled in the Interest-based PE programme in the beginning of their second school year (August 2014; grades nine and 12). Among the Interest-based PE participants, 348 students participated in data collections both at baseline (T1) and at both of the time points following the implementation of the Interest-based PE programme (T2 and T3). These responses formed the basis for analyses pertaining to the quantitative programme-assessment study (paper III). Because Interest-based PE offered students a choice of two different approaches to PE, paper III provides data on two groups of students: Those who chose the

explorative approach, and those who chose the sports approach. Because the students themselves decided which approach to PE they preferred, a randomised design was not possible. A control group was created for each of the two PE approaches by means of matching baseline responses from the Interest-based PE-participants' with baseline responses from students in the observational study who did not participate in the Interest-based PE programme. Matched controls were comparable with respect to age (e.g., Ntoumanis, Barkoukis, & Thøgersen-Ntoumani, 2009), sex (e.g., Viira & Koka, 2010), leisure-time sport involvement, and basic need satisfaction reported at baseline. As each Interest-based PE participant was matched with a student from the observational study, paper III included data from a total of 693 students (348 Interest-based PE participants and 345 assigned controls; for more information, please refer to paper III).

Some Interest-based PE students were also invited to take part in one-on-one interviews as part of the qualitative programme-assessment study. Interview participants were final year students (ages 17 and 18) at a large, randomly drawn upper secondary school in Østfold that offered Interest-based PE during the school years of 2014/2015 and 2015/2016. Participants had been involved in Interest-based PE for one-and-a-half years and were assumed to be familiar with, and able to reflect upon, their experiences from both traditional and Interest-based PE. An oral information meeting was arranged, informing the 83 students about the purpose of the study, encouraging them to volunteer for one-on-one interviews. As no boys from the explorative approach volunteered, a second round of announcement was organized in order to ensure proper representation of both sexes, given that boys and girls tend to experience PE somewhat differently (Cairney et al., 2012; Flagestad & Skisland, 2009; Ingebrigtsen, 2006; Säfvenbom et al., 2015). A total of 8 boys and 8 girls from the sports approach volunteered, and 2 boys and 15 girls from the explorative approach volunteered. The final sample of 16 students was randomly drawn from these four pools of

participants (i.e., according to sex), and thus included participants of both sexes from both intervention groups (2 boys and 6 girls from EA, and 4 boys and 4 girls from SA). (For more information, please refer to paper IV. For a brief overview of participants in the two papers, please refer to table 1, p. 44). The interviews took place in a suitable room at the school during school hours, and lasted between 67 and 112 minutes with the majority of interviews lasting 85 minutes or more.

6.3 Instruments (papers I, II, and III)

6.3.1 *Global self-worth (papers I and II)*

Students' sense of global self-worth was assessed using Wichstrøm's revised Norwegian version (Wichstrøm, 1995) of Harter's Self-Perception Scale for Adolescents (SPPA; Harter, 1988). This scale is based on five statements (e.g., "I am often disappointed about myself"), with responses anchored on a Likert scale from 1 (*Describes me very poorly*) to 4 (*Describes me very well*; Wichstrøm, 1995). (For more detailed information, please refer to paper I and II). For the purpose of paper I, only a baseline measure of global self-worth was applied. Paper II applied a measure of global self-worth at all three time points. Analyses in paper I were based on a latent global self-worth variable based on five observed indicators, whereas analyses in paper II were based on mean scores for global self-worth (one for each of the three time point). The SPPA subscale showed acceptable levels of internal consistency at each time point, as reported by Cronbach's alphas of .84, .81, and .82, at T1, T2, and T3, respectively.

6.3.2 *Contextual basic psychological need satisfaction (papers I, II, and III)*

Basic psychological need satisfaction in PE, organized sport, and self-organized movement activity was assessed using the 12-item Basic Psychological Needs in Exercise

Scale (BPNES; Vlachopoulos & Michailidou, 2006) adapted for the examination of basic need satisfaction in the different movement contexts. Students' sense of autonomy (e.g., "Physical education classes are in agreement with my choices and interests"), competence (e.g., "I feel that I have made a lot of progress in relation to the objective of physical education") and relatedness (e.g., "I feel very comfortable with the students in physical education") were rated on a Likert scale ranging from 1 (*totally disagree*) to 7 (*very strongly agree*).

Paper I studied basic psychological need satisfaction in all three movement contexts (PE, organized sports, and self-organized movement activity) at a single time point, while paper II and paper III provided repeated measures (T1 through T3) of basic psychological need satisfaction only in the context of PE. Paper I and III treated the three needs for autonomy, competence, and relatedness independently throughout analyses. Previous research on the BPNES has reported that the analysis of separate needs is valid and reliable, with alpha coefficients of .75, .80, and .86 for autonomy, competence, and relatedness, respectively (Vlachopoulos & Michailidou, 2006). In each movement context, each of the three basic needs showed acceptable levels of internal consistency, as reported by Cronbach's alpha's ranging from .84 to .92. Paper II applied an overall score on basic need satisfaction developed by means of averaging students' sense of autonomy, competence, and relatedness need satisfaction in PE. The averaged BPNES applied in paper II showed high levels of internal consistency at each time point (α T1 = .95, α T2 = .95, α T3 = .95).

6.3.3 Other measures applied in this thesis (papers I, II, and III)

Participants also reported their sex, year of birth (cohort), and whether or not they were involved in organised sport and/or self-organized movement activity outside of school at baseline (i.e. "Do you train or compete in a sports club?", and "Do you participate in any form

of training/physical activity besides sports and PE that make you feel warm or short of breath [for example skating, parkour, cycling, skiing, swimming, running, fitness centre’’]).

6.4 Interview guide (paper IV)

Student interviews were based on a semi-structured interview guide. This interview guide referred to three main topics concerning: (a) PE in general, (b) Interest-based PE, and (c), the purpose of PE. Each topic was guided by major questions as well as possible follow-up questions (see appendix II). The interview guide had been tested in two pilot interviews before any research interviews took place.

6.5 Analyses

This section offers an overview of the most central analyses pertaining to each of the four papers of this thesis. For a brief overview, please refer to table 1, p. 44. Please refer to the enclosed papers for more detailed information on analyses.

6.5.1 Cross-sectional analyses (paper I)

Among the 2854 participants were 395 students who did not involve in leisure-time movement activity and only participated in PE (referred to as “PE-only”), 362 students who participated in PE and organized leisure-time sport (referred to as “PE/OS”), 922 students who participated in PE and self-organized movement activity (referred to as “PE/SO”), and 1175 students who participated in PE, organized leisure-time sport, and self-organized movement activity (referred to as “PE/OS/SO”). These four groups of adolescents were treated as separate subsamples in the analyses throughout paper I.

Confirmatory factor analyses (CFAs) with a multi-group specification were applied to compare the mean values of global self-worth and context specific autonomy, competence,

and relatedness need satisfaction between the four subsamples, using the robust maximum likelihood estimator (MLR) in Mplus 8.0. Missing data was considered missing at random (MAR) and full information maximum likelihood (FIML; Enders, 2010) was applied. Separate models were estimated for each of the constructs. Model fit was evaluated by means of the root mean square error of approximation (RMSEA), the comparative-fit index (CFI), and the standardized root mean square residual (SRMR). $RMSEA < .08$, $CFI > .90$, $SRMR < .08$ was considered indicative of acceptable model fit (Little, 2013).

The Wald's test was used to compare the mean values of global self-worth and autonomy, competence, and relatedness need satisfaction in PE between the subsamples. Given that the organized sport context was only attended by adolescents in two of the subsamples (PE/OS and PE/OS/SO), a z-test was used to identify whether the latent mean values of autonomy, competence, and relatedness need satisfaction in organized sport statistically differed across these subsamples. The same procedure was used with respect to autonomy, competence, and relatedness need satisfaction in self-organized movement activity for the two subsamples who attended this context (subsamples PE/SO and PE/OS/SO). In all analyses, statistically significant group differences were indicated by a p -value of $< .05$.

The second research question was approached through the use of structural equation modelling (SEM) using the MLR estimator. SEM analyses were used to investigate the relationship between autonomy, competence, and relatedness need satisfaction in PE and global self-worth. To control for students' sense of basic need satisfaction in the different leisure-time movement contexts where they took part, analyses were performed separately for each subsample. Autonomy, competence, and relatedness need satisfaction in PE were specified in separate models within each subsample. Given that students' sex and school level (age) were considered as potential influences on global self-worth, these were included as independent variables within all models. Model fit criteria were the same as in the CFAs. To

identify statistically significant differences in the relations between autonomy, competence, and relatedness need satisfaction in the different movement contexts and global self-worth, the Wald's test was applied. Significant results were indicated by p -values below .05.

6.5.2 Longitudinal analyses (paper II)

The longitudinal relations between basic need satisfaction in PE and global self-worth were assessed by means of four temporal models and competing hypotheses. Analyses were performed using bivariate unconditional latent curve models with structured residuals (P. J. Curran, Howard, Bainter, Lane, & McGinley, 2014) which allow for the simultaneous assessment of within-person and between-person relations between basic need satisfaction and global self-worth over time (P. J. Curran et al., 2014). Analyses were conducted in Mplus version 7.0 using the MLR-estimator, and intercept and slope factors of basic need satisfaction in PE and global self-worth were estimated and allowed to co-vary in all four models. The autoregressive model (H_0) only modelled autoregressive effects for the residuals of basic need satisfaction in PE and global self-worth. The global self-worth consequence model (H_1) modelled within-subject cross-lagged effects by means of phantom variables, with the residual of global self-worth being regressed on the residual of basic need satisfaction in PE. The global-self-worth antecedent model (H_2) modelled within-subject cross-lagged effects in the opposite direction, with the residual of basic need satisfaction in PE regressed on the residual of global self-worth. The bidirectional model (H_3) modelled within-subject cross-lagged effects in both directions, by means of regressing the residual of basic need satisfaction in PE on the residual of global self-worth, while at the same time regressing the residual of global self-worth on the residual of basic need satisfaction in PE. To evaluate model fit across the four models, model selection indices and model fit indices were compared, and the model that showed the best fit to the data was retained. The model

selection indices included the Akaike information criterion (AIC), and the Bayesian information criterion (BIC), with lower values indicating improved model fit (Byrne, 2013). In term of model fit indices, RMSEA below .05 (Browne & Cudeck, 1993, in Byrne, 2013), CFI above .95 (Hu and Bentler, 1999, in Byrne, 2013), a Tucker-Lewis index (TLI) above .95 and SRMR below .05 (Byrne, 2013) was considered indicative of good model fit. In all analyses, statistically significant results were indicated by *p*-values below .05.

6.5.3 Quantitative effect analyses (paper III)

Using IBM SPSS 24, Pearson chi-square tests and bootstrapped independent samples t-tests were used for descriptive analyses of students' choice between the two approaches to PE. Second order growth curve analyses, based on the syntax suggested by Newsom (2015), were performed in Mplus version 8.0 to study the Interest-based PE programme's possible effect on growth trajectories of autonomy, competence, and relatedness need satisfaction in PE. In the model specification, strict invariance was specified. The effect of students' participation in Interest-based PE groups versus control groups was studied by means of regressing dichotomous group variables (EA vs. EA-control, and SA vs. SA-control) on the growth trajectories of autonomy, competence, and relatedness need satisfaction in PE. The same approach was also used to study the possible effect of students' leisure-time sports participation at T1 (sports vs. no sports) on growth trajectories of autonomy, competence, and relatedness need satisfaction among students in the two Interest-based PE groups (EA and SA). Model fit was evaluated by means of the RMSEA, CFI, TLI, and SRMR, where CFI and TLI values around .90 in combination with SRMR and RMSEA values around .08 was indicative of acceptable model fit (Marsh, 2007). The significance level was set to .05 in all analyses. In order to address problems with negative residual variances in some of the

analyses, the slope or one of the latent variables were fixed to zero (Brown, 2015; Byrne, 2013; for further information, see table 2, p. 51).

6.5.4 *Qualitative analyses (paper IV)*

An inductive interpretive thematic analysis was performed according to the six phases of thematic analysis proposed by Braun and Clarke (2006). Tape-recorded interviews were transcribed verbatim, and re-read (Phase 1) before initial line-by-line coding procedures (Phase 2). NVivo, a qualitative data analysis software, was used to systemize the research material and to support the coding process. The coding process was inductive, characterized by the authors' attempt to remain open to the data and not, at this stage, limit coding to preconceived concepts and theory, while at the same time acknowledging that "data are not coded in an epistemological vacuum" (Braun & Clarke, 2006, p. 84). The line-by-line codes were structured into higher order codes, reflecting students' experiences of "change" in PE, as well as students' emphasis on the importance of being "good", "skilled", "suited", "positive" or "engaged" in the subject. After the 16th interview, all codes appeared sufficiently elaborated. As the last four of these interviews did not result in additional codes the data collection appeared to have reached the point of saturation (Phase 3; Fusch & Ness, 2015). However, the descriptive nature of the codes made the generation and interpretation of themes at this stage difficult, and a second level of interpretation was considered necessary to achieve a deeper understanding of students' experiences with Interest-based PE. Therefore, all interviews were re-read and subject to manual focused coding (Phase 4). To assure that the essence of the interviews was maintained and to facilitate the identification of major themes in the data material, the focused codes-were then re-studied in relation to the initial codes. During this procedure, two subthemes were identified as reflecting students' experiences of the Interest-based PE programme: "it hasn't changed that much" and "you get to be with

people at your own level". The content of both subthemes reflected a common, major theme, identified as "the role of sports in PE". As such, understanding "the role of sports in PE" appeared essential to achieve a deeper understanding of students' experiences with Interest-based PE (Phase 5). As the analysis process was completed, this inductively derived theme was substantiated by student quotes that formed the basis for the formal write-up of research findings, which were then presented and discussed from the perspective of RDS (Phase 6).

The Interest-based PE programme was developed in a county of Norway as a local didactic programme by ordinary PE-teachers in collaboration with PE teacher education lecturers from a local university college. The programme was based on experiences these PE educators' had from their own teaching and represents one of many local, experience-based, didactic PE-actions performed every year in many schools nationwide and worldwide. Common to such didactic programmes is often a desire among staff to improve the PE-subject, to reach specific groups of students, or to make PE a better place for all. Being developed by PE-teachers in the context of their everyday lives, the Interest-based PE programme could be considered to be ecologically valid (Bronfenbrenner, 1979; Schmuckler, 2001).

The author was introduced to the Interest-based PE programme just before it was implemented in 2015, and did not influence programme content or implementation. The interviews for paper IV were performed as students had participated in Interest-based PE for 18 months. During interviews and analysis, the author made efforts to self-disclose potential preconceptions and looked for disconfirming evidence when working with the data material (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005). Being part of a research group allowed for the discussion of analysis and interpretations with research group members and co-authors in a way that strengthened the trustworthiness of the study. Findings from paper IV have not only been discussed within the research group, but also in other settings pertaining to

PE teachers and colleagues working within PE teacher education in Norway. To get into the contextual and relational depth of how students experienced the Interest-based PE programme, all 16 informants were recruited from the same school. Interviews with students from more than one school could possibly have contributed to more diversity in student responses and more nuanced findings; however, this could also have harmed the contextual understanding, and thus the validity of the study.

In all kinds of research, the disclosure of preunderstandings is important (Nystrom & Dahlberg, 2001). Like all humans, researchers are part of a developmental system and develop in interaction with their surrounding ecologies (Lerner, 2018). Openness regarding the researchers' background and prior experience may therefore add important nuances to research. Prior to working on this thesis, I had little research experience within the field of PE and no experience with PE teaching. As such, experiences with PE were primarily from having participated in PE as a student through 13 years of schooling, and the reflections offered through this research could therefore in many regards be considered an outsiders perspective. Yet, while working on this thesis, I also gained some experience from teaching PE student teachers at the Inland Norway University of Applied Sciences. My formal education is a bachelor's and master's degree in public health, in addition to a one-year course in pedagogy. Interest in the relations between students' PE experiences and mental health indicators (such as global self-worth) could most likely be attributed to this background in public health. As a former PE-student who lacked experience from leisure-time sport and felt insecure in PE, the interest in health-related aspects of PE has also been accompanied with an interest in particular student groups, such as non-sports active or insecure adolescents, and how these and other adolescents experience and benefit from the PE subject.

Table 1

Overview of papers

Paper I	
Aims	→ Investigate differences in global self-worth and contextual autonomy, competence, and relatedness need satisfaction among adolescents who participate in different movement contexts → Investigate the relationship between autonomy, competence, and relatedness need satisfaction in PE and adolescents' experience of global self-worth, when controlling for autonomy, competence, and relatedness need satisfaction in organized sports and self-organized movement contexts
Design	Observational, cross-sectional study (based on T1 data)
Participants	2854 adolescents (47.5/52.5% boys/girls, 52.2/47.8% lower/upper secondary school students)
Analyses	Confirmatory factor analyses and structural equation modelling analyses
Paper II	
Aim	→ Investigate the temporal relations between basic need satisfaction in PE and global self-worth in adolescents
Design	Observational, longitudinal study with three measurement points
Participants	3398 adolescents (48.5/51.5% boys/girls, 50.2/49.8% lower/upper secondary school students)
Analyses	Bivariate unconditional latent curve models with structured residuals
Paper III	
Aims	→ Investigate whether Interest-based PE affected students' autonomy, competence and relatedness need satisfaction in PE → Investigate whether student trajectories in autonomy, competence and relatedness need satisfaction in PE were contingent on participation in leisure-time sport
Design	Quantitative programme-assessment study (longitudinal study with three measurement points)
Participants	693 students of whom 348 participated in Interest-based PE (55.5% girls, 60/40% lower/upper secondary school students) and 345 were assigned controls.
Analyses	Two-level growth curve analyses of within-person growth trajectories
Paper IV	
Aim	→ Gain a deeper insight into how the Interest-based PE programme intervened in the relations between the students and the PE subject
Design	Qualitative programme-assessment study (one-on-one student interviews)
Participants	16 upper secondary school students participating in Interest-based PE (2 boys and 6 girls from EA, and 4 boys and 4 girls from SA)
Analyses	Thematic analysis of individual in-depth student interviews

Note. PE = physical education; EA = explorative approach; SA = sports approach.

6.6 Ethics

This thesis draws on both quantitative and qualitative data collections. The quantitative REPAC data collections were approved by the Norwegian Centre for Research Data (NSD) and principals at each of the 44 participating schools. The qualitative REPAC data collection was approved by NSD and by the principal at the one school from which student interview-participants were recruited. As the REPAC-questionnaire did not ask for sensitive information, NSD granted the inclusion of 15-year-old children based on independent consent. Also in agreement with recommendations from NSD, all students who were younger than 15 years of age were required to provide parental consent prior to participation in the survey. Students who were invited to participate in qualitative and/or quantitative data collections, their teachers, as well as their parents (when students were under 15 years of age) were informed about the purpose of the qualitative and/or quantitative part of the REPAC project in written information letters (see appendix I and II). Students were also provided with oral information about the purpose of the quantitative part of the REPAC project before they were introduced to the questionnaire. In addition, students were provided with oral information about the purpose of the qualitative part of the REPAC project before they consented to participate in interviews.

All students who participated in qualitative and/or quantitative REPAC data collections provided informed consent prior to their participation. Students, as well as their teachers, were informed that their participation was voluntary and that they were free to withdraw from the study at any time. For the purpose of quantitative data collections, a personal ID code was provided for each of the participating students to permit the pairing of data across time points. These ID codes were only accessible to project researchers, and the students were assured that all responses would be kept confidential and thereby treated anonymously. Participants in the qualitative data collection were 17 to 18 years of age and

they all consented to the tape recording of interviews. Students were assured that neither teachers nor parents could access their responses, and that all information would be treated anonymously so that no statements could be traced back to them. To ensure this, all reports on findings relating to the qualitative programme-assessment study use pseudonyms for anonymity. Participants in both the quantitative and qualitative data collections were children, and are therefore entitled to special protection when they take part in research (De nasjonale forskningsetiske komiteene [The Norwegian national research ethics committees], 2019). Efforts were made to secure and safeguard the students' interests and limit the possibility for potentially negative consequences from participation in this research. Students were invited to share their experiences from PE, yet the interviewee made efforts to respect students' personal boundaries and students were never forced to discuss matters if they did not wish to do so themselves. Nonetheless, one cannot exclude the possibility that interviews might awaken painful memories in some students, or that some students might open up and share information about potential difficulties in their lives. The school health service was therefore informed about the study, and the students were invited to contact them after interviews in case they wanted to talk about their experiences with another adult.

7 Findings

7.1 Paper I: Observational study – Cross-sectional

The purpose of paper I was twofold. The first aim was to investigate potential differences in global self-worth and contextual autonomy, competence, and relatedness need satisfaction among adolescents who participate in different movement contexts. The second aim was to investigate the relationship between autonomy, competence, and relatedness need satisfaction in PE and adolescents' experience of global self-worth, when controlling for autonomy, competence, and relatedness need satisfaction in organized sports and self-organized movement contexts.

While some of the adolescents in this study only participated in PE (subsample PE-only), some participated in both PE and organized sport (subsample PE/OS), others participated in both PE and self-organized movement activity (subsample PE/SO), while still others participated in all three movement contexts: PE, organized sport, and self-organized movement activity (subsample PE/OS/SO). Students who did not participate in organized leisure-time sport (subsample PE-only and subsample PE/SO) reported statistically significantly lower levels of global self-worth ($M = 2.84$ and 2.83 , respectively) when compared to sports-active students (subsamples PE/OS and PE/SO/OS: $M = 3.05$ and 3.06 , respectively). There were statistically significant differences between all subsamples in terms of autonomy, competence, and relatedness need satisfaction in PE. Students whose only movement activity was PE (subsample PE-only) experienced less autonomy, competence, and relatedness in PE compared to students in all other subsamples (PE-only: $M = 3.85$, 4.06 , and 4.39 for autonomy, competence and relatedness, respectively). Students who participated in PE and self-organized movement activity (subsample PE/SO) reported relatively higher levels of autonomy ($M = 4.16$), competence ($M = 4.55$) and relatedness ($M = 4.91$) need satisfaction in PE, followed by students who participated in PE and organized leisure-time sport

(subsample PE/OS; autonomy: $M = 4.50$, competence: 5.05, and relatedness: 5.19). Students who participated in PE, organized sport, and self-organized movement activity (subsample PE/OS/SO) reported the highest levels of autonomy ($M = 4.77$), competence ($M = 5.33$), and relatedness ($M = 5.44$) need satisfaction in PE when compared to adolescents in all of the other subsamples.

All SEM models showed acceptable fit to data (Little, 2013), with CFI ranging from .960 to 1.00, RMSEA ranging from .003 to .068, and SRMR ranging from .020 to .067 (see paper I, table 2, model 3). Results from SEM analyses showed that global self-worth was significantly predicted by autonomy, competence, and relatedness need satisfaction across all movement contexts, in all of the four subsamples ($p < .05$). Also, for the PE/SO and PE/OS/SO subsamples, the Wald test showed that the association between competence need satisfaction in PE and global self-worth is more powerful than the association between competence need satisfaction in organized sports and global self-worth, and the association between competence need satisfaction in self-organized movement activity and global self-worth.

7.2 Paper II: Observational study – Longitudinal

The purpose of paper II was to investigate the temporal relations between adolescents' basic psychological need satisfaction in PE and global self-worth in terms of both between- and within-subjects effects.

SEM analyses showed that a bidirectional model of the relationship between basic need satisfaction in PE and global self-worth provided the best fit to the data (AIC = 28876.985, BIC = 28975.080). The bidirectional model also yielded the best model fit indices, with $\chi^2(11) = 95.38$, $p < .01$, RMSEA = .048 (90% CI = [.039, .057]), CFI = .967, TLI = .995 and SRMR = .040, indicating good model fit to the data (Byrne, 2013). In the bidirectional

model, the slopes for basic psychological need satisfaction in PE and global self-worth were small and statistically non-significant (BPN: $\Delta = -.013$, $SE = .017$, $p = .43$; GSW: $\Delta = -.012$, $SE = .008$, $p = .12$; see paper II, table 3), and intercepts for basic need satisfaction in PE and global self-worth were both statistically significant from zero (BPN: $M = 4.77$, $SE = .025$, $p < .01$; GSW: $M = 2.97$, $SE = .013$, $p < .01$). On the within-person level, statistically significant cross-sectional correlations were identified between basic need satisfaction in PE and global self-worth at each of the three time points (T1: $r = .41$, $SE = .020$, $p < .01$; T2: $r = .22$, $SE = .020$, $p < .01$; T3: $r = .23$, $SE = .022$, $p < .01$). Findings also included significant autoregressive effects for basic psychological need satisfaction in PE (BPN_{T1-T2}: $\beta = .572$, $SE = .021$, $p < .01$; BPN_{T2-T3}: $\beta = .602$, $SE = .021$, $p < .01$) and global self-worth (GSW_{T1-T2}: $\beta = .618$, $SE = .015$, $p < .01$; GSW_{T2-T3}: $\beta = .615$, $SE = .016$, $p < .01$). All cross-lagged effects were statistically significant, with basic psychological need satisfaction in PE at T1 predicting global self-worth at T2 ($\beta = .079$, $SE = .016$, $p < .01$), basic psychological need satisfaction in PE at T2 predicting global self-worth at T3 ($\beta = .085$, $SE = .017$, $p < .01$), global self-worth at T1 predicting basic psychological need satisfaction in PE at T2 ($\beta = .093$, $SE = .018$, $p < .01$), and global self-worth at T2 predicting basic psychological need satisfaction in PE at T3 ($\beta = .090$, $SE = .017$, $p < .01$).

7.3 Paper III: Programme-assessment study

The purpose of paper III was to investigate (a) whether the two-year Interest-based PE-programme affected students' basic psychological need satisfaction in PE, and (b) whether student trajectories in basic psychological need satisfaction, through the two-year Interest-based PE programme, were contingent on students' participation in leisure-time sport. The Interest-based PE programme was developed by PE teachers who experienced that their students did not benefit equally in PE, in an attempt to make PE a developmental asset for all.

Interest-based PE provided students with a choice of two different approaches to learning in PE. While the sports approach offered students traditional sporting activities and ballgames in PE class, the explorative approach offered students a less sports-centred and more playful approach to movement activity in PE class (for more information about EA and SA, please refer to papers III and IV).

Descriptive analyses showed that 52% of the students chose EA whereas 48% chose SA. Adolescents who chose EA reported significantly lower levels of autonomy ($t(523) = -8.82, p < .01, d = -.83$), competence ($t(519) = -9.65, p < .01, d = .94$), and relatedness ($t(507) = -8.47, p < .01, d = -.90$) need satisfaction at baseline compared to students who chose SA. ($t(295) = -7.70, p < .01, d = -1.02$). Students' sex and leisure-time sports participation were significantly related to their choice of PE approach (sex: $\chi^2(1) = 36.98, p < .01$; sports participation: $\chi^2(1) = 42.95, p < .01$). The odds that girls would choose EA were 3.90 times higher than for boys, and the odds that non-sports-active students would choose EA were 4.43 times higher than for sports-active students.

Second-order growth curve analyses of students' growth trajectories were applied to study students' development in autonomy, competence, and relatedness need satisfaction through the two-year Interest-based PE programme. As shown in table 2, we modelled growth trajectories for autonomy, competence, and relatedness for each of the two Interest-based PE groups, their respective control groups, as well as for students within each Interest-based PE group who were and were not involved in leisure-time sports.

Table 2

Overall intercepts and slopes in the growth models for the three basic psychological needs

	Autonomy		Competence		Relatedness	
	I	S	I	S	I	S
EA	3.97*	0.07	4.13*	0.05	4.43*	-0.02
EA sports	4.09*	0.08*	4.27* ^b	0.09 ^b	4.49*	0.07
EA no sports	3.85*	0.05	3.99*	0.02	4.33*	-0.10
EA-c	3.90* ^a	-0.05 ^a	4.07*	-0.03	4.44*	0.00
SA	4.86*	-0.06	5.32*	-0.11*	5.38* ^d	-0.16* ^d
SA sports	4.82*	-0.05	5.43*	-0.11*	5.45*	-0.15*
SA no sports	4.92*	-0.08	4.93* ^c	-0.11 ^c	5.18* ^d	-0.22* ^d
SA-c	5.04*	-0.22*	5.26* ^c	-0.08 ^c	5.34* ^d	-0.04 ^d

Note. EA = explorative approach; EA-c = control group for the explorative approach; SA = sport approach; SA-c = control group for the sport approach; I = intercept; S = slope; * $p < .05$; ^{a-d}To address problems with negative residual variances ^aAutonomy_t3, ^bthe slope, ^cCompetence_t1 and ^dRelatedness_t1 were fixed to zero (Brown, 2015; Byrne, 2013).

The effect of student participation in Interest-based PE groups versus control groups was studied by means of regressing dichotomous group variables (EA vs. EA-control, and SA vs. SA-control) on the growth trajectories of autonomy, competence, and relatedness need satisfaction in PE. All models showed acceptable fit (Marsh, 2007) to the data (paper III, table 3). Analyses showed that participation in Interest-based PE groups versus control groups did not significantly predict students' trajectories of autonomy (EA vs. EA-control: $\beta = -.118$, $SE = .068$, $p = .08$; SA vs. SA-control: $\beta = -.107$, $SE = .066$, $p = .10$), competence (EA vs. EA-control: $\beta = -.116$, $SE = .095$, $p = .22$; SA vs. SA-control: $\beta = .025$, $SE = .064$, $p = .70$), or relatedness (EA vs. EA-control: $\beta = .024$, $SE = .085$, $p = .78$; SA vs. SA-control: $\beta = .092$, $SE = .062$, $p = .14$) need satisfaction in PE.

The second research question was analysed using similar second-order growth curve analyses, and these models also showed acceptable fit to the data (paper III, table 3). Analyses showed that leisure-time sports participation did not relate to SA students' trajectories of

autonomy (sports vs. no sports: $\beta = -.039$, $SE = .079$, $p = .62$), competence (sports vs. no sports: $\beta = -.134$, $SE = .077$, $p = .08$), or relatedness (sports vs. no sports: $\beta = -.101$, $SE = .072$, $p = .16$). With respect to the EA-students, analyses showed no significant relationship between leisure-time sports participation and trajectories of autonomy (sports vs. no sports: $\beta = -.120$, $SE = .086$, $p = .17$) and competence (sports vs. no sports: $\beta = -.251$, $SE = .139$, $p = .07$). However, weak but still significant relations between leisure-time sports participation and EA-students' trajectories of relatedness in PE were identified ($\beta = -.404$, $SE = .192$, $p = .04$), showing that sports-active EA-students developed significantly higher levels of relatedness over the course of the programme compared to non-sports active EA-students.

7.4 Paper IV: Qualitative study

Paper IV was developed alongside paper III, and aimed to gain a deeper insight into how the Interest-based PE programme intervened in the relations between students and PE. Our analysis identified “the role of sports in PE” as the major theme concerning EA and SA students' experiences of traditional and Interest-based PE. Related to this theme were two subthemes, expressed by the students as “it hasn't changed that much” and “you get to be with people at your own level”.

7.4.1 “It hasn't changed that much”

Both interest-based approaches to PE were intended to create change in the student ↔ subject relationship, yet according to the EA and SA students the subject had “not changed that much”. According to the students, any change in PE associated with EA was unconvincing and temporary, while SA was considered somewhat indistinguishable from a traditional approach to PE, which allowed them to play sports according to a familiar and traditional PE-logic and practice. Students' statements suggest that their experience with PE

before the advent of the Interest-based PE was centred around traditional sports, and that the logic of traditional sports continued to govern student ↔ PE relations even in Interest-based PE. As such, EA and SA students did not experience Interest-based PE as a true change in the PE-subject. According to the students, Interest-based PE did not include a reflective emphasis on current curricular objectives in PE, meaning that the traditional discourses – as rules of regulations – governing PE were never challenged. Interest-based PE therefore did not alter students' already established relationships with PE, because adaptive student ↔ PE relationships still required the students to accept the logic of sports in PE. Consequently, students felt that their choice between EA and SA served only to separate the “good students” who performed well in traditional PE from those who did not.

7.4.2 “You get to be with people on your own level”

From the students' perspective, Interest-based PE split them into two groups; those who were eager and good at sports became SA students, while those who were not so good at sports became EA students. Thus, according to the students, Interest-based PE did not actually offer two different approaches to PE, but only divided sports-based PE into two levels of ability. Student references to different “levels” among the students seems to be a description of their relative athletic ability, unrelated to the competence aims in the PE-curriculum. Students described some of their peers as “super good” PE students, referring to the students who are skilled at sports and now participate in SA, suggesting that the students consider their ability in PE to be based on their sports competence. The idea of EA and SA as two levels of a sportified PE was articulated by both EA- and SA-students. However, somewhat surprisingly, students in both approaches largely perceived this as a positive development in their PE. While EA-students felt that their new classmates were more respectful towards them because they were all at the same level of sports-competence, SA-students enjoyed their new PE

group, which allowed them to play sports alongside other students who were “enthusiastic” about PE (that is, sports in PE), rather than just “playing around”. This could indicate a relational change. However, SA-students’ references to enthusiasm in PE were essentially related to playing various sports, which they themselves enjoyed, whilst appreciating that they now could “learn for real (...) how to play football. Rather than playing football just to play football.” Students’ prior experience of “playing football just to play football,” combined with their new sensation of “learning for real,” suggests that students’ own understandings of the purposes of PE do not correspond with those of the national PE curriculum. An implicit understanding that PE is intended to develop students’ sport skills is identifiable to varying degrees in all student interviews, and it became clear that students made no real distinction between the domain of sport and the domain of PE. Ideas of “PE-as-sports” and personal perceptions of athletic competence and ability also appear to guide students’ understandings of PE, and thus their choice of PE approach. While the EA-students believed that their sports-eager peers would benefit from their absence, the SA-students enjoyed not having to show consideration for their fellow students who they deemed less eager and skilled at sports – who now participated in EA. Because neither the Interest-based PE classes nor the teachers who taught them succeeded in challenging the students’ ideas of EA and SA as two different levels of the same old PE, the idea of PE-as-sports seemed to remain unquestioned. In other words, the same dynamic that governed the relationship between students and traditional PE survived the transition to Interest-based PE essentially unchanged. As such, there is much to suggest that the dominant conception of PE-as-sports reduced Interest-based PE to no more than a simple differentiation-programme based on students’ sporting skills and achievement potential in organized sport activities.

8 Discussion

This thesis aims to develop knowledge on PE's role as a developmental asset for all, through a study of students who participate in different leisure-time movement activities. More specifically, it aims to increase our understanding of how PE – a central, mandatory school subject – benefits adolescents in terms of psychological variables predictive of motivation, learning, and well-being (Ryan & Deci, 2017; Utdanningsdirektoratet, 2012; 2015b). The thesis questions (a) how students who differ in terms of leisure-time movement involvements experience and develop basic need satisfaction in PE, (b) how the experience and development of basic psychological need satisfaction in PE relates to global self-worth, and (c) whether a didactical differentiation-programme called Interest-based PE is able to optimize the relationship between students with diverse movement interests and PE, and thereby level the learning field for students in this subject. The thesis' four papers draw on theoretical perspectives from RDS and SDT, and adolescents' experiences with both traditional and alternative approaches to PE are studied.

The first part of this section discusses findings from each of the thesis' four research papers, before these findings are synthesized and discussed from an integrative perspective that takes into account RDS and prior research. This structure allows the researchers to focus on relations within separate parts of the human developmental system (what Overton describes as “opposites of identify”; Causadias et al., 2018), before reintegrating the research findings into a unified whole within the larger social context (“synthesis of wholes”; Causadias et al., 2018). This is followed by a brief discussion of some methodological strengths and limitations, before some possible implications are offered and the thesis concludes.

8.1 Discussion of research findings

8.1.1 Involvement in leisure-time movement contexts and basic need satisfaction in PE

Findings from paper I align with prior research on adolescents' intrinsic motivation (Koka & Hein, 2003; Säfvenbom et al., 2015) and basic need satisfaction (Viira & Koka, 2012) in PE, showing as they do that adolescents who participated in organized leisure-time sport reported significantly higher levels of basic need satisfaction in PE than non-sports-active adolescents. Based on prior research showing that basic need satisfaction in PE is linked to a number of learning-related outcomes (e.g., Erturan-İlker et al., 2018; Standage et al., 2006; Stormoen et al., 2016; Taylor & Lonsdale, 2010), these findings suggest that adolescents who are not involved in organized leisure-time sport, and especially those adolescents whose only movement activity is in PE, constitute a vulnerable student group. Should a causal link be documented in future research, that would suggest that students who probably have the fewest positive movement experiences from leisure-time movement contexts – and who probably would benefit the most from a positive relationship with PE – are the very same students who are the least likely to experience basic need satisfaction in this subject. The students who need PE the most are the ones getting the least out of the class.

8.1.2 Basic need satisfaction in PE's role in global self-worth development

Paper I adds strength to former cross-sectional research (Garn et al., 2012; Standage & Gillison, 2007) as it shows significant, positive relations between students' sense of autonomy, competence, and relatedness need satisfaction in PE and their global self-worth. It also suggests that competence need satisfaction in PE is more strongly related to global self-worth than competence need satisfaction in leisure-time sport contexts and thus, that PE may be an important movement context with respect to the link between basic need satisfaction and global self-worth. Findings from paper I also add strength to prior research which

suggests that global self-worth is associated with organized sports participation (Nemček, Kraček, & Peráčková, 2017; Scarpa, 2011; Slutzky & Simpkins, 2009), and that sports-active students are more likely to report positive feelings from PE (Kjønniksen et al., 2009; Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012). The identification of a positive relationship between basic need satisfaction in PE and global self-worth, regardless of students' participation and basic need satisfaction in leisure-time movement contexts, therefore constitutes an important contribution to the existing research on this relationship (e.g., Garn et al., 2012; Standage & Gillison, 2007). Paper II further extends our understanding of this relationship through the identification of bidirectional relations. Bidirectional relations are among the tenets of SDT (e.g., Ryan & Deci, 2017) and align with previous cross-sectional research suggesting that the promotion of students' basic need satisfaction in PE may promote positive global self-worth development (Garn et al., 2012; Standage & Gillison, 2007). On the other hand, the identified bidirectional relations also suggest that students' global self-worth may influence the degree to which they experience the PE context to be supportive of their basic psychological needs. The identification that low global self-worth predicts experiences of reduced basic need satisfaction in PE may indicate that adolescents with low global self-worth thwart their own basic need satisfaction in PE. This thwarting may well arise from adolescents' diminished ability to perceive and benefit from a basic-need-supportive PE environment (e.g., Blaine & Crocker, 1993), but it may also be the result of negative behavioural patterns based on the adolescents' desire to protect the Self from harm (e.g., Lyngstad, Hagen, & Aune, 2016). This indicates that students with high and low levels of global self-worth may experience the same PE environment differently and that not all students may be equally sensitive to need-supportive education.

Taken together, findings from papers I and II indicate that students who are not involved in leisure-time movement contexts and/or experience low global self-worth are less

likely to experience basic need satisfaction in PE, and thus less equipped to develop global self-worth through involvement in PE. In other words, it does not appear to be arbitrary which students are able to develop basic need satisfaction in PE and global self-worth through PE. Although cause and effect cannot be inferred from the herein presented material, these findings serve to suggest that not all students are given the same opportunities to achieve the curricular purpose of global self-worth development in PE, and that students who are not involved in leisure-time movement contexts and/or experience low levels of global self-worth may be particularly vulnerable in this regard. This causal direction would imply that PE undermines the developmental trajectory of important student groups and that the subject violates the Norwegian Education Act, which articulates the individual student's right to an education that is adapted to his or her abilities and aptitudes (Opplæringslova, 1998, §1-3). This would also mean that the current approach to PE is incompatible with the subject's educational obligation to provide students with equal opportunities through equal education, and that in the worst case, this approach to PE could contribute to inequity in education and health.

8.1.3 Interest-based PE in the promotion of basic need satisfaction and student ↔ subject fit

Findings from the quantitative programme-assessment study in paper III show that when given the opportunity, girls, non-sports-active adolescents, and students who experienced less basic need satisfaction in PE at baseline were more likely to choose EA, indicating a desire for a less sports-centred PE subject. This aligns with findings from paper I and prior research which shows that girls (Viira & Koka, 2010) and non-sports-active students (paper I; Viira & Koka, 2012) typically experience less basic need satisfaction in PE and view traditional PE less positively than boys and sports-active adolescents, respectively

(Kjønniksen et al., 2009; Säfvenbom et al., 2015). However, paper III suggests that Interest-based PE did not affect students' basic need satisfaction in PE and therefore, that sports-active students continued to reap the most benefits from PE. Interest-based PE's apparent inability to affect students' basic need satisfaction in PE may be related to a lack of change in teachers' and students' habitual understanding of PE. This possibility seems to be supported by findings from student interviews described in paper IV. These interviews show that students experienced what was presented as "Interest-based PE" as essentially a two-level PE, and that they chose the explorative approach or the sports approach based on their perceived ability to achieve a high standard of physical performance. Student interviews show that curriculum-related learning goals did not dominate the students' own understandings of PE, and that the students instead understood the purpose of PE from a perspective of sports. Students' difficulty distinguishing criteria of achievement in PE and leisure-time sport has been documented in prior research (e.g., Carlson & Hastie, 1997; Moen et al., 2018). This difficulty is also evident in findings from paper IV. In interviews, students described the sports approach as a somewhat "professionalized" form of the traditional PE they were familiar with before Interest-based PE. Prior research has emphasized the importance of communicating clear learning goals in PE (Nyberg & Larsson, 2014; Redelius et al., 2015), and the Interest-based PE's inability to communicate the learning goals to the students is a considerable weakness in the programme. This weakness may have allowed the sports discourse to continue to regulate student ↔ PE relationships in the Interest-based PE programme, obstructing the student ↔ subject fit and acting as a barrier to the promotion of adaptive developmental regulations, positive movement experiences, and equal education in PE. Student interviews illustrate how the sports discourse, which appears deeply rooted in the context of PE (e.g., Kirk, 2013; Solesnes, 2010; Säfvenbom, 2010; Säfvenbom et al., 2015; see also section 3.1), contributed to the transformation of two different, yet equal, approaches

to learning in PE into two different, unequal, “levels” of sports education, rather than PE. Paradoxically, most of the students seem pleased with this two-level arrangement, because the students who chose the sports approach did not have to manage the diversity in sports competence that they experienced before the split into “interest based” classes, and because the students who chose the explorative approach now could have PE with students who were respectful towards them and their level of sports competency. Students’ experiences from being separated in EA and SA classes in Interest-based PE can therefore at best be described as a relief of some of the symptoms of a problematic sports discourse (as indicated in papers I and III), which seems otherwise reinforced as the students describe their new, “two-level” PE. As such, a PE programme that was intended to respect and build upon students’ different movement interests turned out to be a PE programme that strengthened students’ impression that it is indeed their sport competency that determines their level of achievement in PE. The two PE approaches may therefore have contributed to student segregation on the basis of confidence, competence, and ability in sports. Students’ acceptance of PE as sports has implications for their experience of success (Wilkinson et al., 2013), their educability and achievement potential in PE (Hay & Macdonald, 2010a) that represent a significant divergence from the projections of the Norwegian PE curriculum. This research suggests that strong traditions of sports in PE (e.g., Kirk, 2013, see also chapter 3.1) prevented Interest-based PE from levelling the educational field in this subject. Instead, there is much to suggest that this didactical differentiation-programme may have preserved and accentuated the sports discourse in PE, and even increased its acceptance among students and teachers.

8.2 The integrative perspective

To ensure “education for all” (Kunnskapsdepartementet, 2007, p. 5) and PE’s role as a developmental asset in the lives of all adolescents, PE teachers have to offer developmentally

diverse adolescents equal access to opportunities for positive development and learning in their PE classes. With this in mind, the PE curriculum does not prescribe any assessment of students' competency or physical performances according to external standards (Utdanningsdirektoratet, 2012; 2015b). Instead, it emphasizes the individual student's progress and will to continue to practice, even when this practice does not deliver explicit results in terms of achievement or skill development (Utdanningsdirektoratet, 2015a). This is a central tenet of PE, meant to ensure PE's provision of equal opportunities for positive development and learning for all adolescents regardless of developmental diversity, including but not limited to sex, physical capability, prior experience, and leisure-time interests. Nonetheless, findings from the four papers of this thesis show that there may be systematic differences in students' opportunities for positive development and learning in PE, and therefore, that the PE curriculum is not being implemented in accordance with political intentions.

From the perspective of RDS, findings from the papers show that the relational fit between students and PE is affected by factors beyond the context of PE. The findings suggest that skills developed in football, track and field, and other leisure-time sports are important internal developmental assets (i.e., Benson et al., 1999), which in turn give adolescents access to external developmental assets in PE, including the promotion of basic need satisfaction in PE and global self-worth. Despite the fact that the PE curriculum does not favour sports-active students (Utdanningsdirektoratet, 2012; 2015b), findings from papers in this thesis (papers I, III, IV) and prior research (Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012) show that sports-active students are systematically better off in PE than their non-sports-active peers. This suggests that what regulates adaptive student ↔ PE relationships, and thus student access to positive movement experiences, positive

development, and learning in PE, is not legislation or the PE curriculum, but rather a sports discourse.

PE's association with the sports discourse is evident in Interest-based PE students' repeated emphasis on the value of sport competence in PE, as is clearly illustrated in the student interviews described in paper IV. Students' statements suggest that this discourse regulates their understanding of what it means to be a high-achiever in PE, and thus, that they experience a "hidden curriculum" (Kirk, 1992, p. 40) of sports in their PE. The sports discourse may severely limit students' access to PE as a developmental asset and thus, hinder their potential for positive development and learning in this subject (e.g., Nyberg & Larsson, 2014; Redelius et al., 2009; Wilkinson et al., 2013). This thesis adds empirical support to prior research showing that the dominant sports discourse favours some students above others, benefitting students with particular types of bodies (Aune et al., 2017; Dalen et al., 2017; Fitzgerald, 2005; Lagestad, 2017a; Roberts & Fairclough, 2012), attitudes (Aasland et al., 2019), abilities (Fitzgerald, 2005; Redelius et al., 2009), skills (Aasland et al., 2019; Hay & Macdonald, 2010a; Redelius et al., 2009), and movement experiences (Paper I; Paper III; Paper IV; Aasland et al., 2019; Säfvenbom et al., 2015; Wilkinson et al., 2013). This literature illustrates that the sports discourse is incompatible with the national curriculum and political intentions pertaining to PE as a developmental asset for all.

That said, the development and implementation of didactical differentiation-programmes such as Interest-based PE (paper III and IV) suggest that the current approach to PE favours students who are active in leisure-time sport and that this is of great concern among PE teachers. However, there is much to suggest that, despite their concern, teachers may not fully realize that the sports discourse is deeply embedded in the history of PE and thus, in the lived life of both students and teachers. This discourse highlights the differences between sports-active and non-sports-active students in PE, and was probably one of the

major triggers that led teachers to attempt to level the learning field using Interest-based PE. Although Interest-based PE may have been developed as a response to symptoms of the sports discourse, findings from papers III and IV show that the discourse itself was never actually targeted and that the programme therefore never offered a viable alternative to that discourse. The fact that the sports discourse continues to regulate the student ↔ subject exchange during Interest-based PE gives it a central role in shaping student perceptions of the programme: not as a truly interest-based PE, but as a sports-centred, two-level PE. Interest-based PE did not “shake nor stir” (Mordal-Moen & Green, 2014a, p. 424) the dominance of the sports discourse in PE, and may even have contributed to student segregation in PE. As such, there is reason to question whether didactical differentiation-programmes such as “Interest-based” are an appropriate tool for the optimisation of student ↔ subject-relations as long as the student ↔ subject exchange continues to be governed by the logic of sports.

A process-relational understanding of the continued dominance of the sports discourse in PE requires us to look at PE in relation to its historical development, but also students’ (and teachers’) personal histories with PE. Organized sport has had a strong influence on PE in Norway ever since the post-war years when it was considered an important investment in young people’s health (Goksøyr, 2008). As such, the sports discourse is not new in the PE context, but researchers have become increasingly aware of how it may pose a challenge for the concept of PE as a developmental asset for all (Aasland et al., 2019; Annerstedt & Larsson, 2010; Evans, 2004; Hay & Macdonald, 2010a; Kirk, 2010; López-Pastor et al., 2013). Papers presented in this thesis (papers I, III, and IV) show that the sports discourse continues to have a considerable influence on PE in Norway. Its persistence means that present-day PE teachers and their students have learned to know that PE is a subject centred on sports. Many years of experience with this discourse in PE may have led students to develop an understanding of PE that is aligned with Kirk’s description of “the idea of PE as

sport techniques” (Kirk, 2010, p. 1). Habitual exposure to this idea may explain why students who participated in Interest-based PE did not feel that the programme represented two approaches to learning in PE, but rather saw it as two levels of a sports-centred PE. Similarly, early socialization into the concept of PE-as-sports may also explain why the beliefs and practices of prospective PE teachers seem so difficult to change during PE teacher education, and why many PE teachers reproduce this discourse in their own teaching practice (Mordal-Moen & Green, 2014a). The reproduction of the sports discourse in PE has led researchers to describe PE as “backward-looking” (Stolz, 2014, p. 27), built on archaic notions of sports and pedagogy which have proven resistant to reform (Stolz, 2014). Yet there is now a growing amount of research illustrating the need for change and reform in a PE, to ensure that PE does not remain “elitist, scientised, and obsessed with technical minutiae” (Kirk, 2010, p. 26). Such change is necessary to ensure all students’ access to equal opportunities for positive development and learning, and thus PE’s continued legitimacy as a school subject.

Process-relational thinking tells us that students’ developmental trajectories in terms of emotions, cognition, and behaviour cannot be discussed independent of tradition, culture, history, and societal change. Therefore, pedagogical research on PE needs to draw on a holistic, relational understanding of processes within and between the students and the PE context. Such an understanding requires multiple scientific perspectives, methods, and explanatory forms. As such, although this thesis is psychologically oriented, it aims to synthesise knowledge across scientific disciplines in an attempt to contribute to an integrative “physical education science” (“kroppsøvingsvitenskap”). This is important because today’s PE literature can be seen as a number of disconnected fields of research (indicating opposites of identity), that have developed without regard for each other or for eventual integration into a physical education science. Sociological, and to some extent philosophical perspectives have gained a central position in today’s PE research. While there are also psychological

perspectives, these rarely focus on PE's possible contributions to adolescents' psychological development in general. Although different scientific perspectives exist alongside each other, a long history of epistemological divide could explain why they are rarely integrated by researchers who seek to describe and discuss developmental and learning processes pertaining to students and PE. This may not only challenge integrative research but also what Tinning (2015, p. 684) refers to as "vertical integration" in the field of PE. As such, psychological research on PE rarely draws on findings from sociological research, and sociological research on PE rarely draws on findings from psychological research. From a process-relational perspective, this tendency towards scientific divide could act as a barrier to new insights and broader understanding in PE research.

Adopting the process-relational perspective on PE allows this thesis to attempt an integration of psychological and sociological perspectives on PE, based on the belief that integration, or the "synthesis of wholes", is essential for the development of new insights and broader understanding in PE research. This allows sociological concepts such as the sports discourse in PE to be discussed not only in sociological terms based on qualitative data materials, but also in psychological terms based on quantitative data materials. Although the sports discourse in PE should be identifiable using both qualitative and quantitative data, psychological perspectives and quantitative designs have rarely been used to increase our understanding of the sports discourse and the consequences of this discourse in PE. This thesis illustrates how a psychological approach to the study of adolescents' developmental processes in PE can provide additional empirical evidence of the continued presence of a sports discourse, and of the unintended consequences, the inequity and injustice that this discourse may cause.

8.3 Methodological strengths and limitations

The research presented in this thesis needs to be considered in light of its strengths and limitations. Some of its greatest strengths are in its multi-contextual and multi-methodological characteristics, as well as its use of relatively sophisticated statistical analyses. Another strength is the thesis' reliance on a process-relational perspective (Lerner, 2018) which encourages the synthesis of different PE research findings (“opposites of identity”) within an integrative perspective (“synthesis of wholes”).

From a process-relational perspective, multi-contextual and multi-methodological research is necessary to increase our understanding of the complex interactions that occur between different levels of the human developmental system (Lerner et al., 2011). In this thesis, the benefits of this increased understanding are particularly evident in the research on Interest-based PE, where qualitative data from student interviews (paper IV) shed light on the quantitative data in paper III, and vice versa. While the sports discourse has often been a source of concern for qualitative researchers in the field of PE (e.g., Aasland et al., 2019; Kirk, 2010) and PE teacher education (Mordal-Moen & Green, 2014a), these concerns have rarely been explored using psychological and quantitative research. As such, this thesis represents an effort to discuss the sports discourse in PE not only from qualitative and etymological perspectives, but also based on quantitative data.

Another strength of this thesis is its multi-contextuality and recognition that adolescents' experiences in different movement contexts may be interrelated. The fact that paper I performed separate analyses on adolescents participating in different movement contexts (four subsamples) while also statistically controlling for the adolescents' sense of need satisfaction in leisure-time movement contexts, means that the link between basic need satisfaction in PE and global self-worth cannot be explained exclusively by variations in student involvement or basic need satisfaction in different leisure-time movement contexts.

As such, this thesis adds to the growing evidence of a relationship between basic need satisfaction in PE and global self-worth. By showing that non-sports-active students are significantly less likely to experience basic need satisfaction in PE – and possibly also less likely to develop global self-worth through PE – this thesis provides new, important quantitative evidence about the role of the sports discourse in PE.

The amount and quality of the data that form the basis of the findings in this thesis are another of its great strengths. In terms of the quantitative findings, paper I is based on data from 2854 adolescents, paper II is based on data from 3398 adolescents, and paper III is based on data from 348 Interest-based PE participants and 345 controls. The qualitative research findings in paper IV are based on interviews that were performed until the point of saturation. As such, analyses are based on rich qualitative data and on relatively large amounts of quantitative data, which gives heft to the conclusions drawn in this thesis.

While this thesis may have numerous strengths, its findings should also be understood in light of its methodological limitations. One important limitation of this thesis is related to the quantitative programme-assessment study (paper III), which assessed changes in students' sense of basic need satisfaction following the implementation of the Interest-based PE programme. Although the PE teachers who implemented this programme were taught to teach EA and SA, they did not follow an exact protocol, and manipulation checks were not performed. As such, one cannot completely rule out the possibility that they may have altered their teaching methods during this two-year period. That being said, Interest-based PE was developed and performed by PE teachers within the varying everyday life of education. This leads us to a strength of the current study: interest-based PE was taught by the same teachers who hold the key to promoting change in PE, giving the study ecological validity (Schmuckler, 2001).

Another limitation of paper III relates to the control groups, which were developed by means of matching Interest-based PE participants with students who were not involved in Interest-based PE. The randomization of students into EA and SA would counteract the idea behind Interest-based PE, which was to let the students choose between the two approaches. A more ideal scenario could have been a randomized assignment of students into the EA and EA-control group and into the SA and SA-control group. However, this type of randomization, although it would have strengthened the validity of the data, might have had a negative ecological impact on the implementation of Interest-based PE in the school. On the whole, limitations related to the quantitative programme-assessment study may indicate that – although it includes pre- and post-test(s) – it would not fit the requirements for an intervention study.

It should also be noted that paper I was based on a cross-sectional design, measuring each variable on only one occasion, while paper II was based on longitudinal data and repeated measurements of variables. Although paper II allowed for the study of the statistical relationship between basic need satisfaction in PE and global self-worth over time, inferences about cause and effect cannot be made from data in either paper I or II, and one cannot rule out the possibility of third-variable explanations for the observed effects (Field, 2013). Thus, in order to establish causality in the relationship between basic need satisfaction in PE and global self-worth, an experimental research design would be necessary. It should also be noted that mediating and moderating variables may have influenced the relationships that were the topic of study, including variables such as physical activity level (as a potential mediator) and sex (as a potential moderator). Although the study of such effects was beyond the scope of this thesis, such analyses would further increase our knowledge of the relationship between basic need satisfaction in PE and global self-worth. In paper I, the comparison of four subsamples, each with a different sample size, was also a limitation – as

was the reliance on self-reported measurements that were subject to analysis in papers I, II, and III, which may leave findings vulnerable to measurement artefacts such as socially desirable responding (Paulhus & Vazire, 2009) and common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). It should also be noted that the measurement of basic psychological need satisfaction applied in paper I, II, and III has not, to the best of the author's knowledge, been validated for use in the context of PE. This limitation should also be considered when interpreting the results from this thesis.

8.4 Implications

The findings in this thesis suggest that PE teachers may be able to promote students' global self-worth by adopting a need-supportive teaching style in their class. Previous research has shown that PE teachers who apply need-supportive strategies contribute to enhanced experiences of autonomy, competence, and relatedness in their students (e.g., Franco & Coterón, 2017; Sánchez-Oliva, Pulido-González, Leo, González-Ponce, & García-Calvo, 2017; Su & Reeve, 2011). More specifically, teachers can contribute to their students' sense of basic need satisfaction in PE by supporting student initiative, providing fun and exciting tasks (whenever possible), and by emphasizing the communication of value and meaningful rationales for PE activities (T. Curran & Standage, 2017; Niemiec & Ryan, 2009; Reeve, 2006). Need-supportive teachers also rely on informational, non-controlling language, and acknowledge and accept students' negative affect (T. Curran & Standage, 2017; Reeve, 2006). Further, T. Curran and Standage (2017) and Reeve (2006) also emphasize the importance of teachers presenting clear learning goals, rules and expectations, while at the same time providing helpful guidance and constructive, competence-affirming feedback. In terms of supporting students' autonomy, PE teachers may do well to reflect on their use of traditional sport activities in PE, as these activities may not coincide with the preferences of

all students. The use of traditional sports as learning activities in PE may also contribute differently to sports-active and non-sports-active students' sense of competence in the subject. Although findings from this thesis (paper III) suggest that many students choose an alternative to a sports approach to PE when given the opportunity, this does not necessarily mean that sport activities ought to be avoided in PE. Yet these findings may suggest that teachers would do well to balance the use of organized sport activities with other aspects of movement culture, provided that all of these activities allow them to meet learning objectives from the curriculum. In order to support students' sense of competence, teachers can try to emphasize the difference between PE and organized sports when they use sport activities in PE, and to focus their feedback on each individual student's progress in relation to the curricular purposes and competence aims. If they want to support students' relatedness, teachers can strive to see, value, and respect their students regardless of their sports skills, movement interests, attributes (e.g., low global self-worth), and appreciation of PE.

In a more general sense, this thesis recommends that PE teachers and PE teacher educators reflect on how particular approaches to teaching can provide diverse students with opportunities for positive development and learning in PE. Because many students may have experienced PE as sports for many years, it is important that teachers not only explain the purposes and competence aims to the students, but also take time to discuss these with students in order to ensure that the students have the opportunity to reflect on what they mean and how they can approach them. However, following such efforts, it is important that teachers provide formative assessment according to the purposes and competence aims that have been discussed. Only then can we hope to achieve a constructive alignment of curriculum, teaching, learning, and assessment in PE.

To support constructive alignment, teachers can draw on different pedagogical models (Kirk 2013) and adopt Models-Based Practice as an alternative to traditional teaching

methods in PE (Baker, 2016). Baker (2016) and Barker, Aggerholm, Standal, and Larsson (2018) suggest a range of different pedagogical models to increase students' opportunities for learning and positive development PE in relation to various curricular purposes and competence aims. Different pedagogical models may help teachers support their students' learning in multiple learning domains by promoting affective, cognitive, and psychomotor learning outcomes (Baker, 2016). Unlike Interest-based PE's approach to didactical differentiation, Models-Based Practice offers the sequential implementation of multiple pedagogical models where all students participate in the same models alongside each other.

This thesis highlights some of the problematic consequences of the sports discourse in PE. It also suggests that although it was probably these consequences that triggered the teachers to develop the Interest-based didactical differentiation-programme, the continued dominance of this discourse also prevented any real change in the relational fit between students and PE. Likewise, other didactic differentiation-programmes may have been implemented for similar reasons, such as single-sex PE (e.g. Klomsten, 2013) which is intended to level the learning field for boys and girls. A common feature of all these programmes is that they attempt to solve challenges caused by the sports discourse by engaging in systematic or individual differentiation. However, there is reason to believe that these differentiation practices might prove unnecessary if the formally stated learning objectives in the national PE curriculum were sufficiently emphasized from the earliest stages of students' PE careers. That being said, the tendency to value students' sports competence has not only been identified among PE teachers in the context of primary- and secondary school, but also in the way that PE teacher educators view PE student teachers in higher education (e.g., Moen, 2011; Mordal-Moen & Green, 2014a). There is little to suggest that PE teachers can change students' ideas about PE-as-sports unless we also see a true change in the thoughts and ideas that PE student teachers acquire through PE teacher education. Broadly

speaking, not only PE teachers, but also PE teacher educators, researchers, and policy makers have an opportunity to reassess the role of sports discourse in PE. A joint effort is necessary to ensure that prospective PE teachers are well equipped to create equal opportunities for positive development and learning among all of their students.

8.4.1 PE in the future

In line with the work of other researchers (e.g., Baker, 2016; Barker et al., 2018; Kirk, 2010; Säfvenbom et al., 2015), this thesis recommends a reform of contemporary PE so that it can fulfil its intended role as a developmental asset for all students. Such change is necessary to ensure the subject's legitimacy in schools, and Kirk (2010, p. 140) has argued that failure to secure "radical reform" in PE may lead to its extinction. That said, PE is part of a plastic and dynamic developmental system, influenced by coactions between students and the PE subject, and between the PE subject and government authorities. This positions PE as a subject in continuous development. As this thesis is written, the Norwegian PE curriculum is being updated as a part of "Fagfornyelsen", a revision of the Norwegian national curriculum of 2006, "Kunnskapsløftet" (Kunnskapsdepartementet, 2016). As a result of Fagfornyelsen, the Norwegian core curriculum of 1993 and the principles of education from 2006 are being replaced by a new core curriculum, completed in 2017 (Regjeringen, 2017). While the subject-specific curricula are still under development, the new core curriculum has already established some general goals which will apply to all school subjects. One of these goals is to encourage an interdisciplinary emphasis on students' "public health and life management skills" in order to "provide students with competencies that promote good psychological and physical health, and that provide them with opportunities to make responsible life choices" (Author's translation; Utdanningsdirektoratet, 2018b, p. 14). This focus is also reflected in the revised PE curriculum (sent out for hearing on March 18th 2019), which explicitly emphasizes

PE's role in the promotion of students' physical and mental health (Kunnskapsdepartementet, 2019). Fagfornyelsen replaces emphasis on performance in physical activities and sports with emphasis on students' development of life management skills and resilience, changing the focus from "doing" to exploring, experiencing, and reflecting. As such, this curriculum revision may represent a new phase in the history of PE and a shift in the rationale that legitimizes PE as a school subject. Arguably, based on findings from this thesis, PE could potentially offer schools a significant opportunity to promote students' global self-worth, and thus help achieve the new goal of promoting students' mental health and life management skills. That said, although Kirk has argued that PE can "aspire to achieve a wide range of educational outcomes for school age children and youth," he also emphasizes that this will require the subject to "take particular and different forms in contrast to its current and traditional form" (Kirk, 2013, p. 983). Fagfornyelsen could be a step in the direction of a more comprehensive change in PE to help it realize its great potential for the promotion of global self-worth among all students.

8.4.2 Future research

Looking forward from the work presented in this thesis, we encourage future researchers to study non-sports-active students in order to improve our understanding of how PE can better support their positive developmental and learning processes. Furthermore, because the bidirectional relationship between basic need satisfaction in PE and global self-worth suggests that students are not equally sensitive to need-supportive education, more research is necessary on the effectiveness of need-supportive strategies for adolescents with different levels of global self-worth. In terms of establishing causality in the relationship between basic need satisfaction and global self-worth, future research should include experimental designs that account for variations in adolescents' leisure-time sports

participation. This research will give a more clear and detailed picture of who benefits from contemporary PE.

The findings presented in this thesis indicate that efforts to challenge the sports discourse in PE may require a broader approach than Interest-based PE. A more effective strategy would probably require better alignment between the PE curriculum and the ways in which teachers and students understand the purposes of and approaches to PE. It would be helpful to conduct more research on how PE teacher educators, PE student teachers, PE teachers, and students understand the purposes and goals of PE, and how their differing ways of understanding contribute to shaping and forming the PE practice. Researchers may also do well to collaborate more closely with PE teachers, for example through action research projects. This would allow researchers to support teachers in their effort to realize PE's major pedagogical potential as a developmental asset for all students. Based on a process-relational understanding of adolescent development, this thesis also encourages future research to integrate scientific perspectives into an integrative "PE science", incorporating biological, psychological, sociological, and historical perspectives and multiple methodological approaches, in order to advance our understanding of students' potential for positive development and learning in PE.

9 Conclusions

RDS emphasizes that all adolescents develop in context, and the PE subject is one of many contexts in adolescents' lives (Lerner, 2018). From a RDS perspective, opportunities for positive development and learning in PE require a sense of relational fit between the individual characteristics that students bring to PE and the characteristics of the PE context. However, this thesis suggests that not all students experience a relational fit with PE and that this may limit the PE students potential to develop global self-worth, which is one of the stated goals of both the current (Utdanningsdirektoratet, 2012; 2015b) and the upcoming curriculum (Kunnskapsdepartementet, 2019) – the latter which also envisions PE as a contributor to public health and student development of life management skills.

This thesis joins a line of research (e.g., Aasland et al., 2019; Kirk, 2010; Säfvenbom et al., 2015) that illustrates the need for change in PE and in PE teacher education, by providing both quantitative and qualitative data on systematic differences in student opportunities for positive development and learning in the subject. In quantitative terms, the sports discourse is evident in data that show that sports-active students are more likely to experience basic need satisfaction in PE (papers I and III) and thus, probably also more likely to learn and develop global self-worth in this subject (papers I and II) than their non-sports active peers. In qualitative terms, the dominance of the sports discourse in PE is evident from findings showing that students who participated in Interest-based PE do not distinguish between PE and sports, and emphasize the primary importance of athletic ability and sport competency in PE (paper IV). The incompatibility of the sports discourse with the PE curriculum's intention that PE should be a developmental asset for all is evident from this and prior research on PE showing that the sports discourse benefits students with particular types of bodies, attitudes, abilities, skills, and movement experiences. The development and implementation of didactical differentiation-programmes such as Interest-based PE (papers III

and IV) suggest that teachers are aware that the current approach to PE favours sports-active students. Despite this awareness, findings from paper IV suggest that the teachers remain unaware of how the sports discourse accentuates differences between students in PE. Therefore, although Interest-based PE may have been developed on the basis of symptoms of the sports discourse, paper III shows that participation in Interest-based PE did not positively affect nor level out differences between sports-active and non-sports-active students' sense of basic need satisfaction in PE. Together with findings from paper IV, this shows that the sports discourse itself was "neither shaken nor stirred" (Mordal-Moen & Green, 2014a, p. 430) by Interest-based PE. On the contrary, paper IV shows that students experienced the two interest-based approaches to learning in PE as two levels of a sports-centred PE, indicating that Interest-based PE may actually have accentuated the sports discourse in PE and contributed to increased segregation on the basis of students' confidence, competence, and ability in sports. Based on the findings presented in this thesis, there is reason to question whether differentiation practices such as Interest-based PE would actually be necessary if the formally stated learning objectives in the national PE curriculum were sufficiently emphasized from the earliest stages of students' PE careers. In any case, it is likely that efforts to promote adaptive developmental regulations and equal education will continue to fail as long as the sports discourse remains dominant in PE.

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Papers I – IV

Paper I

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Global Self-Worth among Adolescents: The Role of Basic Psychological Need Satisfaction in Physical Education

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ABSTRACT

Global self-worth is important for healthy development and learning, and is therefore highlighted as a major aim in the Norwegian physical education (PE) curriculum. Based on prior research this study aimed to assess potential differences in global self-worth and contextual basic need satisfaction among 2854 adolescents (47.5% boys, 52.5% girls, ages 13 and 16) participating in different movement contexts, and to determine whether basic need satisfaction in PE relates to global self-worth. Structural equation modeling analyses indicate that basic need satisfaction in PE relates significantly to global self-worth. However, adolescents who do not participate in movement contexts outside school report significantly lower basic need satisfaction in PE compared to their sports-active peers, and could possibly therefore experience reduced global self-worth development through PE. Findings support research showing that sports active youth reap most of the benefits of PE, and thus, that PE violates the principles of equal education.

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Self-esteem; adolescent; basic psychological needs; PE; movement contexts; organized sport; self-organized movement activity; equal education

Global self-worth has been outlined as the awareness of good possessed by the self and refers to the overall appraisal of one's worth or value as a person (Harter, 2006, 2012). Research on peoples sense of personal worth often employs terms like "self-esteem" (Harter, 2012; Marsh, Xu, & Martin, 2012), "self-worth" (Harter, 2006, 2012), and "self-concept" (Marsh et al., 2012) interchangeably, and researchers have linked positive global self-worth to various positive life outcomes. More specifically, the research literature has identified global self-worth as a significant predictor of positive adjustment to life demands (Fox, 2000), absence of antisocial behavior (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Trzesniewski et al., 2006), social support (Marshall, Parker, Ciarrochi, & Heaven, 2013), and persistence in the face of failure (Baumeister, Campbell, Krueger, & Vohs, 2003). In addition, as one of the most frequently cited and studied indicators of mental health during adolescence (Tolman, Impett, Tracy, & Michael, 2006; Trzesniewski, Donnellan, & Robins, 2003), global self-worth has also been associated with happiness (Bum & Jeon, 2016), and has been identified as inversely related to depressive symptoms (Bos, Huijding, Muris, Vogel, & Biesheuvel, 2010; Bum & Jeon, 2016; Sowislo & Orth, 2013; Steiger, Allemand, Robins, & Fend, 2014), reduced physical health (Orth, Robins, & Widaman, 2012; Stinson et al., 2008), eating pathology (Bos et al., 2010), and risk of suicide (Sharaf, Thompson, & Walsh, 2009; Singh & Pathak, 2017).

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Global self-worth develops in the interactive relationships between the adolescent and the multitude of contexts this adolescent is involved in in his or her everyday life (Lerner, Lewin-Bizan, & Warren, 2011). In particular, participation in contexts involving bodily expression and interaction, such as sports and physical education (PE), have been identified as significantly related to positive global self-worth (Haugen, Säfvenbom, & Ommundsen, 2011; Slutzky & Simpkins, 2009; Taliaferro, Rienzo, Miller, Pigg, & Dodd, 2010), and the Norwegian PE curriculum identifies enhanced global self-worth as a major objective specific to PE (Utdanningsdirektoratet, 2015). However, researchers emphasize that a positive association between PE-participation and global self-worth should not be taken for granted (Agans, Säfvenbom, Davis, Bowers, & Lerner, 2013; Breslin, Murphy, McKee, Delaney, & Dempster, 2012; Faulkner & Tamminen, 2016) and research by Garn, McCaughtry, Martin, Shen, and Fahlman (2012) has identified students' experience of global self-worth as related to basic psychological need satisfaction in the context of PE. This paper aims therefore to add to the research by Garn et al. (2012) by determining the unique relation between basic psychological need satisfaction in PE and adolescents' experience of global self-worth, when controlling for basic need satisfaction in leisure-time movement contexts.

Basic Psychological Need Satisfaction in Movement Contexts

Basic needs theory (BNT) proposes the existence of three basic psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2017). The three basic needs refer to an individual's need to self-organize experience and behavior corresponding with an integrated sense of self (need for autonomy; Deci & Ryan, 2000), the need to feel effective and experience mastery when interacting with the environment (need for competence; Deci & Ryan, 2000; White, 1959) and the need to feel connected to others (need for relatedness; Deci & Ryan, 2000). These needs represent universal nutrients for psychological growth and wellbeing (Ryan & Deci, 2017), of which global self-worth has been considered a corner stone (Fox, 1997, 2000; Harter, Fischer, Harter, & Serwator, 1999). From the perspective of BNT (Ryan & Deci, 2017), the need to experience autonomy, competence, and relatedness is considered important independent of demographics and contexts. However, different contexts, such as organized sports, self-organized movement activity, and PE, have distinctive characteristics and may therefore serve different peoples' basic need satisfaction and global self-worth differently.

Organized youth sports in Norway are voluntary leisure-time activities governed by regulations developed by the Norwegian Olympic Committee and Confederation of Sport (NIF). Approximately 70–80% of all Norwegians are members of a sport club during their childhood, yet participation has a tendency to decrease with age (Støckel, Strandbu, Solenes, Jørgensen, & Fransson, 2010). Participation in organized sports contexts has been linked to positive mental health outcomes in adolescence (Swann et al., 2018; Vella, Cliff, Magee, & Okely, 2015), and the NIF Sport Policy Document (2015-2019; NIF, 2015) emphasizes the role of organized sports in the promotion of young peoples' mental health. As such, global self-worth development should result from organized sports participation, and previous research suggests that this may be achieved by focusing on participants' basic need satisfaction when participating in organized sports (Amorose, Anderson-Butcher, & Cooper, 2009; Coatsworth & Conroy, 2009). However, the organized sport context is influenced by different discourses (Solenes, 2010) and organized youth sport is argued to be dominated by the Olympic aims (Säfvenbom, Geldhof, & Haugen, 2014). As a consequence, NIF and organized youth sport has been criticized as somewhat elitist at the expense of a "sport for all" perspective (Säfvenbom et al., 2014).

Compared to organized sports, self-organized movement activities are not formally regulated and allow adolescents to initiate (and maintain) participation on their own terms. Self-organized activities are increasingly popular among young people, and include activities such as fitness training, climbing, dance, skateboarding, and other types of lifestyle sports (Støckel et al., 2010). According to prior research on self-organized movement activities and lifestyle sports in

particular (Gilchrist & Wheaton, 2017; Säfvenbom, Wheaton, & Agans, 2018), involvement in such activities may affect basic psychological need satisfaction and thus global self-worth positively. However, to the best of our knowledge this relationship has not yet explicitly been subject to scientific research.

In contrast to organized sports and self-organized movement activity, PE is a mandatory school subject that includes all children and adolescents on a weekly basis across thirteen years of education. The subject is regulated by the Norwegian Education Act (Opplæringslova, 1998) and practiced according to the Norwegian PE curriculum (Utdanningsdirektoratet, 2015), which highlights global self-worth as a desired outcome of PE participation (Utdanningsdirektoratet, 2015). As a mandatory subject, PE presents a unique opportunity – and obligation – to promote basic psychological need satisfaction and global self-worth among all adolescents.

Research Question

The distinctive characteristics of PE, organized sports, and self-organized movement activity mentioned above suggest that these contexts may support adolescents' basic need satisfaction differently. Experiences of basic need satisfaction in these movement contexts may not only vary in strength and relate differently to global self-worth; they may also interrelate. This means that the relationship between basic need satisfaction in PE and global self-worth may be confounded by basic need satisfaction in other movement contexts (Säfvenbom, Haugen, & Bulie, 2015). Thus, despite prior research claiming evidence for a relationship between basic psychological need satisfaction in PE and global self-worth (e.g., Garn et al., 2012), it remains uncertain whether there is a unique relationship between basic psychological need satisfaction in PE and adolescents' experience of global self-worth.

Consequently, the aim of this study is two-fold. Firstly, this study will assess potential differences in global self-worth and contextual basic need satisfaction among adolescents who participate in different movement contexts. Secondly, this study aims to determine whether there is a relationship between basic psychological need satisfaction in PE and adolescents' experience of global self-worth, when controlling for basic need satisfaction in organized sports and self-organized movement contexts. To achieve these purposes, this study measured adolescents' basic psychological need satisfaction in three different movement contexts (PE, organized sports, and self-organized movement activity).

Method

Participants

3049 students (ages 13 and 16) from 42 different schools in the Norwegian counties of Aust-Agder, Vest-Agder, Oslo, and Østfold participated in the data collection, which took place in April and May 2014. Samples were drawn according to a cluster sampling procedure, with schools as the basic unit, and schools were stratified according to region, study program, number of students and centrality. 2854 adolescents provided information regarding their participation in different movement contexts and it was data from these adolescents that formed the basis for the herein presented analyses. There were less than 14% missing data points at the item level in these participants' responses. All participants were involved in PE, yet some adolescents did not participate in organized sport and/or self-organized movement activity during leisure time. Among the 2854 participants were: (a) 395 students who only participated in PE, referred to as "PE-only"; (b) 362 students who participated in PE and organized sport (OS), referred to as "PE/OS"; (c) 922 students who participated in PE and self-organized movement activity (SO), referred to as "PE/SO"; as well as (d) 1175 students who participated in PE, organized sport, and self-organized movement activity, referred to as "PE/OS/SO". Because all adolescents did not participate in all of the three movement contexts,

these four groups of adolescents were treated as separate subsamples in the analyses throughout the study.

Procedure

Data was collected in each of the schools during regular school hours using a web-based program for conducting electronic questionnaires. A project researcher was present during the data collection and was able to answer potential questions related to the survey. Students were informed that participation was voluntary and that they were free to withdraw from the study at any time without providing a reason. The completion of the questionnaire took approximately 60–90 min, and all questionnaire responses were anonymized. The proper permissions were received from the school principals and the Norwegian Centre for Research Data. With respect to participants who were younger than 15 years of age, parental consent was obtained. Adolescents who were 15 years or older were included in the study based on independent consent.

Instruments

Global Self-worth

To assess students' perception of global self-worth we employed one of the subscales from the revised Norwegian version (Wichstrøm, 1995) of Harter's Self-Perception Scale for Adolescents (SPPA; Harter, 1988). In line with Wichstrøm's (1995) revised version, the global self-worth subscale consisted of five different statements designed to tap into participants' perceptions of global self-worth (e.g., "I am often disappointed about myself"), and responses were anchored on a Likert scale from 1 (*Describes me very poorly*) to 4 (*Describes me very well*; Wichstrøm, 1995). Two contra-indicative items were reversed to ensure that higher scores on each item reflected higher global self-worth. The revised SPPA has shown better reliability and convergent and factorial validity than the original version, with a Cronbach's α of .77 (Wichstrøm, 1995).

Context Specific Basic Need Satisfaction

To measure participants' satisfaction of basic psychological needs in the contexts of physical education (PE), organized sport (OS) and self-organized movement activity (SO) the Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006) was employed. The beginning of each item of the BPNES was modified to refer to the three contexts of examination. BPNES is comprised of 12 questions, and adolescents' satisfaction of the three basic needs of autonomy (4 questions, e.g., "Physical education classes are in agreement with my choices and interests"), competence (4 questions, e.g., "I feel that I have made a lot of progress in relation to the objective of physical education"), and relatedness (4 questions, e.g., "I feel very comfortable with the students in physical education") was measured on a seven point Likert scale ranging from 1; *totally disagree*, to 7; *very strongly agree*. Higher scores reflected higher levels of basic psychological need satisfaction. The BPNES is reported to be valid and reliable with alpha coefficients of .75, .80, and .86 for autonomy, competence, and relatedness, respectively (Vlachopoulos & Michailidou, 2006).

Statistical Analyses

Descriptive statistics for the overall sample were computed in IBM SPSS 24 and included bootstrapped bivariate correlations as well as bootstrapped means and standard deviations for all study variables. The correlations were interpreted according to Cohen's definitions (small $\geq .10$, medium $\geq .30$, and large $\geq .50$; Cohen, 1988). Bootstrapped means and standard deviations were also reported and interpreted for each subsample. Bootstrapped analyses were preferred given that they are considered robust across a variety of distributional assumptions (Erceg-Hurn & Mir-osevich, 2008; Wright, London, & Field, 2011). Mplus version 8.0 was applied for all further analyses.

To investigate the amount of total variance in all variables that were present on the school level, in comparison to the individual level, we calculated intra-class correlations (ICCs). Because the ICCs were small (0-4%) for all variables, we decided to exclude the school level from further analyses.¹

To compare the mean values of global self-worth and context specific autonomy, competence, and relatedness need satisfaction between the four subsamples, confirmatory factor analyses (CFAs) with a multi group specification were estimated using robust maximum likelihood in Mplus (MLR). MLR provides accurate estimates of the standard errors of non-normal variables (Muthén & Muthén, 1998-2017). We considered the missing data as missing at random (MAR) and used the full information maximum likelihood (FIML; Enders, 2010) estimation to handle the missing data. Separate models were estimated for each of the constructs. First, we tested measurement invariance between the groups by using a three step procedure; configural, metric, and scalar (Putnick & Bornstein, 2016). To test if a more restrictive invariant model showed acceptable fit to the data we, based on the recommendation of Chen (2007), used the following criteria: A change of $\geq -.010$ in the Comparative Fit index (CFI), supplemented by a change of $\geq .015$ in the Root Mean Square Error of Approximation (RMSEA) or a change of $\geq .030$ in the Standardized Root Mean Residual (SRMR). To evaluate if the specified model showed acceptable fit to data we used the following criterion: CFI $> .90$, RMSEA $< .08$, and SRMR $< .08$. For more information about these model fit indices see, for example, Little (2013). The Wald's test was performed to compare the latent mean values of global self-worth and contextual autonomy, competence, and relatedness need satisfaction between the subsamples. As only adolescents in two of the four subsamples (PE/OS and PE/OS/SO) participated in the organized sport context, the z-test was used to determine whether the latent mean values of adolescents' satisfaction of each of the basic psychological needs in organized sport were statistically different across the two subsamples. The same procedure was applied with respect to adolescents' satisfaction of each of the basic psychological needs in self-organized movement activity among adolescents who participated in this context (subsamples PE/SO and PE/OS/SO). In all analyses, a p -value $< .05$ was considered indicative of statistically significant group differences. Effect sizes were calculated and interpreted according to Cohen's definitions (Cohen's d , small $\geq .20$, medium $\geq .50$, large $\geq .80$; Cohen, 1988).

With respect to the second research question, structural equation modelling (SEM) was performed using the MLR estimator. The SEM analyses were used to determine the unique relation between the satisfaction of each basic psychological need in PE and global self-worth. To achieve this, separate models for autonomy, competence, and relatedness were specified. To control for students' sense of basic need satisfaction in the different leisure-time movement contexts where they took part, analyses were performed separately for each subsample. Given that also sex and school level (students' age) might influence the level of global self-worth, we included these as independent variables within all models. To evaluate the model fit, the same criterion as we used for the CFA were applied (see information above). The Wald's test was used to evaluate if there were statistically significant differences in the unique contributions from autonomy, competence, and relatedness need satisfaction in different movement contexts with respect to global self-worth. Also in these analyses, p -values below $.05$ were considered to indicate statistically significant results.

Results

As illustrated in Table 1, all variables included in the present study showed acceptable levels of internal consistency and small, medium or large correlation effects.

The CFAs for all variables, with scalar factorial invariance constrains specified, showed acceptable fit to data (for the model fit indices for the configural, metric, and scalar model specification see

¹Sensitivity analyses were performed using a two-level setup, and the potential differences between the one-level model and the two-level model were investigated. The inclusion of a two-level setup did not improve model fit nor substantially change the results.

Table 1. Descriptive statistics, bivariate correlations and Cronbach's alpha for the overall sample (all subsamples combined).

Variable		1	2	3	4	5	6	7	8	9	10
1	GSW	–	.33*	.41*	.38*	.27*	.33*	.25*	.26*	.31*	.31*
2	Autonomy PE		–	.81*	.61*	.30*	.30*	.27*	.28*	.30*	.29*
3	Competence PE			–	.78*	.42*	.46*	.39*	.43*	.45*	.41*
4	Relatedness PE				–	.41*	.43*	.46*	.41*	.42*	.45*
5	Autonomy OS					–	.87*	.80*	.47*	.47*	.41*
6	Competence OS						–	.80*	.49*	.51*	.44*
7	Relatedness OS							–	.41*	.43*	.42*
8	Autonomy SO								–	.90*	.75*
9	Competence SO									–	.75*
10	Relatedness SO										–
<i>M</i>		2.95	4.41	4.88	5.10	5.90	5.93	5.91	5.74	5.70	5.56
<i>SD</i>		.70	1.44	1.35	1.31	1.08	1.04	1.10	1.22	1.18	1.34
Cronbach's alpha		.84	.89	.90	.87	.89	.92	.86	.90	.92	.89

Note. Bootstrapped bivariate correlations, * $p < .01$ (two tailed); GSW = Global self-worth; PE = Physical education; OS = Organized sport; SO = Self-organized movement activity; *M* = Mean; *SD* = Standard deviations. Due to missing data and the fact that not all students participated in (and thus, reported basic need satisfaction in) all movement contexts, the *N* for bootstrapped bivariate correlations ranged from 886 to 2535 and the *N* for descriptive statistics ranged from 1352 to 2639.

Table 2). All factor loadings for all variables were statistically significant and ranged between .57 and .91.

The lower part of Table 3 shows the distribution of sex and school level in the four subsamples. With respect to the first research question, adolescents who only participated in PE (subsample PE-only) reported significantly lower levels of global self-worth compared to sports-active adolescents (subsamples PE/OS, $d = -.31$, and PE/OS/SO, $d = -.33$, see Table 3). No statistical difference was

Table 2. Model test fit indices for the invariance testing.

	Model tested	χ^2	<i>p</i>	<i>df</i>	CFI	Δ CFI	RMSEA (90% CI)	Δ RMSEA	SRMR	Δ SRMR
GSW	Model 1	125.66	<.001	20	.971		.087 (.072, .101)		.034	
	Model 2	162.02	<.001	32	.964	.007	.076 (.065, .088)	.011	.060	.026
	Model 3	186.64	<.001	44	.960	.004	.068 (.058, .078)	.008	.067	.007
Autonomy PE	Model 1	17.48	.03	8	.997		.042 (.014, .068)		.010	
	Model 2	32.91	.01	17	.994	.003	.037 (.017, .056)	.005	.029	.019
	Model 3	43.41	.02	26	.994	.000	.031 (.013, .047)	.010	.038	.008
Competence PE	Model 1	33.81	<.001	8	.990		.069 (.046, .094)		.016	
	Model 2	52.98	<.001	17	.986	.004	.056 (.039, .073)	.013	.030	.014
	Model 3	70.70	<.001	26	.983	.003	.050 (.036, .064)	.006	.028	.002
Relatedness PE	Model 1	64.28	<.001	8	.978		.102 (.079, .125)		.020	
	Model 2	77.53	<.001	17	.976	.002	.072 (.056, .089)	.030	.030	.010
	Model 3	92.97	<.001	26	.974	.002	.062 (.048, .075)	.010	.038	.008
Autonomy OS	Model 1	7.44	.11	4	.997		.035 (.000, .073)		.009	
	Model 2	11.67	.11	7	.996	.001	.030 (.000, .060)	.005	.035	.026
	Model 3	21.47	.02	10	.990	.006	.040 (.016, .063)	.010	.044	.009
Competence OS	Model 1	4.45	.35	4	1.00		.012 (.000, .059)		.006	
	Model 2	6.62	.47	7	1.00	.000	.000 (.000, .044)	.012	.019	.013
	Model 3	10.08	.43	10	1.00	.000	.003 (.000, .041)	.003	.023	.004
Relatedness OS	Model 1	20.65	<.001	4	.985		.076 (.046, .110)		.016	
	Model 2	25.73	<.001	7	.983	.002	.061 (.037, .087)	.015	.027	.011
	Model 3	32.14	<.001	10	.979	.004	.055 (.035, .077)	.006	.028	.001
Autonomy SO	Model 1	5.03	.28	4	.999		.017 (.000, .054)		.007	
	Model 2	8.49	.29	7	.999	.000	.015 (.000, .045)	.002	.028	.021
	Model 3	15.65	.11	10	.996	.003	.024 (.000, .047)	.009	.033	.005
Competence SO	Model 1	9.92	.04	4	.996		.040 (.007, .072)		.009	
	Model 2	12.37	.09	7	.997	.001	.029 (.000, .054)	.011	.012	.003
	Model 3	21.58	.02	10	.993	.004	.035 (.014, .056)	.006	.020	.008
Relatedness SO	Model 1	4.05	.40	4	1.00		.004 (.000, .050)		.007	
	Model 2	8.85	.26	7	.998	.002	.017 (.000, .046)	.013	.031	.024
	Model 3	12.72	.24	10	.998	.000	.017 (.000, .042)	.000	.035	.004

Note. GSW = Global self-worth; PE = Physical education; OS = Organized sport; SO = Self-organized movement activity; Model 1 = Configural; Model 2 = Metric; Model 3 = Scalar.

Table 3. Global self-worth and basic psychological need satisfaction among adolescents participating in different movement contexts.

	M (SD)		Effect size (d) for the difference; (X^2 , p)											
	Subsample PE-only	Subsample PE/OS	Subsample PE/OS vs. PE-only	Subsample PE/OS vs. PE/OS	PE-only vs. PE/OS	PE-only vs. PE/OS	PE-only vs. PE/OS	PE-only vs. PE/OS	PE-only vs. PE/OS	PE/OS vs. PE/OS	PE/OS vs. PE/OS	PE/OS vs. PE/OS	PE/OS vs. PE/OS	PE/OS vs. PE/OS
GSW	2.84 (1.71)	3.05 (.67)	2.83 (.72)	3.06 (.67)	-.31 (18.20, <.001)	.01 [†] (.03, <.87)	-.33 (32.41, <.001)	.31 (24.20, <.001)	-.02 [†] (.24, <.62)	-.28 (54.49, <.001)				
Autonomy PE	3.85 (1.48)	4.50 (1.39)	4.16 (1.42)	4.77 (1.38)	-.47 (38.35, <.001)	-.22 (11.49, <.001)	-.67 (107.67, <.001)	.24 (16.33, <.001)	-.20 (8.40, <.01)	-.44 (91.24, <.001)				
Autonomy OS	-	5.67 (1.17)	-	5.96 (1.05)	-	-	-	-	-0.28 ^a (<.001)	-				
Autonomy SO	-	-	5.56 (1.28)	5.87 (1.16)	-	-	-	-	-	-0.27 ^b (<.001)				
Competence PE	4.06 (1.44)	5.05 (1.23)	4.55 (1.35)	5.33 (1.19)	-.81 (98.73, <.001)	-.36 (34.03, <.001)	-1.07 (232.71, <.001)	.37 (37.01, <.001)	-.24 (15.47, <.001)	-.66 (174.10, <.001)				
Competence OS	-	5.72 (1.10)	-	5.99 (1.06)	-	-	-	-	-.26 ^c (<.001)	-				
Competence SO	-	-	5.50 (1.25)	5.83 (1.13)	-	-	-	-	-	-				
Relatedness PE	4.39 (1.44)	5.19 (1.26)	4.91 (1.34)	5.44 (1.16)	-.64 (63.52, <.001)	-.39 (37.23, <.001)	-.91 (149.22, <.001)	.21 (11.75, <.001)	-.22 (10.53, <.001)	-.46 (76.64, <.001)				
Relatedness OS	-	5.74 (1.21)	-	5.96 (1.07)	-	-	-	-	-.21 ^e (= .001)	-				
Relatedness SO	-	-	5.31 (1.39)	5.72 (1.31)	-	-	-	-	-	-.31 ^f (<.001)				
n	395	362	922	1175										
Girls/boys, %	52/48%	43/57%	63/37%	47/53%										
LSS/USS, %	35/65%	61/39%	32/68%	67/33%										

Note. Latent mean comparisons between the four subsamples. GSW = Global self-worth; PE = Physical education; OS = Organized sport; SO = Self-organized movement activity; LSS/USS refers to the students' school level and thus, students' age. LSS = Lower secondary school (age 13); USS = Upper secondary school (age 16); M (SD) = Mean (standard deviations); - = No measures available; † = Difference is statistically non-significant. Cohen's d, small $\geq .20$, medium $\geq .50$, large $\geq .80$; (Cohen, 1988). df = 1 for all Wald's tests. For the models with two groups, the difference between the latent mean scores was tested by a z-test. ^a z-value = 3.906, ^b z-value = 5.144, ^c z-value = 3.763, ^d z-value = 5.527, ^e z-value = 3.423, ^f z-value = 6.349.

identified in the level of global self-worth between adolescents who only participated in PE compared to adolescents who participated in PE and self-organized movement activity ($d = .01$). However, students who only participated in PE reported significantly lower levels of autonomy, competence, and relatedness need satisfaction in PE compared to all other adolescents in this study (subsamples PE/OS, PE/SO, and PE/OS/SO, see Table 3 for effect sizes of the differences).

With respect to the second research question, all specified SEM models showed acceptable fit to data (see Table 4). The results showed that global self-worth was significantly related to autonomy, competence, and relatedness across all movement contexts, in all of the four subsamples. Also, for the PE/SO and PE/OS/SO subsamples, the Wald test showed that the association between competence need satisfaction in PE and global self-worth is more powerful compared to the association between competence need satisfaction in organized sports and global self-worth, and the association between competence need satisfaction in self-organized movement activity and global self-worth.

Discussion

Analyses showed that adolescents who only participated in PE (PE-only) and participants who were involved in PE and self-organized movement activity reported a lower level of global self-worth² and less basic need satisfaction in PE compared to adolescents who were active in sports. Previous research has identified an association between organized sports participation and global self-worth in adolescents (Nemček, Kraček, & Peráčková, 2017; Scarpa, 2011; Slutzky & Simpkins, 2009). However, according to Brettschneider (2001), such results may be explained by selection mechanisms and more complex designs are required to properly confirm the association between global self-worth and organized sport participation. The data on basic psychological need satisfaction in PE is in line with a body of research (e.g., Koka & Hein, 2003; Säfvenbom et al., 2015; Viira & Koka, 2012) that has suggested that students active in sports may have better prerequisites for development and learning in PE compared to students who are not active in sports, and especially students who are generally inactive.

With respect to the second aim of this study, analyses identified autonomy, competence, and relatedness in PE as significantly related to global self-worth among adolescents in all of the four subsamples. Further, basic need satisfaction in PE related to adolescents' global self-worth regardless of their leisure time involvements. As illustrated in the analyses for the subsamples PE/SO and PE/OS/SO, competence need satisfaction in PE appeared more strongly related to global self-worth compared to competence need satisfaction in organized sports and self-organized movement activity. This suggests that feelings of competence in school PE and leisure-time sport contexts relate differently to adolescents' global self-worth, and that PE is a central movement context with respect to the relationship between basic need satisfaction and global self-worth. Yet, this paper also shows that students experience less basic need satisfaction in PE than they do in leisure time movement contexts. As a whole, these findings highlight the importance of PE teachers emphasizing their students' basic need satisfaction in PE, as well as their students' global self-worth, when teaching PE.

Should there be a causal relationship between basic need satisfaction in PE and global self-worth, this study suggests that the potential for PE to promote global self-worth is more limited for adolescents who do not participate in movement activity outside school. The presence of significant differences in the level of basic need satisfaction in PE suggests that the PE subject may favor students who are involved in organized sport activities during leisure-time. This may indicate that the logic of PE coincides with the logic of organized sport, thereby adding support to the argument that Norwegian PE is characterized by a sports discourse (Kirk, 2013; Säfvenbom, 2010; Säfvenbom et al., 2015; Solenes, 2010). According to Mordal-Moen and Green (2014), PE teacher education has a propensity to attract students who share a prior interest in sports and games, and in many ways teacher

²The levels of global self-worth reported by adolescents in this study are comparable to those identified in a prior nationally representative study on Norwegian adolescents (Haugen et al., 2011).

Table 4. Relationship between context-specific autonomy, competence, and relatedness need satisfaction and global self-worth

	Subsample PE-only			Subsample PE/OS			Subsample PE/OS/SO		
	Aut	Comp	Rel	Aut	Comp	Rel	Aut	Comp	Rel
CFI	.98	.99	.96	.97	.97	.95	.98	.97	.96
RMSEA [90% CI]	.04 [.02, .06]	.03 [.00, .05]	.06 [.04, .07]	.04 [.03, .05]	.04 [.03, .06]	.06 [.05, .07]	.04 [.03, .05]	.04 [.04, .05]	.05 [.04, .06]
SRMR	.04	.05	.05	.06	.06	.06	.05	.05	.04
χ^2 (<i>p</i> -value)	65.53 (.01)	54.85 (.08)	91.93 (<.001)	138.06 (<.001)	145.43 (<.001)	193.30 (<.001)	202.48 (<.001)	239.54 (<.001)	279.68 (<.001)
Sex ON Self-worth	.24 (.001)	.23 (.001)	.22 (.001)	.34 (.001)	.29 (.001)	.32 (.001)	.29 (.001)	.26 (.001)	.29 (.001)
Age ON Self-worth	.09 (.06)	.10 (.05)	.11 (.03)	.03 (.62)	.04 (.48)	.04 (.41)	.16 (.001)	.17 (.001)	.17 (.001)
BPN in SO ON Self-worth	–	–	–	–	–	–	.16 (.001)	.11 (.01)	.14 (.001)
BPN in OS ON Self-worth	–	–	–	.26 (.001)	.18 (.01)	.19 (.01)	–	–	–
BPN in PE ON Self-worth	.25 (.001)	.25 (.001)	.31 (.001)	.21 (.01)	.30 (.001)	.28 (.001)	.24 (.001)	.34 (.001)	.30 (.001)
BPN in SO WITH BPN in OS	–	–	–	–	–	–	–	–	–
BPN in SO WITH BPN in PE	–	–	–	–	–	–	.27 (.001)	.48 (.001)	.52 (.001)
BPN in PE WITH BPN in OS	–	–	–	.38 (.001)	.48 (.001)	.54 (.001)	–	–	–
χ^2 (<i>p</i>) for pairwise comparisons									
BPN in PE vs. BPN in OS				1.13 (.29)	.83 (.36)	.71 (.40)			
BPN in PE vs. BPN in SO				1.04 (.31)	10.81 (.00)	4.09 (.04)			
BPN in OS vs. BPN in SO							.20 (.65)	.11 (.74)	.09 (.77)
Adj. R^2 Self Worth	.13	.13	.16	.27	.26	.27	.21	.26	.27

Note. Aut = Autonomy; Comp = Competence; Rel = Relatedness; Sex = girls (1), boys (2); Age = distinguishes between students in upper secondary school, age 16 (1), and students in lower secondary school, age 13 (2); BPN in SO = Basic psychological need satisfaction in self-organized movement activity; BPN in OS = Basic psychological need satisfaction in organized sport; BPN in PE = Basic psychological need satisfaction in physical education; – = No measures available; *df* = 1 for all for all pairwise comparisons (Wald's tests). Standardized coefficients are reported. Sensitivity analyses were performed using a two-level setup, and the potential differences between the one-level model and the two-level model were investigated. As the inclusion of a two-level setup did not improve model fit nor substantially change the results, results from the one level setup are presented.

education does not have much impact on the beliefs and practices of prospective PE teachers. The resultant institutionalization and reproduction of a practice referred to as “physical education as sport techniques” (Kirk, 2010, p. 2) may easily be accompanied by a narrow understanding of ability, with teachers emphasizing neuromuscular functioning and athletic performance (Säfvenbom, 2010; Säfvenbom et al., 2015) instead of developmental processes, understanding, and learning among students. A PE subject based on a sport discourse that assesses students according to their performance of sport techniques is considered problematic for a variety of reasons (Stolz & Kirk, 2015), and our study adds support to these concerns. If adolescents who have the smallest repertoire of movement experiences also experience the lowest basic need satisfaction in a movement context that is important for global self-worth development, this undermines the developmental trajectory of an important group of students and may contribute to social inequity (Säfvenbom et al., 2015). If this is the case, PE violates the Norwegian Education Act that articulates the individual student’s right to an education that is adapted to his or her skills and capabilities (Opplæringslova [the Education Act], 1998, §1-3). This would mean that the current approach to PE fails to comply with the educational obligation to provide students with equal opportunities through equal education.

Strengths and Limitations

One of the major strengths of the current study is the large sample, consisting of 2854 adolescents, which allows for the exploration of independent subsamples. Another important strength was the use of SEM analyses that incorporate measurement error (Marsh & Hau, 2007). It should however be noted that the different sample sizes of the study’s four subsamples represents a limitation in the present study. Further, this study was based on self-reported measures, and findings may therefore be influenced by common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). The study is based on a cross-sectional design and inferences about cause and effect cannot be made based on the data presented herein. Pertaining to the issue of causality and development over time, experimental and longitudinal research designs are necessary to help us gain a deeper understanding of the relationship between basic need satisfaction in PE and global self-worth.

It should also be noted that while sex was identified as a significant predictor of global self-worth, the intention of this study was not to assess the role of sex with respect to adolescents’ global self-worth as such, but rather to rule out a potential confounder. Further, with respect to the effect sizes presented in this study, large differences in global self-worth across the different subsamples ought not to be expected as all four subsamples were drawn from a clinically healthy adolescent population (e.g., Bos, Muris, Mulken, & Schaalma, 2006). In terms of the amount of variance explained by basic need satisfaction in the different movement contexts concerning adolescents’ global self-worth, we urge the reader to keep in mind that school PE represents a relatively small school subject and a movement context where adolescents tend to spend no more than three school hours each week. We argue that one cannot expect large explained variances of basic need satisfaction in PE (or other movement contexts), yet that this does not make the role of basic need satisfaction in PE and leisure-time movement contexts any less interesting. We therefore encourage future research to pay more attention to those students who only involve in movement activity through mandatory PE. This group needs to be addressed in order to increase the understanding of why and how these adolescents experience their PE environment less satisfying in terms of basic needs and eventually, how PE may harm developmental processes in these students.

Conclusion

Results from the present study show that students who did not participate in leisure-time movement contexts experienced both less basic need satisfaction in PE and less global self-worth compared to sports active students. With respect to the major aim of this study, basic need satisfaction in PE related significantly to adolescents’ global self-worth. Findings even suggest that competence need

satisfaction in PE is more strongly related to global self-worth compared to competence need satisfaction in organized sports and self-organized movement activity. While this study cannot conclude on the causal direction of this relationship, results suggest that PE may indeed affect adolescents' global self-worth, as described in the PE curriculum. However, as a whole, this study shows that adolescents who are not involved in movement activity outside school experience significantly lower levels of autonomy, competence, and relatedness need satisfaction in PE compared to others, suggesting that these adolescents may have a reduced possibility for the development of global self-worth through PE. These findings highlight the importance of PE teachers emphasizing their students' basic need satisfaction in PE, as well as their students' global self-worth, when teaching PE. Should future research identify a causal relationship between basic need satisfaction in PE and students' global self-worth, our findings reveal a major pedagogical potential in PE with respect to the curricular objective of promoting global self-worth among all students. This study suggests that the curricular emphasis on students' global self-worth development through PE may require a didactic move "beyond the entrenched practice of physical education-as-sport techniques" and "the one-size-fits-all form of the subject" (Kirk, 2013, p. 978).

Disclosure statement

No potential conflict of interest was reported by the authors.

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Paper II

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The Temporal Relations of Adolescents' Basic Need Satisfaction in Physical Education and
Global Self-Worth

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Abstract

This study investigates the temporal relations of adolescents' basic need satisfaction in physical education (PE) and global self-worth in a sample of 3398 lower and upper secondary school students (49 % boys, 51 % girls, average age T1 = 15.00, SD = 1.79). Four models and competing hypotheses were tested, and the model with bidirectional paths specified showed the best fit to the data. The bidirectional effect estimates suggest that basic need satisfaction in PE predicts global self-worth development in accordance with the requirements of the PE curriculum, but also that adolescents' perceptions of global self-worth predict the degree to which they experience basic need satisfaction in PE. Findings could suggest that students with low global self-worth are less sensitive to basic need support in PE. These students may need personally tailored need supportive initiatives in order to develop basic need satisfaction in PE and thus, global self-worth through PE.

Key-words: self-determination theory, basic psychological needs, self-esteem, psychological wellbeing, PE, direction of effects

The Temporal Relations of Adolescents' Basic Need Satisfaction in Physical Education and
Global Self-Worth

Global self-worth is described as an overall evaluation of one's worth or value as a person (Harter, 2006) and a general sense of happiness with the way one is as a human being (Harter, 2012). Besides commonly being referred to as global self-worth (Harter, 2006), this overall sense of personal worthiness is also often referred to as global self-esteem (Harter, 2006; Rosenberg, 1979) or general self-concept (Marsh & Jackson, 1986; Shavelson, Hubner, & Stanton, 1976) in the research literature, which often applies these terms interchangeably (Harter, 2006). Global self-worth has gained interest as researchers have shown that individuals' sense of global self-worth affects their perceptions of, and interactions with, the social world (e.g., Bos, Huijding, Muris, Vogel, & Biesheuvel, 2010; Bum & Jeon, 2016; Singh & Pathak, 2017; Sowislo & Orth, 2013). Perceptions of global self-worth are considered to be socially constructed, meaning that individuals develop global self-worth through their interactions with the social contexts of their everyday lives (Harter, 2006). As such, depending on how individuals perceive the social contexts they are involved in, global self-worth may be either supported or undermined (Harter, 2006). Therefore, global self-worth may not only be understood as something that affects peoples' interactions with the social world; the social world also affects how people build global self-worth over the course of their lives (Lerner, Lewin-Bizan, & Warren, 2011). Thus, it is possible that global self-worth influences peoples' perceptions of the social contexts where they take part, at the same time as their perceptions of these social contexts may influence their development of global self-worth.

Previous research has suggested that participation in contexts involving bodily expression and interaction predicts positive global self-worth development among adolescents (Haugen, Säfvenbom, & Ommundsen, 2011; Slutzky & Simpkins, 2009; Taliaferro, Rienzo,

Miller, Pigg, & Dodd, 2010) and that school PE may be a significant context for global self-worth development provided that the students' basic psychological needs are satisfied (Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019). School physical education (PE) is a central movement context in adolescents' daily lives, and in some nations, such as Norway, the PE curriculum explicitly highlights global self-worth development as a major purpose of PE (Utdanningsdirektoratet [Norwegian Directorate for Education and Training], 2015b). Given this, and the fact that PE is a mandatory subject involving all adolescents on a regular basis, PE represents a movement context with the potential – and obligation – to promote positive global self-worth development among all adolescents. However, the ability of PE to promote positive global self-worth cannot be understood without consideration of adolescents' experiences as they take part in the PE subject (Erdvik et al., 2019) and thus, this link should not be taken for granted (Agans, Säfvenbom, Davis, Bowers, & Lerner, 2013; Faulkner & Tamminen, 2016). Previous research on the relationship between adolescents' experiences in PE and global self-worth has not allowed for the examination of temporal relations, that is whether global self-worth is a consequence or antecedent of adolescents' PE experiences. Drawing on Self-Determination Theory (SDT; Ryan & Deci, 2017) and the theory of the basic psychological needs, this study will examine the temporal relationship between students' basic psychological need satisfaction in PE and global self-worth.

Self-Determination Theory

Several theories have been developed to aid the understanding of how experiences in various facets of life may influence human development and thriving, and one such theory is SDT. SDT describes interpersonal and contextual influences on human cognition and behaviour (Ryan & Deci, 2017). Central to SDT is the assumption that three basic psychological needs; autonomy, competence, and relatedness, constitute essential, interdependent nutrients for human growth and wellbeing that apply across cultures, contexts,

demographics, and developmental epochs (Ryan & Deci, 2017). According to this theoretical framework, social contexts may promote wellbeing if they support the individuals' sense of volition and psychological freedom (need for autonomy), and promote mastery experiences (need for competence) and feelings of connectedness and belonging with others (need for relatedness; Ryan & Deci, 2017). Researchers have studied basic psychological need satisfaction at various levels of generality (episodic, context specific, and global level; Milyavskaya, Philippe, & Koestner, 2013) in relation to several indicators of wellbeing. Some of this research has focused on the relationship between basic psychological need satisfaction in various movement contexts and adolescents' experiences of global self-worth. However, while the interaction between the individual and the environment is the core of SDT, the vast majority of SDT research generally aligns with logic that global self-worth is a consequence of basic need satisfaction in various life-contexts.

The Global Self-Worth Consequence Model

In line with the tenets of SDT, researchers have identified general basic psychological need satisfaction as positively related to global self-worth among adults (Deci et al., 2001), young adults (León & Núñez, 2013), and adolescents (Demirtaş, Yıldız, & Baytemir, 2017). However, general and contextual basic need satisfaction has been identified as independent contributors to adolescents' general well-being (Milyavskaya et al., 2013), and the specific relations between basic need satisfaction in PE and adolescents' global self-worth has not received much attention in the research literature. Nevertheless, three studies have identified a statistically significant positive relationship between high school students' basic need satisfaction in PE and perceptions of global self-worth (Erdvik et al., 2019; Garn, McCaughtry, Martin, Shen, & Fahlman, 2012; Standage & Gillison, 2007). These studies suggest that basic need satisfaction in PE may, in line with the logic of the global self-worth consequence model, affect adolescents' global self-worth. Given PE's position as a mandatory

school subject and a central movement context in adolescents' daily lives, researchers have argued that PE has a unique potential in terms of promoting positive global self-worth among all adolescents. In fact, through their study of basic need satisfaction in multiple movement contexts, Erdvik et al. (2019) identified a stronger association between basic need satisfaction in PE and global self-worth than basic need satisfaction in leisure-time movement contexts and global self-worth. As such, Erdvik et al. (2019) suggest that PE may hold a special place in supporting positive global self-worth development among adolescents. However, as the direction of effects in this relationship has not yet been tested, this precludes any conclusions as to whether global self-worth is a consequence or an antecedent of changes in basic need satisfaction in PE.

The Global Self-Worth Antecedent Model

While global self-worth may be a consequence of adolescents' experience of basic psychological need satisfaction in PE, another possible explanation for the identification of a positive cross-sectional relationship between these variables is that adolescents who perceive themselves more positively (i.e., report higher levels of global self-worth) also may be inclined to perceive their social contexts more favourably. A vast body of research has identified low levels of global self-worth to predict susceptibility to depression (Bos et al., 2010; Bum & Jeon, 2016; Sowislo & Orth, 2013; Steiger, Allemand, Robins, & Fend, 2014), risk of suicide (Sharaf, Thompson, & Walsh, 2009; Singh & Pathak, 2017), anxiety (Bos et al., 2010; Sowislo & Orth, 2013), and eating disorders (Bos et al., 2010) – mental states that are known to affect peoples' perceptions of themselves and their social environments, and subsequently how these people behave and interact with the social world. Previous research has also shown that various individual characteristics affect peoples' perceptions of need satisfaction or need frustration (e.g., Boone, Vansteenkiste, Soenens, Van der Kaap-Deeder, & Verstuyf, 2014; Schultz, Ryan, Niemiec, Legate, & Williams, 2015). Findings from Boone

et al. (2014) indicate that adolescents high on self-critical perfectionism perceive their environments in a more biased way, and thus may be more likely to experience their social environment as depriving or thwarting of their basic psychological needs. Further, research from working life has also shown that the effect of basic need thwarting on ill-being is moderated by peoples' level of mindfulness, where people who are high in mindfulness appear to be more resilient to need frustration (Schultz et al., 2015). This reasoning is in line with the global-self-worth antecedent model, in which global self-worth is hypothesized to affect the degree to which adolescents experience basic psychological need satisfaction in PE. However, drawing on a process-relational understanding of adolescent development, it is possible that global self-worth should not be viewed as either a consequence or an antecedent of basic need satisfaction in PE: The relationship between these variables may also be understood as processual and bidirectional.

The Bidirectional Model of Basic Need Satisfaction in PE and Global Self-Worth

Drawing on a process-relational approach to human development, global self-worth may be considered to arise from the bidirectional and mutually influential relationships between individuals and their social contexts (Overton & Lerner, 2014). A bidirectional model of global self-worth development acknowledges that basic need satisfaction in PE may support adolescents' global self-worth development (in line with the global self-worth consequence model) at the same time as adolescents' perceptions of global self-worth may lead them to perceive the PE environment more basic need satisfying (in line with the global self-worth antecedent model). While existing research has paid limited attention to the temporal ordering of basic psychological need satisfaction in PE and global self-worth (Erdvik et al., 2019; Garn et al., 2012; Standage & Gillison, 2007), the longitudinal relations between basic psychological need satisfaction in general and global self-worth has been investigated by León and Núñez (2013) using a sample of young adults. In their study, general

relatedness need satisfaction was identified as a significant predictor of global self-worth, yet global self-worth was not identified as a significant predictor of general basic psychological need satisfaction (León & Núñez, 2013). However, the measure of basic psychological need satisfaction applied in this study was not specific to PE, and the study was based on between person analyses. The use of between-person analyses to investigate temporal effects can increase the risk of erroneous findings due to the inability to separate within- and between-person effects (Hamaker, Kuiper, & Grasman, 2015).

Research Questions

As shown above, prior research has identified a significant association between basic psychological need satisfaction in PE and global self-worth (Erdvik et al., 2019; Garn et al., 2012; Standage & Gillison, 2007), yet the cross-sectional nature of these studies prevents them from determining if and how these variables relate across time. While Standage and Gillison (2007) studied the relationship between basic psychological need satisfaction in PE and global self-worth across two time points, they did not address the issue of temporality and have called for longitudinal studies that may provide more insight into this relationship. Such knowledge may not only make an important contribution to the field of exercise and health psychology (Standage & Gillison, 2007), it may also have important pedagogical implications.

Students' development of global self-worth in PE is a specific curricular purpose of PE in Norway (Utdanningsdirektoratet, 2015b) and knowledge about factors that may contribute to global self-worth development in PE is therefore necessary. Prior research indicates that adolescents' basic need satisfaction in PE is related to their sense of global self-worth (Erdvik et al., 2019; Garn et al., 2012; Standage & Gillison, 2007), yet that non-sports active students experience less basic psychological need satisfaction in PE compared to their sports active peers (Erdvik et al., 2019; Viira & Koka, 2012) who appear to “reap most of the

benefits” of the subject (Säfvenbom, Haugen, & Bulie, 2015, p. 629). Because the Norwegian national curriculum in PE does not emphasize given standards of student achievement or students’ relative development of sport competencies (Utdanningsdirektoratet, 2015a), findings from prior research could suggest that PE fails to provide students with equal opportunities for global self-worth development and thus, that the subject violates Education Acts that articulate the individual student’s right to equal opportunity through equal education (e.g., Opplæringslova [the Norwegian Education Act], 1998). That said, as the direction of effects in this relationship has gained limited attention in previous research, this study aims to further investigate these proposed relations by applying a longitudinal design to investigate the temporal relations between adolescents’ basic psychological need satisfaction in PE and global self-worth. Based on the recommendations for statistical testing of temporal effects (Hamaker et al., 2015) we will also apply an approach where these effects are specified on the within-person level. In line with this aim, four models and competing hypotheses were tested:

(H1) Autoregressive model: Basic need satisfaction in PE does not predict global self-worth, and global self-worth does not predict basic need satisfaction in PE.

(H2) Global self-worth consequence model: Basic psychological need satisfaction in PE predicts global self-worth, but global self-worth does not predict basic need satisfaction in PE.

(H3) Global self-worth antecedent model: Global self-worth predicts basic need satisfaction in PE, but basic need satisfaction in PE does not predict global self-worth.

(H4) Bidirectional model: There is a bidirectional relationship between basic need satisfaction in PE and global self-worth: Basic need satisfaction in PE predicts global self-worth and global self-worth predicts basic need satisfaction in PE.

Methods

Participants

The original sample comprised two birth cohorts of altogether 3496 adolescents who participated in annual data collections during the months from March to May across three consecutive school years (2013-2015). As 98 adolescents did not provide information on basic need satisfaction in PE or global self-worth, the final sample for the longitudinal study comprised 3398 adolescents: 50 % born in 2000 (first year of lower secondary school at T1), 50 % born in 1997 (first year of upper secondary school at T1), 51 % girls, and 49 % boys. Participants were students from 44 different schools located in four different counties of Norway. The sample was drawn according to a cluster sampling procedure, with schools as the basic unit, and schools were stratified according to region, study program, number of students and centrality.

Data Collection

Data were collected in the schools during regular school hours by means of electronic questionnaires. Adolescents used approximately 60-90 minutes to complete the survey and a project researcher was present to answer potential questions. Permissions to conduct the study were received from the school principals and the Norwegian Centre for Research Data (further ethics approval was not required as per applicable institutional and national guidelines and regulations). Participation was voluntary and adolescents were free to withdraw from the study at any time. In agreement with the recommendation of NSD, written informed parental consent was ensured for all adolescents under the age of 15, while older adolescents were included based on independent written informed consent.

Instruments

Global self-worth. Adolescents' sense of global self-worth was assessed using a subscale from the Norwegian revised version (Wichstrøm, 1995) of Harter's Self-Perception Scale for Adolescents (SPPA; Harter, 1988). In keeping with Wichstrøm's (1995) revised version, the global self-worth subscale was based on five different statements designed to tap

into participants' sense of global self-worth (e.g., "I am often disappointed about myself"), and responses were anchored on a Likert scale from 1 (*describes me very poorly*) to 4 (*describes me very well*; Wichstrøm, 1995). Two contra-indicative items were reversed before mean scores for each of the three time points were computed. The global self-worth subscale showed high levels of internal consistency at each time point (α T1 = .84, α T2 = .81, α T3 = .82).

Basic need satisfaction in PE. Basic psychological need satisfaction in PE was measured using the 12-item Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006) adapted for use in a PE context. Participants sense of autonomy (e.g., "Physical Education classes are in agreement with my choices and interests"), competence (e.g., "I feel that I have made a lot of progress in relation to the objective of physical education") and relatedness (e.g., "I feel very comfortable with the students in PE") was assessed across three time points, rated on a Likert scale ranging from 1 (*totally disagree*) to 7 (*very strongly agree*). Theoretically, the three basic psychological needs are considered interdependent, and they were thus expected to operate convergently (Ryan & Deci, 2017). Former research on adolescents has shown that people in this age group do not distinguish between the different needs and tend to perceive need satisfaction globally (Katz, Kaplan, & Buzukashvily, 2011). Thus, in line with other researchers (e.g., Akkerman, Kef, & Meininger, 2017; Gagne, Ryan, & Bargmann, 2003), analyses for this study were based on measures of overall basic need satisfaction, and data were not forced to provide psychometric independence. BPNES showed high levels of internal consistency at each time point (α T1 = .95, α T2 = .95, α T3 = .95).

Statistical Analyses

Descriptive statistics were computed using IBM SPSS 24, while bivariate unconditional latent curve models with structured residuals (LCM-SR; P. J. Curran, Howard,

Bainter, Lane, & McGinley, 2014) were performed using the MLR estimator in Mplus version 7.0 (see figure 1). This SEM model allows for the simultaneous assessment of within-person relations between basic need satisfaction and global self-worth over time (P. J. Curran et al., 2014). More specifically, the between-subject variance is captured in the specified latent curve model, leaving the specified temporal relationship between the two variables on the within-subject level. In line with the aim of this study, four temporal models and competing hypotheses were assessed. According to P. J. Curran et al. (2014, p. 890), “this allows for the unambiguous evaluations of each side of the reciprocal effects by considering them one at a time”. In all of the four models the intercept and slope factors of basic need satisfaction in PE and global self-worth were estimated and allowed to covary. In the autoregressive model (H1), only autoregressive effects for the residuals of basic need satisfaction in PE and global self-worth were modelled. In the global self-worth consequence model (H2), the autoregressive effects were supplemented with within-subject cross-lagged effects, modelled by means of phantom variables, with the residual of global self-worth being regressed on the residual of basic need satisfaction in PE. With respect to the global-self-worth antecedent model (H3), the autoregressive effects were supplemented with within-subject cross-lagged effects modelled in the opposite direction, with the residual of basic need satisfaction in PE regressed on the residual of global self-worth. In the bidirectional model (H4, as illustrated in figure 1), the autoregressive effects were supplemented with within-subject cross-lagged effects modelled in both directions, regressing the residual of basic need satisfaction in PE on the residual of global self-worth while at the same time regressing the residual of global self-worth on the residual of basic need satisfaction in PE. Model selection indices and model fit indices were compared to evaluate model fit across the four models, and the model that showed the best fit to the data was retained. The model selection indices used were the Akaike information criterion (AIC), and the Bayesian information criterion (BIC). The model fit

indices used for the purpose of this study were the Root Mean Square Error of Approximation (RMSEA), the Comparative-fit index (CFI), the Tucker-Lewis index (TLI), and the Standardized Root Mean Square Residual (SRMR). In terms of AIC and BIC, lower values indicates improved model fit (Byrne, 2013). In terms of the model fit indices, RMSEA below .05 (Browne & Cudeck, 1993, in Byrne, 2013), CFI above .95 (Hu and Bentler, 1999, in Byrne, 2013), TLI above .95 and SRMR below .05 (Byrne, 2013) was considered indicative of good model fit. For all analyses, a p -value $<.05$ was considered to indicate a statistical significant result.

FIGURE 1 IN ABOUT HERE

Results

Descriptive statistics from the study sample are shown in table 1. In terms of basic need satisfaction in PE at different measurement points, Pearson's bivariate correlations ranged from .48 - .60 ($ps < .01$). Correlations between the measures of average global self-worth at different time points ranged from .56 - .64 ($ps < .01$). Correlations between the measures of average basic need satisfaction in PE and global self-worth at different time points ranged from .28 - .41 ($ps < .01$).

TABLE 1 IN ABOUT HERE

With respect to the temporal relationships between the two constructs, the bidirectional model provided the best fit to the data in terms of both model selection indices (AIC = 28876.985, BIC = 28975.080, see table 2). The bidirectional model also yielded the best model fit indices, with $\chi^2 95.38$, $df = 11$, $p = < .001$, RMSEA = .048 (90 % CI = [.039, .057]), CFI = .967, TLI = .995 and SRMR = .040, indicating good model fit to the data (Byrne, 2013). Thus, the autoregressive model (H1), the global self-worth consequence model (H2) and the global self-worth antecedent model (H3) were rejected, while the bidirectional model of basic need satisfaction in PE and global self-worth (H4) was retained.

TABLE 2 IN ABOUT HERE

In the bidirectional model, small statistically non-significant negative between-subject slopes for basic psychological need satisfaction in PE and global self-worth were identified (BPN: $\Delta = -.013$, $SE = .017$, $p = .431$; GSW: $\Delta = -.012$, $SE = .008$, $p = .116$; see table 3). Intercepts for basic need satisfaction in PE and global self-worth were both statistically significant from zero (BPN: $M = 4.767$, $SE = 0.025$, $p < .001$; GSW: $M = 2.968$, $SE = .013$, $p < .001$). On the within-person level, statistically significant cross-sectional correlations between basic need satisfaction in PE and global self-worth were identified at each of the three time points (T1: $r = .410$, $SE = .020$, $p < .001$; T2: $r = .216$, $SE = .020$, $p < .001$; T3: $r = .228$, $SE = .022$, $p < .001$). We also identified statistically significant autoregressive effects for basic psychological need satisfaction in PE (BPN_{T1-T2}: $\beta = .572$, $SE = .021$, $p < .001$; BPN_{T2-T3}: $\beta = .602$, $SE = .021$, $p < .001$) and global self-worth (GSW_{T1-T2}: $\beta = .618$, $SE = .015$, $p < .001$; GSW_{T2-T3}: $\beta = .615$, $SE = .016$, $p < .001$). Last, all cross-lagged effects were statistically significant, showing that basic psychological need satisfaction in PE at T1 predicted global self-worth at T2 ($\beta = .079$, $SE = .016$, $p < .001$), that basic psychological need satisfaction in PE at T2 predicted global self-worth at T3 ($\beta = .085$, $SE = .017$, $p < .001$), that global self-worth at T1 predicted basic psychological need satisfaction in PE at T2 ($\beta = .093$, $SE = .018$, $p < .001$), and that global self-worth at T2 predicted basic psychological need satisfaction in PE at T3 ($\beta = .090$, $SE = .017$, $p < .001$, see table 3).

TABLE 3 IN ABOUT HERE

Discussion

This longitudinal study aimed to investigate the temporal relations of adolescents' basic need satisfaction in PE and global self-worth. The bidirectional model showed the best fit to data, indicating that adolescents' experience of basic need satisfaction in PE was related to positive global self-worth development, while at the same time, adolescents' level of global

self-worth was related to their sense of basic psychological need satisfaction in PE.

The identification that basic need satisfaction in PE may promote global self-worth supports the tenets of SDT (Ryan & Deci, 2017) and illustrates the importance of adolescents experiencing autonomy, competence and relatedness in PE as this may foster positive global self-worth development. Findings also provide longitudinal support to previous research in that PE may achieve its curricular purpose of promoting students' positive global self-worth development through need supportive education (Erdvik et al., 2019; Garn et al., 2012; Standage & Gillison, 2007). However, the current study also expands our understanding of the relationship between basic need satisfaction in PE and global self-worth as it indicates that global self-worth affects how adolescents perceive their PE environment. The identification that low global self-worth predicts experiences of low basic need satisfaction in PE could suggest that adolescents with low global self-worth thwart their own basic psychological need satisfaction in the subject. This thwarting may well arise from adolescents' diminished ability to perceive and benefit from a basic need supportive PE environment (e.g., Blaine & Crocker, 1993). However, it may also emanate from negative behavioural patterns that result from these adolescents' desire to protect the Self from harm (e.g., Lyngstad, Hagen, & Aune, 2016).

The identification of bidirectional within-subject relations between basic need satisfaction in PE and global self-worth suggests that teachers who succeed in supporting their students' needs for autonomy, competence, and relatedness, also may succeed in promoting these students' global self-worth. As such, high quality teaching (e.g., T. Curran & Standage, 2017) may bring students into a positive spiral of increased basic need satisfaction in PE and thus, increased global self-worth. On the other hand, a bidirectional relationship between basic need satisfaction in PE and global self-worth also suggests that adolescents who experience low levels of basic need satisfaction in PE over time may not have the same

prerequisites for the development of positive global self-worth in PE as other students. This could indicate that PE violates the Education Act and the PE curriculum which entitles every student to equal opportunity through equal education (e.g., *Opplæringslova* [the Norwegian Education Act], 1998). Findings from this paper alert us to the fact that participation in PE may have the effect of a double-edged sword, either supporting students' global self-worth development and thus, their learning and thriving in PE, or quite the opposite; constraining students' opportunities for global self-worth development and learning as they take part in the subject. This provides PE teachers with a major responsibility to ensure that their teaching promotes students' basic psychological need satisfaction and thus, students' global self-worth development in line with the curricular purpose of PE.

While teachers' provision of basic need support is important with respect to all students, it should be noted that students enter the PE context with different perceptions of global self-worth and thus, have different prerequisites for experiencing basic need satisfaction in PE and develop global self-worth through PE. In their cross-sectional study, Erdvik et al. (2019) studied the relationship between basic need satisfaction in PE and global self-worth in four different samples of adolescents, established on the basis of self-reported involvement in different types of leisure-time movement activity. Their study shows that sports active students are more likely to experience both higher basic need satisfaction in PE and higher global self-worth compared to non-sports active adolescents (Erdvik et al., 2019). Such findings suggest that it may not be arbitrary which students who experience basic need satisfaction in PE and develop global self-worth through PE. Yet, the findings by Erdvik et al. (2019) also alert us to the fact that one cannot exclude the presence of third variable effects, and that causality can never be inferred from correlational research (Field, 2013).

The finding that adolescents experience different levels of basic need satisfaction in PE depending on their levels of global self-worth carries important implications. This

bidirectional relationship alerts us to the importance of recognizing that every PE student is inherently unique and that all students enter the PE context with different prerequisites for experiencing basic need satisfaction in PE, and thus, develop global self-worth through PE. However, regardless of their differences in global self-worth and prerequisites for experiencing basic need satisfaction and learning in PE, students are legally entitled to equal opportunities for learning through equal education (e.g., *Opplæringslova* [the Norwegian Education Act], 1998). It is therefore important for PE teachers to acknowledge that students' perceptions of global self-worth may influence whether PE contributes to healthy growth or, as opposed to the curriculum, challenges students' opportunities to develop a more positive sense of personal worthiness.

Several studies have shown that teachers' use of need supportive strategies may promote their students' basic need satisfaction in PE (e.g., Franco & Coterón, 2017; Sánchez-Oliva, Pulido-González, Leo, González-Ponce, & García-Calvo, 2017; Su & Reeve, 2011). In their 2017 article, T. Curran and Standage present extensive suggestions as to how teachers may support their students' basic need satisfaction in PE, including the provision of meaningful rationales to help students internalize tasks (autonomy), the provision of rich, competence affirming statements (competence), and the nurturing of secure teacher-student bonds and acceptance of negative affect (relatedness). However, the effects of need supportive strategies on students with high versus low levels of global self-worth have not yet been studied, and the herein presented findings suggest that not all students may be equally sensitive to need supportive education. As such, more research is necessary to determine how students with low global self-worth respond to such interventions in PE. While broader need-supportive teaching strategies may benefit all students, there is reason to believe that teachers also need to take specific measures to accommodate students with low global self-worth in

order to promote autonomy, competence and relatedness, and thus, learning and global self-worth, also in these students.

Strengths, Limitations and Future Directions

Every study should be judged in light of its strengths and limitations. Major strengths of the current study were the large sample (3398 adolescents), the longitudinal design and the use of a bivariate unconditional LCM-SR model that takes account of measurement error and allows for the separate modelling of between- and within-subjects effects. However, some limitations should also be given consideration when interpreting the results in the present study. This study did not distinguish between contingent and true global self-worth. From the perspective of SDT, these types of global self-worth have different qualities and consequences (Ryan & Deci, 2017) and thus, we encourage researchers to differentiate between contingent and true global self-worth in future research. This study was also based on self-reported measures and may be vulnerable to common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012). Further, like any real world non-experimental study, this study may be influenced by third-variable explanations for the observed effects (Field, 2013). Future research should also apply longitudinal designs to investigate how basic need satisfaction in PE and global self-worth relate to adolescent leisure-time sport participation. Such research is necessary to understand who benefits from contemporary PE, and what changes are necessary to achieve equal opportunities for learning through equal education (Erdvik et al., 2019).

Conclusion

The present study suggests that the relationship between basic need satisfaction in PE and global self-worth is bidirectional. As such, this study adds support to previous research arguing that basic need satisfaction in PE may promote global self-worth in accordance with the PE curriculum. However, students' perceptions of global self-worth also predict the degree to which they experience basic need satisfaction in PE. This suggests that adolescents

with low global self-worth are less sensitive to basic need support in PE, and thus, that these students may have different prerequisites for the development of global self-worth through PE. Consequently, students with low global self-worth may require increased teacher attention and personally tailored basic need supportive initiatives in order to experience basic need satisfaction and learning in PE, and to develop global self-worth through PE.

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Figure and figure caption

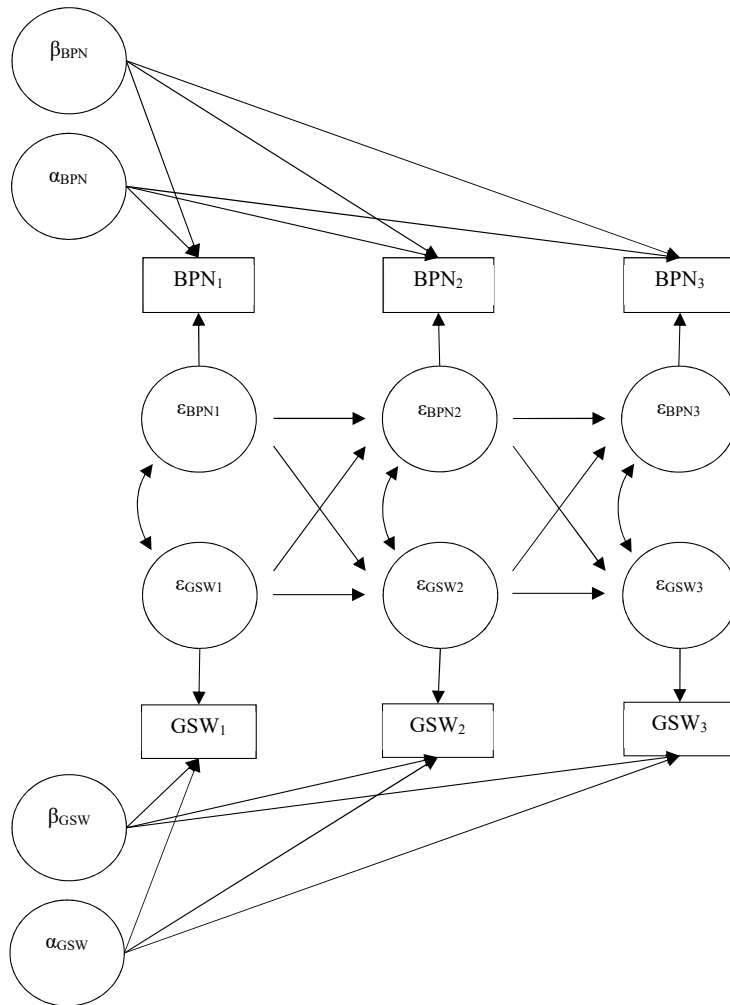


Figure 1. The bidirectional model of basic psychological need satisfaction in PE and global self-worth, assessed by means of a bivariate unconditional LCM-SR model.

Tables

Table 1

Descriptive statistics

	BPN T1	BPN T2	BPN T3	GSW T1	GSW T2	GSW T3
Bivariate correlations (two-tailed)						
BPN T1	-	.615*	.485*	.398*	.306*	.294*
BPN T2		-	.615*	.303*	.313*	.306*
BPN T3			-	.276*	.274*	.392*
GSW T1				-	.619*	.549*
GSW T2					-	.629*
GSW T3						-

Note. Pearson's bivariate correlations among study variables estimated with 2000 bootstraps. BPN = Basic

psychological need satisfaction; GSW = Global self-worth; * $p < .01$ (two-tailed).

Table 2

Model selection and model fit indices

	Model 1: Autoregressive model	Model 2: BPN → GSW	Model 3: GSW → BPN	Model 4: BPN ↔ GSW
<i>Model selection indices</i>				
AIC	28942.984	28907.589	28902.165	28876.985
BIC	29028.818	28999.553	28994.129	28975.080
<i>Model fit indices</i>				
χ^2	154.609	123.393	118.396	95.383
<i>df</i>	13	12	12	11
<i>p</i>	<.001	<.001	<.001	<.001
RMSEA	.057	.052	.051	.048
(90 % CI)	(.049-.065)	(.044-.061)	(.043-.060)	(.039-.057)
CFI	.944	.956	.958	.967
TLI	.936	.945	.948	.955
SRMR	.075	.057	.053	.040

Note. BPN = Basic psychological need satisfaction in PE; GSW = Global self-worth.

Table 3

Within-person relations between basic need satisfaction in PE and global self-worth, and between-person slopes and intercepts

	T1 – T2			T2 – T3		
	Estimate	SE	<i>p</i>	Estimate	SE	<i>p</i>
Model 1: Null model						
<i>Within-person</i>						
BPN → BPN	.600	.019	<.001	.625	.019	<.001
GSW → GSW	.640	.014	<.001	.632	.015	<.001
<i>Between-person</i>						
Slope BPN	-.009	.017	.590			
Slope GSW	-.011	.008	.176			
Intercept BPN	4.767	.025	<.001			
Intercept GSW	2.968	.013	<.001			
Model 2: Consequence model						
<i>Within-person</i>						
BPN → GSW	.092	.016	<.001	.099	.017	<.001
BPN → BPN	.612	.018	<.001	.640	.019	<.001
GSW → GSW	.602	.016	<.001	.599	.017	<.001
<i>Between-person</i>						
Slope BPN	-.010	.017	.532			
Slope GSW	-.012	.008	.121			
Intercept BPN	4.767	.025	<.001			
Intercept GSW	2.969	.013	<.001			
Model 3: Antecedent model						
<i>Within-person</i>						
GSW → BPN	.105	.018	<.001	.103	.018	<.001
BPN → BPN	.557	.021	<.001	.585	.021	<.001
GSW → GSW	.651	.014	<.001	.647	.015	<.001
<i>Between-person</i>						
Slope BPN	-.012	.017	.467			
Slope GSW	-.011	.008	.160			
Intercept BPN	4.767	.025	<.001			
Intercept GSW	2.967	.013	<.001			
Model 4: Bidirectional model						
<i>Within-person</i>						
BPN → GSW	.079	.016	<.001	.085	.017	<.001
GSW → BPN	.093	.018	<.001	.090	.017	<.001
BPN → BPN	.572	.021	<.001	.602	.021	<.001
GSW → GSW	.618	.015	<.001	.615	.016	<.001
<i>Between-person</i>						
Slope BPN	-.013	.017	.431			
Slope GSW	-.012	.008	.116			
Intercept BPN	4.767	.025	<.001			
Intercept GSW	2.968	.013	<.001			

Note. BPN = Basic psychological need satisfaction in PE; GSW = Global self-worth.

Paper III

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Development of basic psychological need satisfaction in physical education

Effects of a two-year PE programme

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Abstract

Research shows that sports-active students experience more basic need satisfaction (autonomy, competence, relatedness) in physical education (PE) than their non-sports-active peers, and thus, reap most of the benefits of PE. This study aimed to investigate the role of a two-year PE programme, referred to as Interest-based PE, in contributing to students' basic need satisfaction in PE, and in particular, to assess potential basic needs-benefits among students who were not involved in leisure-time sport. Among 693 students, 348 were offered a choice of two different PE approaches ("explorative" vs. "sports" approach) for the next two years, while the remaining students continued to receive traditional PE. Girls, non-sports-active students, and students who experienced less need satisfaction in PE at baseline were more likely to choose the explorative approach, thereby signifying a wish for a less sports-centred PE. However, no significant differences in autonomy, competence, and relatedness need satisfaction were identified between Interest-based PE groups and their respective control groups over the course of the programme. Sports active students experienced more gains in relatedness need satisfaction than non-sports active students over the course of the programme, suggesting that challenges in promoting equal opportunities for learning in PE may require more than "Interest-based PE".

Keywords: *Basic needs; self-determination theory; adolescents; organized sport*

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Physical education (PE) has long been criticised for its adherence to a sports discourse, characterized by teacher and student emphasis on "sports-techniques" (Tinning, 2010, p. 2) in traditional sports and games (Kirk, 2010, p. 48; Nyberg & Larsson, 2014). The reproduction of sports in the context of PE is a challenge for students who do not participate in organized sports during their leisure time, as these

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students experience lower levels of basic need satisfaction (autonomy, competence, and relatedness; Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019a; Viira & Koka, 2012), and autonomous motivation (Koka & Hein, 2003; Säfvenbom, Haugen, & Bulie, 2015) in PE. Such inequities between sports active and non-sports active students in PE may affect students' learning opportunities in the subject (Cothran, 2010; Hay & Macdonald, 2010; Nyberg & Larsson, 2014), and is incompatible with the Norwegian Education Act's official goal of creating a PE learning environment that promotes learning for all (Opplæringslova, 1998, § 1–3).

In an effort to deal with this challenge and provide equal education for all, PE teachers develop local PE-projects in an attempt to level the playing field for all students. Interest-based PE was such a project, developed to improve students' PE experiences of autonomy and thus competence and relatedness, by offering them a choice between two activity approaches to PE: a sports approach (SA), centred on traditional organised sports; and an explorative approach (EA), offering a less sports-centred, more playful approach to PE. This study investigates the role of Interest-based PE in promoting students' autonomy, competence, and relatedness need satisfaction in PE, with particular emphasis on non-sports active adolescents.

Theoretical framework

Self-determination theory (SDT) and its sub-theory of basic psychological needs describe interpersonal and contextual influences on adolescents' motivational learning behaviour (Ryan & Deci, 2017, p. 6). The SDT framework (Ryan & Deci, 2017, p. 222) postulates the existence of autonomy, competence, and relatedness as three basic psychological needs. The need for autonomy has been described as the need to experience volition and psychological freedom, denoting self-endorsed behaviour stemming from the true self (Ryan & La Guardia, 2000). The need for competence is commonly referred to as the need to experience mastery through interaction with the social environment (Deci & Ryan, 2000). Relatedness concerns the need to feel connected to others, to be cared for and experience a sense of belonging with significant others (Deci & Ryan, 2000; Ryan & La Guardia, 2000). From the perspective of SDT, these three psychological needs are considered fundamental to autonomous motivation and constitute universal, organismic, interdependent necessities for motivated behaviour, learning, thriving, and psychological growth across all contexts and all stages of human development (Ryan & Deci, 2017, p. 242; Ryan & La Guardia, 2000).

Basic need satisfaction is important for students' holistic development in schools and may have implications for learning and educational outcomes (Ryan & Deci, 2017, p. 352). As school is a key developmental context in the lives of children and adolescents, Ryan and Deci (2017, p. 353) argue that it should emphasise the importance of basic need satisfaction in students' development as thriving learners. Research on basic need satisfaction and autonomous motivation in PE has identified these constructs as positively related to various facets of positive development, such as general well-being

(Bagøien, Halvari, & Nesheim, 2010), feelings of self-worth (Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019a; Garn, McCaughtry, Martin, Shen, & Fahlman, 2012), increased quality of effort (Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2006; Taylor & Lonsdale, 2010), concentration (Erturan-İlker, Queded, Appleton, & Duda, 2018; Ntoumanis, 2001, 2005), persistence (Standage et al., 2006), preference for challenging tasks (Standage, Duda, & Ntoumanis, 2005), experience of positive affect (Standage et al., 2005), feelings of flow (Stormoen, Urke, Tjomsland, Wold, & Diseth, 2016), and intentions to take part in optional PE (Ntoumanis, 2005) as well as leisure-time physical activity (Chen, 2014; Erdvik, Øverby, & Haugen, 2014; Ntoumanis, 2001; Standage, Duda, & Ntoumanis, 2003). Further, basic need satisfaction and autonomous motivation in PE have been identified as inversely related to boredom (Ntoumanis, 2001) and negative affect (Ntoumanis, 2005; Standage et al., 2005). As such, while research suggests that emphasis on basic need satisfaction in PE may be important to secure positive and healthy development among children and adolescents (Ryan & Deci, 2017, p. 242), basic need satisfaction may also encourage participation in PE and make children and adolescents more receptive to learning as they take part in the subject.

Interest-based PE

Experiencing that students did not benefit equally in PE, PE-teachers and local college PE-teacher education lecturers developed the Interest-based PE project. Like other local, experience-based, didactical projects developed in the everyday-life of teachers, Interest-based PE had limited access to scientific expertise and financial funding, and was thus not developed as a classical intervention study, nor as an action research project. Interest-based PE was teachers' attempt to make PE a developmental asset for all, and the program aimed to promote basic need satisfaction by offering students a choice of two different PE approaches: an explorative approach (EA) and a sports approach (SA). Both approaches were based on the Norwegian PE curriculum and the therein described competence aims (Utdanningsdirektoratet, 2015). EA and SA were designed to offer students different approaches to learning in PE. Other aspects of PE, such as assessment procedures (e.g., Krijgsman et al., 2017) and the communication of purposes and learning objectives (e.g., Nyberg & Larsson, 2014), were not explicitly targeted by the Interest-based PE programme. Within this programme, students who chose SA were offered traditional sporting activities and ballgames in their PE class, which allowed them to play the sports according to the traditional rules, techniques, and logics of sports. The students who chose EA were, on the other hand, offered a less sports-centred and more playful approach to movement activity in their PE. More specifically, PE educators who taught EA would provide games (e.g., "tag", "red light green light", "hunter hawks") or modified sports (e.g., use multiple balls, play while attached to a fellow student) to encourage meaningful participation for a group of students that is not necessarily inspired by the logic of sports (for more information, see Tangen, & Huseby, 2018).

Consequently, teachers established two different PE classes based on students' choices. Self-selection into EA or SA was intended to promote the students' autonomy as students were allowed to choose the PE programme they experienced to be more relevant to their personal interests (Katz & Assor, 2007). However, Interest-based PE was also expected to increase students' competence and relatedness because self-selection into EA and SA meant that PE was taught in more homogenous groups and because students could choose a PE that aligned with their personal and cultural values (Katz & Assor, 2007).

Research questions

As mentioned above, basic need satisfaction is important for students' learning in school. Although the provision of student choice is associated with motivational outcomes (e.g., How, Whipp, Dimmock, & Jackson, 2013; Patall, 2012), it remains unclear whether a single choice between two activity approaches to PE is sufficient to promote students' autonomy, competence, and relatedness in the subject (Patall, 2012). Nevertheless, knowing that adolescents may not experience equal basic-need benefits in traditional PE (Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019a), Interest-based PE was expected to be particularly beneficial for students who were not involved in leisure-time sport. As such, the aim of this study was to determine the role of Interest-based PE in students' development of basic need satisfaction in PE, with particular emphasis on non-sports active adolescents. More specifically, this study raised two research questions:

- (I) Does the two-year Interest-based PE programme affect students' satisfaction of the three basic psychological needs for autonomy, competence, and relatedness in PE?
- (II) Are student trajectories of autonomy, competence, and relatedness need satisfaction, through the two-year Interest-based PE programme, contingent on participation in leisure-time sport?

Method

Participants

A controlled study of Interest-based PE was possible as participants were part of a larger research project, referred to as 'the Relevance of Physical Activity Contexts in the Everyday Life of Adolescents' (REPAC). Including the Interest-based PE participants, REPAC comprised 4180 lower and upper secondary school students from four Norwegian counties. The REPAC-study was longitudinal and the data collected from 2014 to 2016 were derived from annual questionnaire responses given by two cohorts (born 1997/2000) of adolescents during their three years in lower and upper secondary school. In one of the REPAC-counties, PE teachers at nine participating schools introduced Interest-based PE to altogether 348 students. Entering their second year of lower or upper secondary school, these students received

Interest-based PE for the two next years. Because the students could choose between two PE approaches, two subgroups were established: those who chose EA and those who chose SA. Matched control groups were created for EA and SA based on responses from participants in the overall REPAC study who did not participate in Interest-based PE. These were comparable with respect to age (e.g., Ntoumanis, Barkoukis, & Thøgersen-Ntoumani, 2009), sex (e.g., Viira & Koka, 2010), leisure-time sport involvement (e.g., Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019a), and basic need satisfaction reported at baseline. The present study is based on data collected from 693 students (348 Interest-based PE participants, and 345 assigned controls).

Data collection

Data was collected by means of an online survey, delivered during traditional school hours in the presence of a teacher and a project researcher, both of whom were available to answer students' questions. Data collections lasted 60–80 minutes and took place between March and May for three consecutive years (see figure 1). Participation was voluntary. Participants younger than 15 years of age were included based on parental consent, while older students were included based on independent consent. The study was approved by the Norwegian Centre for Research Data and by the school principals.

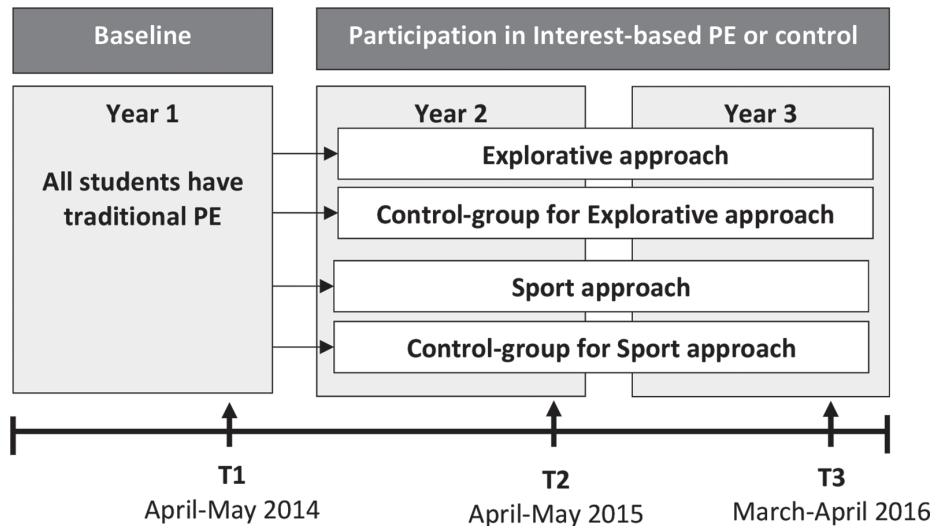


Figure 1. Interest-based PE timeline.

Note. At T1, all students were about to finish their first year of lower/upper secondary school. Interest-based PE was initiated in the beginning of the second school year of lower/upper secondary school, and allowed participants to choose between a “sport approach” an “explorative approach” to PE. The two control groups continued to receive traditional PE. Interest-based PE participants had participated in the sport approach or the explorative approach for nearly one year at T2, and for nearly two years at T3.

Instruments

Satisfaction of Basic Psychological Needs (BPN) in PE was measured using the 12-item Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006), which for the purpose of this study was adapted for use in a PE context. Participants reported their satisfaction of the need for autonomy (e.g., “Physical education classes are in agreement with my choices and interests”), competence (e.g., “I feel that I have made a lot of progress in relation to the objective of physical education”) and relatedness (e.g., “I feel very comfortable with the students in PE”) across three time points on a Likert scale ranging from 1 (*totally disagree*) to 7 (*very strongly agree*). The BPNES is reported to be valid and reliable, with alpha coefficient of .75, .80, and .86 for autonomy, competence, and relatedness need satisfaction, respectively.

Additionally, adolescents reported their sex and year of birth. The latter was used to distinguish between adolescents in two cohorts, attending either lower or upper secondary school (13, 14 and 15, versus 16, 17 and 18 years of age). Participants also reported whether or not they were involved in organized sports outside of school at baseline (i.e., “Do you train or compete in a sports club?”).

Statistical analyses

Descriptive statistics were computed using IBM SPSS 25, while second order growth curve analyses of students’ growth trajectories of autonomy, competence, and relatedness need satisfaction were, in line with the recommendations of Newsom (2015), performed using the MLR estimator in Mplus version 8.0. Bivariate correlations, means, standard deviations, skewness, and kurtosis were estimated for autonomy, competence, and relatedness at each time point, based on 2000 bootstrap samples. The magnitude of the correlations were interpreted according to Cohen’s definitions (small $\geq .10$, medium $\geq .30$, and large $\geq .50$; Cohen, 1988, pp. 79–80). Bootstrapped independent samples t-tests, which are considered robust to various distributional assumptions (Wright, London, & Field, 2011), were used for drop-out analyses and comparisons of autonomy, competence, and relatedness need satisfaction at each measurement point. The Pearson chi square test and the independent samples t-test were used for descriptive analyses of students’ choice between the two PE approaches, and effect sizes were calculated and interpreted according to Cohen’s definitions (Cohen’s *d*, small $\geq .20$, medium $\geq .50$, large $\geq .80$; Cohen, 1988, pp. 24–26). Second order growth curve analyses were performed to study the Interest-based PE programme’s possible effect on growth trajectories of autonomy, competence, and relatedness need satisfaction in PE. To specify the second order growth curve model we used the syntax suggested by Newsom (2015). In the model specification strict invariance were specified. The same analytical approach was used to study possible effects of leisure-time sport participation at baseline on growth trajectories of basic

need satisfaction among students participating in EA or SA. Effects of students' participation in Interest-based PE groups versus control groups were studied by means of regressing dichotomous group variables (EA vs. EA-control, and SA vs. SA-control) on the growth trajectories of autonomy, competence, and relatedness need satisfaction in PE. The same approach was used to study possible effects of students' leisure time sport participation at T1 (sports vs. no sports) on growth trajectories of autonomy, competence, and relatedness need satisfaction among students in the two Interest-based PE groups (EA and SA). Model fit was evaluated by means of the Root Mean Square Error of Approximation (RMSEA), the Comparative-fit index (CFI), the Tucker-Lewis index (TLI), and the Standardized Root Mean Square Residual (SRMR). CFI and TLI values around .90 in combination with SRMR and RMSEA values around .08 indicated acceptable model fit (Marsh, 2007, p. 786). In all analyses, *p*-values below .05 were considered to indicate statistically significant results.

Results

As shown in table 1, all variables included in the present study showed acceptable levels of internal consistency and medium to large correlation effects.

Table 1. Descriptive statistics for study variables (based on all study participants)

Correlations	1	2	3	4	5	6	7	8	9
1 Autonomy t1	–	.52*	.44*	.88*	.54*	.46*	.67*	.42*	.33*
2 Autonomy t2		–	.58*	.53*	.91*	.54*	.42*	.77*	.41*
3 Autonomy t3			–	.46*	.56*	.91*	.40*	.45*	.75*
4 Competence t1				–	.56*	.51*	.69*	.45*	.34*
5 Competence t2					–	.58*	.44*	.75*	.41*
6 Competence t3						–	.43*	.46*	.79*
7 Relatedness t1							–	.51*	.44*
8 Relatedness t2								–	.53*
9 Relatedness t3									–
M	4.59	4.65	4.65	4.67	4.70	4.70	5.18	5.11	5.13
SD	1.36	1.41	1.42	1.29	1.37	1.35	1.26	1.37	1.36
Range	1–7	1–7	1–7	1–7	1–7	1–7	1–7	1–7	1–7
Skewness	–.34	–.49	–.37	–.43	–.52	–.51	–.70	–.68	–.64
Kurtosis	–.38	–.08	–.14	–.04	–.12	.23	.33	.11	.15
Cronbach's alpha	.88	.90	.90	.86	.88	.90	.85	.90	.90

(Continued)

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Table 1. (Continued)

Correlations	1	2	3	4	5	6	7	8	9
Intervention groups									
M	4.61	4.69	4.59	4.67	4.73	4.65	5.16	5.06	5.04
SD	1.36	1.33	1.43	1.27	1.27	1.37	1.28	1.31	1.42
Control groups									
M	4.57	4.59	4.74	4.67	4.65	4.77	5.20	5.18	5.28
SD	1.40	1.50	1.33	1.30	1.48	1.31	1.25	1.45	1.26

Note. Descriptive statistics that are based on the entire sample (intervention and control groups combined) include bivariate correlations, * $p < .01$ (two tailed), means (M), standard deviations (SD), skewness, kurtosis, and Cronbach's alpha. M (SD) are also reported separately for intervention participants (EA and SA combined) and control group participants (EA-control and SA-control combined). With the exception of Cronbach's alpha, all descriptives are based on 2000 bootstrap samples.

Drop-out analyses were performed by means of bootstrapped independent samples t-tests which showed that students who participated at all three time points reported significantly higher levels of autonomy ($M = 4.75$, $SD = 1.29$), competence ($M = 4.78$, $SD = 1.25$), and relatedness ($M = 5.28$, $SD = 1.18$) need satisfaction at T1 (baseline) compared to those students who only participated at T1, at T1 and T2, or at T1 and T3 (Autonomy: $M = 4.47$, $SD = 1.40$, $t(601.29) = -2.80$, $p = .005$, $d = -.21$; Competence: $M = 4.56$, $SD = 1.32$, $t(840) = -2.42$, $p = .016$, $d = -.18$; Relatedness: $M = 5.02$, $SD = 1.31$, $t(588.453) = -2.914$, $p = .005$, $d = -.22$).

Demographic characteristics in table 2 show that the Interest-based PE groups (EA and SA) and their respective controls showed similar characteristics in terms of autonomy, competence, and relatedness need satisfaction, sex, age (lower secondary school cohort vs. upper secondary school cohort), and leisure-time sport participation at baseline. Analyses of students' choice of PE approach show that 52% (180 students) chose EA whereas 48% (168 students) chose SA. Students who chose EA reported significantly less autonomy ($t(523) = -8.822$, $p < .001$, $d = -.83$), competence ($t(519) = -9.654$, $p < .001$, $d = .94$), and relatedness ($t(507) = -8.471$, $p < .001$, $d = -.90$) need satisfaction at baseline compared to students who chose SA. Further, there were significant associations between choice of PE approach and student sex as well as between choice of PE approach and leisure-time sport participation (sex: $\chi^2(1) = 36.975$, $p = .000$; sport: $\chi^2(1) = 42.954$, $p = .000$). Based on the odds ratio, the likelihood of girls choosing EA was 3.90 times higher than for boys, and the likelihood of non-sports-active students choosing EA was 4.43 times higher than it was for sports-active students.

Second-order growth curve analyses of students' growth trajectories were applied to test possible effects of the two-year PE programme on students' autonomy, competence, and relatedness need satisfaction in PE. As shown in table 3, all models

Table 2. Demographic characteristics of Interest-based PE groups and control groups

		EA vs. controls			SA vs. controls		
		Participants	Controls	<i>t</i> (<i>p</i>)	Participants	Controls	<i>t</i> (<i>p</i>)
n		180	179		168	166	
M (Bca CI)							
Autonomy	T1	4.19 (4.04–4.35)	4.16 (3.97–4.36)	.23 (.83)	5.16 (5.02–5.31)	5.17 (4.99–5.33)	-.03 (.98)
	T2	4.33 (4.15–4.52)	4.06 (3.83–4.29)	1.77 (.08)	4.99 (4.81–5.16)	5.04 (4.80–5.28)	-.30 (.76)
	T3	4.33 (4.15–4.52)	4.22 (3.93–4.49)	.65 (.53)	5.05 (4.87–5.23)	4.81 (4.54–5.07)	1.48 (.16)
Competence	T1	4.26 (4.12–4.40)	4.22 (4.03–4.40)	.34 (.74)	5.25 (5.11–5.39)	5.22 (5.06–5.37)	.28 (.79)
	T2	4.36 (4.18–4.54)	4.15 (3.90–4.39)	1.36 (.19)	5.10 (4.95–5.26)	5.06 (4.84–5.27)	.34 (.75)
	T3	4.37 (4.19–4.55)	4.32 (4.06–4.57)	.28 (.78)	5.10 (4.91–5.29)	5.04 (4.80–5.27)	.44 (.66)
Relatedness	T1	4.81 (4.65–4.97)	4.77 (4.58–4.96)	.34 (.75)	5.68 (5.55–5.80)	5.53 (5.37–5.70)	1.46 (.16)
	T2	4.84 (4.66–5.01)	4.81 (4.55–5.06)	.21 (.83)	5.36 (5.20–5.51)	5.60 (5.38–5.80)	-1.74 (.07)
	T3	4.86 (4.66–5.05)	5.02 (4.76–5.27)	-.99 (.32)	5.68 (5.55–5.80)	5.53 (5.37–5.70)	1.46 (.16)
Cohort, n	Lower secondary	111	111		97	95 [†]	
	Upper secondary	69	68 [†]		71	71	
Sex, n	Girls	128	127 [†]		65	63 [†]	
	Boys	52	52		103	103	
LT sport, n	Participating	70	73		124	121	
	Not participating	105	103		42	44	

Note. Mean group differences tested with independent samples t-tests (2000 bootstraps). EA = Explorative approach; SA = Sport approach; Autonomy, competence, and relatedness at T1, T2, and T3 are indicated by group means and 95% bootstrapped CI; LT sport = Leisure-time sport participation at baseline. [†]Two girls in lower secondary school who attended SM did not participate at T1, while one upper secondary school girl attending EM did not report BPN or sport involvement at T1. Thus, these students were not assigned controls.

showed acceptable fit to the data. Analyses showed that students' participation in Interest-based PE groups versus control groups did not significantly predict students' trajectories of autonomy (EA vs. EA-control: $\beta = -.118$, $SE = .068$, $p = .08$; SA vs.

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SA-control: $\beta = -.107$, $SE = .066$, $p = .10$), competence (EA vs. EA-control: $\beta = -.116$, $SE = .095$, $p = .22$; SA vs. SA-control: $\beta = .025$, $SE = .064$, $p = .70$), or relatedness (EA vs. EA-control: $\beta = .024$, $SE = .085$, $p = .78$; SA vs. SA-control: $\beta = .092$, $SE = .062$, $p = .14$) and need satisfaction in PE (see figure 2).

The second research question – whether student trajectories of autonomy, competence, and relatedness need satisfaction through Interest-based PE were contingent on participation in leisure-time sport – was investigated using similar second-order growth curve analyses (for model fit indices, see table 3). Analyses showed that leisure-time sport participation did not significantly relate to students’ trajectories of basic need satisfaction among the SA students (sports vs. no sports: autonomy, $\beta = -.039$, $SE = .079$, $p = .62$; competence, $\beta = -.134$, $SE = .077$, $p = .08$; relatedness, $\beta = -.101$, $SE = .072$, $p = .16$; see figure 3). With respect to the EA-students, analyses showed no significant relationship between leisure-time sport participation and trajectories of autonomy and competence need satisfaction in PE (sports vs. no sports: autonomy, $\beta = -.120$, $SE = .086$, $p = .17$; competence, $\beta = -.251$, $SE = .139$, $p = .07$). However, significant, yet weak relations between sports participation and EA-students’ trajectories of relatedness in PE were identified ($\beta = -.404$, $SE = .192$, $p = .04$).

Table 3. Model fit indices

	χ^2	<i>df</i>	<i>p</i>	RMSEA (90% CI)	CFI	TLI	SRMR
Autonomy							
EA vs. EA-c	100.060	63	0.0021	.035 (.021–.048)	.988	.986	.041
SA vs. SA-c	131.658	63	<.0000	.051 (.039–.063)	.971	.964	.052
EA: Sports vs. no sports	112.578	63	.0001	.052 (.036–.068)	.976	.971	.067
SA: Sports vs. no sports	138.372	63	<.0000	.069 (.053–.085)	.952	.940	.094
Competence							
EA vs. EA-c	145.494	63	<.0000	.053 (.041–.064)	.974	.968	.038
SA vs. SA-c	196.930	64	<.0000	.070 (.059–.081)	.933	.918	.063
EA: Sports vs. no sports	137.428	63	<.0000	.064 (.049–.079)	.964	.955	.062
SA: Sports vs. no sports	176.090	64	<.0000	.084 (.069–.098)	.921	.903	.081
Relatedness							
EA vs. EA-c	145.960	63	<.0000	.053 (.042–.064)	.972	.966	.046
SA vs. SA-c	148.115	64	<.0000	.056 (.044–.068)	.966	.959	.051
EA: Sports vs. no sports	112.714	63	.0001	.052 (.036–.068)	.974	.968	.057
SA: Sports vs. no sports	103.662	64	.0013	.050 (.031–.067)	.977	.972	.055

Note. EA = Explorative approach; EA-c = Control group for explorative approach; SA = Sport approach; SA-c = Control group for sport approach.

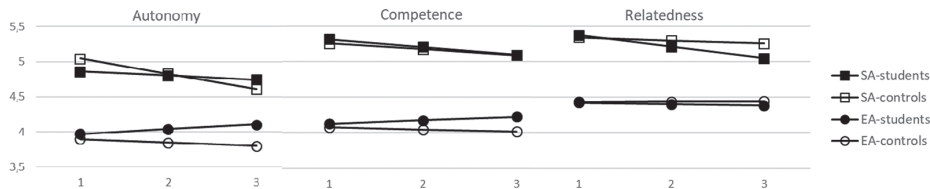


Figure 2. Growth trajectories of autonomy, competence, and relatedness need satisfaction among students in Interest-based PE (EA and SA) and their respective controls.

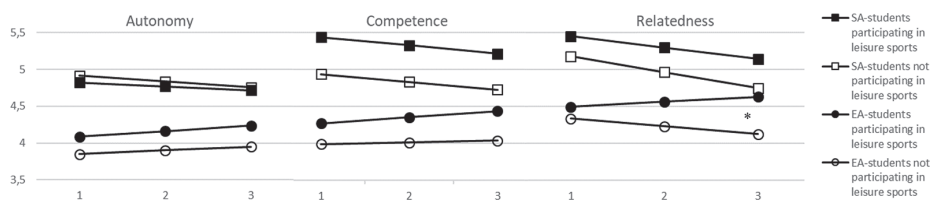


Figure 3. Growth trajectories of autonomy, competence, and relatedness need satisfaction among students who did and did not participate in leisure-time sport within EA and SA, * $p < .05$.

Discussion

The main aim of this study was to investigate the role of a two-year Interest-based PE programme in levelling the playing field for sports-active and non-sports-active students in terms of their experience of basic need satisfaction in PE.

Second-order growth curve analyses comparing growth trajectories of autonomy, competence, and relatedness need satisfaction of each Interest-based PE group to its corresponding control group showed that neither participation in EA nor in SA significantly influenced students' autonomy, competence, and relatedness need satisfaction in PE. From the perspective of null hypothesis significance testing, this suggests that the PE programme may not have been effective in increasing students' sense of autonomy, competence, and relatedness in the subject. Yet, somehow contradictory to the lack of change, analyses revealed that when given the opportunity, girls, non-sports-active adolescents, and students who experienced less basic need satisfaction in PE at baseline were more likely to choose EA, thereby signifying a wish for a less sports-centred PE subject. This aligns with prior research showing that girls and non-sports-active students typically experience less basic need satisfaction in PE (Erdvik, Haugen, Ivarsson, & Säfvenbom, 2019a; Viira & Koka, 2012) and hold less positive views about traditional PE compared to boys and sports-active adolescents (e.g., Kjønnsen, Anderssen, & Wold, 2009; Säfvenbom, Haugen, & Bulie, 2015).

An assumption inherent in Interest-based PE was that the introduction of EA would benefit students who were less likely to experience high levels of need satisfaction in

traditional PE classes, which are typically centred on sport (e.g., Kirk, 2010, p. 48). As such, it was considered possible that Interest-based PE could have a different impact on students' basic need satisfaction depending on whether or not they were involved in leisure-time sport at baseline. With respect to the students who chose SA, no significant differences in autonomy, competence, and relatedness need satisfaction between sports active and non-sports active students were identified. Among the EA-students, there was no significant difference between sports active and non-sports active students' trajectories of autonomy and competence need satisfaction. However, analyses showed that the sports active EA-students developed significantly higher levels of relatedness need satisfaction over the course of the Interest-based PE programme than the non-sports active EA-students. As such, this study suggests that levelling the playing field for sports active and non-sports active students in PE may require more than what was offered through "Interest-based PE". While there could be several explanations for these results, they align with findings from a qualitative study, developed by Erdvik, Mordal-Moen og Säfvenbom (2019b) to gain a deeper understanding of how the Interest-based PE programme intervened in the relations between the students and the PE subject. Qualitative one-on-one interviews with participating students showed that central aspects of PE remained unchanged through the Interest-based PE programme, and that this approach to PE may therefore not have altered neither teachers' nor students' habitual understanding of PE. The next section discusses assessment practices and discourses, as central aspects of PE that were not targeted by the Interest-based PE programme and that therefore could contribute explain Interest-based PE's inability to promote students' autonomy, competence, and relatedness need satisfaction in PE.

Sports discourse and assessment in PE

A central aspect of PE that did not change with the Interest-based PE programme is that PE was delivered and assessed according to the Norwegian PE curriculum and the therein described competence aims (Utdanningsdirektoratet, 2015). However, assessment is described as a troublesome issue in PE (Leirhaug & Annerstedt, 2016; López-Pastor, Kirk, Lorente-Catalán, MacPhail, & Macdonald, 2013; Redelius & Hay, 2012; Svennberg, Meckbach, & Redelius, 2018) and a challenge to students' experiences of autonomy, competence, and relatedness in the subject (Krijgsman et al., 2017; Slingerland et al., 2016). Previous research found that students consider "having the right body and sporting ability" (Redelius & Hay, 2012, p. 218) to be a key factor in receiving high grades in PE. If students experience their PE assessment as a judgement of sports performance, and not as assessment for learning in relation to curricular competence aims (e.g., Leirhaug & Annerstedt, 2016), this may have negative consequences for their sense of basic need satisfaction (e.g., Krijgsman et al., 2017) and thus, learning in the subject (Cothran, 2010; Hay & Macdonald, 2010; Ryan & Deci, 2017, p. 175). It is therefore important to note that Interest-based

PE did not explicitly target teachers' communication of purposes and competence aims in PE and thus, there is little to suggest that Interest-based PE helped students recognize the educational aspects of PE, nor that it prevented students from experiencing a "hidden curriculum" of sports (Nyberg & Larsson, 2014, p. 12). Arguably, Interest-based PE may not have offered participating teachers sufficient support to achieve constructive alignment of curriculum, teaching, learning, and assessment in PE. The programme may therefore have done little to challenge existing ideas about what it means to be good at PE. This interpretation is supported by findings from qualitative interviews with students who participated in the Interest-based PE programme (Erdvik, Mordal-Moen, & Säfvenbom, 2019b). All in all, findings from this study and from the study of Erdvik, Mordal-Moen og Säfvenbom (2019b) do much to suggest that the sports discourse prevailed regardless of Interest-based PE and the activities that students were presented with.

According to Kirk, "physical-education-as-sports-techniques" represents "a highly institutionalised and deeply sedimented practice" (Kirk, 2010, p. 50), and several researchers have shown that teachers struggle to distance themselves from the practice of PE-as-sports (e.g., Green, 2000; Mordal-Moen & Green, 2014). As such, while the activity opportunities may have been changed through Interest-based PE, teachers' and students' understandings of PE-as-sports may have acted as a barrier to students' need satisfaction. This may also explain why basic need satisfaction remains stable over the course of this study, despite the changes that were made through the delivery of EA and SA. From a SDT perspective, peoples' sense of basic need satisfaction is considered to be changeable and to vary across time, contexts and social interactions (Ryan & Deci, 2017, p. 243). However, one cannot rule out the possibility that students and their teachers over years have internalized a sports discourse in PE. An underlying understanding of 'PE-as-sports' may not only have made it hard for the PE teachers to change their approach to teaching PE – as suggested by Erdvik, Mordal-Moen, & Säfvenbom (2019b), these understandings may also be reflected in the ways their students have learned to value their own accomplishments in the subject. As such, within both approaches to PE, teachers may have continued to teach PE-as-sports and students may have continued to judge their own PE accomplishments according to the logic of sports – thus challenging the promotion of students' autonomy, competence, and relatedness, regardless of Interest-based PE. All in all, prior research gives reason to believe that a lack of curriculum clarification reduced Interest-based PE to no more than a small interference in teachers' and students' histories of PE, and thus, that the sport discourse and assessment procedures remained at the centre of the subject. Together with findings from Erdvik, Mordal-Moen og Säfvenbom (2019b) qualitative study on Interest-based PE, analyses from the present study suggest that attempts to reduce or even erase the "social inequity and injustice and reproduced privilege" (Stolz, 2014, p. 27) associated with PE-as-sports require more comprehensive long term strategies, directed towards PE teachers' habitus, interpretations of the curriculum, and discourses that compete for influence

in PE (Kirk, 2010, p. 139; Stolz, 2014, p. 27; Tinning, 2010, p. 28). This supports the call for change in PE-teacher education (e.g., Mordal-Moen & Green, 2014) in line with etymological and theoretical perspectives from the philosophy of education (e.g., Standal & Aggerholm, 2016).

Strengths, limitations, and future directions

Findings related to Interest-based PE should be considered in the light of this study's strengths and weaknesses. Interest-based PE was conducted over a period of two school years involving 348 participants and 345 controls. Its number of participants, duration and longitudinal design lend significant strength to the current study. On the other hand, Interest-based PE being a local initiative performed as a systematic differentiation project, could be considered both a strength and a limitation. The limitation concerns the fact that teachers did not follow a protocol as they taught Interest-based PE. As such, although teachers were taught to teach EA and SA, one cannot completely rule out the possibility that they may have altered other aspects of their teaching during this two-year period (for further detail, please refer to the study by Erdvik, Mordal-Moen, & Säfvenbom [2019b]). That said, Interest-based PE was developed and performed by PE-teachers within the everyday life of education. This alerts us to the strengths of the current study: Interest-based PE was delivered by the same teachers who hold the key to promote change in PE, thus supporting this study's ecological validity (Schmuckler, 2001). It should also be noted that students with lower levels of autonomy, competence, and relatedness need satisfaction at baseline were more likely to have missing data at later measurement points. Data could therefore not be considered missing at random (Enders, 2010), which could represent a limitation of the current study. With findings suggesting that the promotion of students' basic need satisfaction in PE may require more than "Interest-based PE", we call for more research to increase the understanding of students' experiences with this program. Findings from this study and the study by Erdvik, Mordal-Moen og Säfvenbom (2019b) suggest that future research may do well to combine qualitative and quantitative research designs to deepen our understanding of students' experiences from programmes such as Interest-based PE.

Conclusion

This study shows that, when given the opportunity, girls, non-sports-active students, and students who experience low basic need satisfaction in PE tend to deselect a sports approach to PE. This highlights the need for short and long-term changes in PE to level the playing field for these students and ensure that PE is a subject for all. Yet, participation in Interest-based PE and a choice of two PE approaches did not appear to promote students' basic need satisfaction, and non-sports-active students

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did not appear to experience more basic need benefits through Interest-based PE than sports active students. This suggests that PE remains a context that favours sports-active adolescents, regardless of Interest-based PE, and that the challenges in promoting basic need satisfaction in PE may require more than “Interest-based PE”. While students’ basic need satisfaction in PE may be promoted through the use of more specific need supportive strategies, this study highlights the need for long-term strategies targeting PE discourses, teacher habitus, and curriculum interpretation in order to reduce student inequity in PE.

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Paper IV

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Student experiences with Interest-based Physical Education: A relational perspective on a
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Abstract

While many students participate autonomously in physical education (PE), research shows that non-sports active students are less likely to perceive PE positively. Attempting to optimize the student ↔ PE relationship and secure equal opportunities for learning in PE, schools in a Norwegian county developed an “Interest-based PE”-programme offering students a choice of two PE approaches; a sports approach (SA) focused on sports activities, and an explorative approach (EA), focused on alternative movement activities. Based on a process-relational understanding of adolescent development and learning, this study seeks a deeper understanding of changes in the PE experiences of students in the programme. Sixteen students (ages 17-18) who had participated in Interest-based PE for 18 months reflected on their relationship with PE prior to, and during the programme. Data were subject to inductive interpretive thematic analysis showing that “the role of sports in PE” framed student ↔ PE relations and that this sports discourse regulated the relations, also within the Interest-based PE programme. The separation of students into EA and SA accentuated the sports discourse and students’ sports competencies, contributing to segregation on the basis of students’ confidence, competence, and ability in sports. Based on this study we question the assumption that differentiation programmes, such as Interest-based PE, will optimize student ↔ subject-relations if these relations remain governed by the sports discourse, rather than the PE curriculum.

Keywords: PE; choice; sport; sports discourse; relational analysis

Student experiences with Interest-based PE: A relational perspective on a systematic
differentiation programme

School represents a major developmental asset in young people's lives (Eccles and Roeser, 2009) and equity in education is a pillar in the educational systems of many countries. However, not all teachers feel convinced that their students benefit equally from today's physical education (PE) and research suggests that sports active students are more appreciative of PE than their non-sports active peers (Erdvik et al., 2019; Kjønniksen et al., 2009; Koka and Hein, 2003; Moen et al., 2018; Viira and Koka, 2012; Prochaska et al., 2003; Säfvenbom et al., 2015), and that these students "reap most of the benefits" from the subject (Säfvenbom et al., 2015: 629). In an attempt to level the learning field for all students, PE teachers at nine schools in Norway implemented a didactic differentiation programme in PE, known as "Interest-based PE" (Tangen and Husebye, 2018). Through this programme, students were provided with the opportunity to choose between two different approaches to learning in PE; a sports approach (SA) which offered students traditional sporting activities and ballgames, and an explorative approach (EA) which offered students less sports-centred and more alternative and playful activities. The programme was developed on the basis of the national curriculum in PE (Utdanningsdirektoratet, 2012, 2015) and aimed to promote involvement, autonomous motivation, and positive movement experiences (Agans et al., 2013) in PE and thus, positive development and learning in more students (Tangen and Husebye, 2018).

The aim of this study is to gain insight into how the Interest-based PE programme intervened in the relations between the students and the PE subject. We first provide a brief overview of the Relational Developmental Systems meta-theory (RDS) that is the theoretical framework of this study. RDS offers an infrequently applied process-relational perspective to the understanding of students' development and learning in PE. The next section provides a

short outline of PE in Norway, before we give a brief overview of research on how students' express their relationship to the subject. Finally, we present the Interest-based PE programme and our analysis, which prompted a new question about what had triggered the need for systematic differentiation in the first place. In the final part of the paper, we discuss the unintended and problematic consequences of Interest-based PE.

Theoretical Framework

The present study is anchored in RDS and thus a process-relational paradigm (Lerner, 2018: 11; Overton, 2015), acknowledging that human development and learning cannot be understood without focusing on developmental processes, interaction, and thus relational analysis (Lerner, 2018: 24). From a RDS perspective, human development and learning are “reciprocal, understood as resulting from mutually influential person ↔ context relations within a certain culture and time of history” (Säfvenbom et al., 2018: 1992). Because students' development and learning in PE are situated in context and time, a relational approach incorporating contextual and historical perspectives is considered advantageous. Such a perspective considers the plasticity in both student and context as significant for optimizing learning and developmental processes, yet according to the RDS perspective even plasticity should be considered as a relational phenomenon. Relative plasticity in the student ↔ subject relationship in PE is not only considered in the context of student narratives but also in relation to the subjects' history and origin. RDS offers this perspective to the study of students' PE experiences (Lerner et al., 2011; Lerner, 2015; Lerner, 2018: 23) by analysing the relations between (a) current individual student characteristics, (b) current contextual specificities of PE, and (c) historical or developmental aspects relating to both the student and the PE subject. The historical perspective is important not only because students' PE-narration shapes their current understanding of the subject, but also because the PE subject's past may influence current approaches to PE. As such, a PE-class represents the relationship

between students, who may have years of experience with the subject, and the PE context which has been part of the educational system for decades.

From a RDS perspective (Lerner, 1991; Lerner, 2018), change in the bidirectional (\leftrightarrow) relations between the students and the subject (as offered by the teacher) is considered the basic process of both the students' development and learning in PE and the development of PE as a school subject. Change in the relationship between a student and PE can occur if the student adapts to expectations in the subject, based on the teacher's interpretation of the subject (e.g., master a volleyball serve), or if the teacher adapts PE to meet the student's needs or competencies. In adopting the RDS perspective on PE, researchers focus on the rules, or the "developmental regulations" (Brandtstädter, 2006), that govern the exchange between the students and the subject. In PE, this exchange should be governed by the epistemic objects as stated in the PE curriculum. That said, prior research suggests that teachers find it hard to anchor their teaching in the PE curriculum (Redelius et al., 2015; Redelius et al., 2009), and that they may act according to alternative rules of regulation, such as the promotion of fitness or health (e.g., Walseth et al., 2017; Webb et al., 2008).

As long as the relations between the individual student and the PE context are characterized by adaptive developmental regulations that benefit both the students and the subject (e.g., the PE teacher), RDS maintains that all students may experience positive movement experiences (and thus positive development and learning) in PE (Lerner, 2018). Optimizing student \leftrightarrow subject relations to ensure students' access to positive movement experiences in PE is important, as this could result in long term physical, psychological, and social benefits, which may encourage continued participation and learning, and thus more positive movement experiences for the student (Agans et al., 2013). However, achieving such optimization requires not only students' effort to adapt to the context of PE but also a PE

subject that accepts diversity among students – a PE that allows students to flourish and adapts to support diverse students in their attempts to thrive (Lerner et al., 2008).

Developmental regulations in (Norwegian) PE

Historically, a number of different regulations have governed the relationship between students and physical education in Norway. From 1848, when the subject was introduced for the purpose of preparing young men for military service (Augestad, 2003), it would take nearly one hundred years before PE became a mandatory subject for all. Since then, the subject's focus shifted to health promotion, underscoring the importance of students' hygiene (Augestad, 2003) and physical fitness (Aasland et al., 2016). In later years, as the sports movement gained increasing importance in Norwegian society, sport activities became an increasingly central element of PE (Aasland et al., 2016; Augestad, 2003).

Today PE is governed by the Norwegian Education Act (Opplæringslova, 1998) and the national curriculum (Utdanningsdirektoratet, 2015). Through 13 years of mandatory education, PE is expected to promote students' self-worth and inspire lifelong enjoyment of physical activity (Utdanningsdirektoratet, 2012, 2015). To achieve these purposes, students are supposed to work towards specific curricular competency aims. In broad terms, these aims emphasize fair play and collaboration, bodily learning, self-management and implementation, as well as competence and understanding. The national curriculum in PE does not emphasize given standards of student achievement or students' relative development of sport competence (Utdanningsdirektoratet, 2012, 2015).

While the competency aims of the national curriculum are relatively clear, researchers have argued that students' ability to achieve the purposes of PE may also depend on the quality of students' PE experiences (e.g., Kjønniksen et al., 2009; Säfvenbom et al., 2015). Even though several studies suggest that PE is appreciated by the majority of adolescents in Norway (Säfvenbom et al., 2015; Moen et al., 2018), a representative study by Authors

(2015) shows that as many as 44% of the PE-students disapprove of its current approach or would like the subject to be taught differently (Säfvenbom et al., 2015). This aligns with international research showing that students who do not thrive in PE feel alienated (Carlson, 1995; Spencer-Cavaliere and Rintoul, 2012), experience a lack of choice (Flintoff and Scraton, 2001) and do not experience the subject to be personally meaningful (Carlson, 1995; Spencer-Cavaliere and Rintoul, 2012). Performativity culture and male dominance have been identified as threats to students' ability to thrive in PE (Beltrán-Carrillo et al., 2012; Allender et al., 2006), and students who are not involved in leisure sports have been identified as less likely to experience the subject positively (Erdvik et al., 2019; Prochaska et al., 2003; Kjønnsen et al., 2009; Koka and Hein, 2003; Moen et al., 2018; Säfvenbom et al., 2015; Viira and Koka, 2012). While most would agree that sports are an important part of physical education, (Annerstedt, 2008), Kirk (2010) has argued that PE is informed by the physical culture of sports in ways that have led to the institutionalization and reproduction of a PE practice referred to as “physical education as sport techniques” (41). Researchers have argued that this approach to PE does not promote positive development and learning equally among adolescents, and that the subject should be more sensitive to adolescent diversity (Erdvik et al., in press; Erdvik et al., 2019).

Interest-based PE as a mean to optimize student ↔ PE relations

The idea that optimizing person ↔ context fit enables individuals to become more active producers of positive development is essential to RDS. Adjusting the PE context via the provision of student choice may optimize the relational fit between students and PE, and several studies have shown that students' opportunity to choose in the context of PE is associated with more positive PE experiences. Mitchell et al. (2015) found that female PE students' ability to choose activities, and thus avoid a sports-centred PE, promoted positive PE experiences and increased their participation in the subject. Increased enjoyment and

engagement in the subject as a result of activity choice has also been identified in the research of Smith et al. (2009), Condon and Collier (2002), and Lagestad (2017), and the belief in this association was also integral to Interest-based PE.

Interest-based PE was a local didactical differentiation programme centred on the students' choice between two interest-based approaches to PE, both of which were framed by and practiced in accordance with the national PE curriculum in Norway (LK-06; Utdanningsdirektoratet, 2012, 2015). Teachers implemented the Interest-based PE programme in an attempt to optimize the relationship between the individual student and PE. They aimed to optimize student ↔ subject relations and thus to promote students' involvement, autonomous motivation, and positive movement experiences in PE (Tangen and Husebye, 2018), supporting positive development and learning among more students. Processes of optimization were believed to occur as students were allowed to choose between two different interest-based approaches. Learning objectives, as stated in the curriculum, remained unchanged and only the approach to these learning objectives differed in the two approaches to PE: Where SA offered students traditional sporting activities and ballgames, EA offered less sports-centred and more alternative and playful activities in PE. (For further details please see; Authors [in press] and Authors [2018]).

Method

Sampling procedures

Interest-based PE was implemented in four lower and four upper secondary schools in eastern Norway. Participants in our qualitative study were final year students (ages 17 and 18) at a school randomly drawn from the four upper secondary schools. The students had been involved in Interest-based PE for one-and-a-half years. With an additional 11 years of experience with "traditional PE" (i.e. PE before the introduction of Interest-based PE), students were assumed to be familiar with, and able to reflect upon, their experiences with

both traditional and Interest-based PE. A total of 83 students were informed about the purpose of our study at an oral information meeting where they were also provided with written information letters. At the meeting, students were invited to volunteer for one-on-one interviews by adding their names to a list, which would assist subsequent quota sampling (Robinson, 2014). 9 students from SA (3 boys and 6 girls) and 11 students from EA (0 boys and 11 girls) signed up for interviews at this meeting. Based on the knowledge that boys and girls experience PE somewhat differently (Cairney et al., 2012; Säfvenbom et al., 2015), the representation of both genders from each PE approach was considered important. As no boys from EA had volunteered for interviews, a second announcement was organized by the teachers in class, increasing the total number of volunteers to 8 boys and 8 girls from SA, and 2 boys and 15 girls from EA. The final sample of 16 students was randomly drawn from these four pools of participants, and thus included participants of both genders from both EA and SA. More specifically, this study was based on interviews with 2 boys and 6 girls from EA, and 4 boys and 4 girls from SA.

Interview procedure

All interviews were conducted by the first author. The interviews took place in a suitable room at the school during school hours, and lasted between 67 and 112 minutes with the majority of interviews lasting 85 minutes or more. The semi-structured interview guide, which had been tested in two pilot interviews prior to this study, referred to three main topics that were guided by major questions as well as possible follow-up questions about: (a) PE in general, (b) Interest-based PE, and (c), the purpose of PE.

Thematic analysis

The six phases of thematic analysis proposed by Braun and Clarke (2006) were used to conduct an inductive interpretive thematic analysis. Tape-recorded interviews were transcribed verbatim by the first author, and re-read (Phase 1) before initial line-by-line

coding procedures (Phase 2). The qualitative data analysis software NVivo was used to systemize the research material and to support the coding process. The inductive coding process was characterized by the authors' attempt to remain open to the data and not, at this stage, limit coding to preconceived concepts and theory, accompanied by the acknowledgement that "data are not coded in an epistemological vacuum" (Braun and Clarke, 2006: 84). The line-by-line codes were structured into higher order codes, which reflected students' experiences of "change" in PE, as well as their emphasis on the importance of being "good", "skilled", "suited", "positive" or "engaged" in the subject. All codes appeared to be sufficiently elaborated after the interview with the 16th student and the last four of these interviews did not result in additional codes, indicating that the data collection had reached the point of saturation (Phase 3; Fusch and Ness, 2015). The descriptive nature of the codes made the generation and interpretation of themes at this stage difficult; a second level of interpretation was necessary to provide a deeper understanding of students' experiences with Interest-based PE. As such, all interviews were re-read and subject to manual focused coding (Phase 4). The focused codes were then re-studied in relation to initial codes to assure that the essence of the interviews was maintained, and to facilitate the identification of major themes in the data material. During this procedure, students' experiences of Interest-based PE were identified by two subthemes: "it hasn't changed that much" and "you get to be with people at your own level". The content of both subthemes reflected a common, major theme: "the role of sports in PE".

As such, understanding "the role of sports in PE" appeared essential for achieving a deeper understanding of students' experiences with Interest-based PE (Phase 5). After the completion of the analyses, this inductively derived theme was substantiated by student quotes that formed the basis for the formal write-up of research findings, which were then presented and discussed from a RDS perspective (Phase 6).

Trustworthiness

The Interest-based PE programme is based on a group of educators' experiences from their own teaching. It was developed in a county of Norway as a local didactic programme by ordinary PE-teachers in collaboration with PE-teacher education lecturers from a local university college. The programme represents one of many local, experience-based, didactic PE-actions performed every year in many schools nationwide and worldwide. What these didactic programmes often have in common is a desire among staff to improve the PE-subject, to reach specific groups of students or to make PE a better place for all. Because these programmes are developed by PE-teachers in the context of their everyday lives, they have high ecological validity (Bronfenbrenner, 1979; Schmuckler, 2001).

The authors of this paper were introduced to the "Interest-based PE"-programme just before it was implemented in fall 2014, and did not influence content or implementation. The interviews for this study were performed when students had participated in "Interest-based PE" for 18 months. During interviews and analysis, we made efforts to self-disclose potential preconceptions, and looked for disconfirming evidence when working with the data material in particular (Brantlinger et al., 2005). Being part of a research group also allowed for the discussion of analysis and interpretations with research group members and co-authors in a way that strengthened the trustworthiness of the study. In addition to discussions within the research group, findings in this paper have been discussed in other settings pertaining to PE teachers and colleagues working within PE teacher education in Norway (see Brantlinger et al., 2005). To get into the contextual and relational depth of how students experienced Interest-based PE, the 16 informants were all recruited from the same school. Interviews with students from more than one school could possibly have contributed to more diversity in student responses and more nuanced findings, yet it could also have harmed the contextual understanding, and thus the validity of the study.

Ethics

The study was approved by the Norwegian Centre for Research Data. The school principal allowed the research, and the purpose of the study was explained to the students and their teachers at the information meeting. Both students and teachers were informed that participation was voluntary. This information was repeated to each student before the individual interviews. All participants provided informed consent prior to their participation, and they were informed that they could withdraw from the study at any time without providing a reason. Pseudonyms were used for anonymity.

Findings

As mentioned in the method section, we identified that “the role of sports in PE” was a major theme in both EA and SA-students’ experiences of traditional PE, as well as Interest-based PE. Our analysis revealed two subthemes expressed by the students as “it hasn’t changed that much” and “you get to be with people at your own level”.

“It hasn’t changed that much”: Relational change in light of students’ histories with PE

Both Interest-based PE approaches were intended to create change in the student ↔ subject relationship. Yet, many students did not feel that there was any change. While Heidi, in the SA class, “assumed” there had been a change “because the people who are there [in SA] all like PE”, Hannah, who also had chosen the sports approach, claimed that, even though she was separated from some of her former PE-classmates – the subject had “not changed that much.” Robert who had switched between SA and EA also reported that at least SA was no different from traditional PE. This was confirmed by Christine who also switched from SA to EA and claimed that SA allowed students to play sports according to a familiar and traditional PE-logic and practice:

[In SA] they have regular football, they have regular volleyball, but we [in EA] maybe have some other things too. For example, if we have volleyball we throw

in an extra ball. While [in SA] they just have the one and maybe are supposed to focus a bit more on techniques, standing right, and very much on the rules (...)

It's almost like traditional PE then. (Christine, EA, tried SA for 6 weeks in her 1st year).

However, Christine, also felt that any change in EA was not persuasive and after all quite temporary:

I thought it was very fun in the beginning [when introduced to EA], but I don't think that the teachers have that much of a plan anymore (...) I chose EA because it was supposed to be fun, not normal sports and stuff. [But] we very often just get a choice between playing volleyball and playing football (...) our [EA] has kind of tapered off (...) it feels like it's the same again. (Christine, EA)

According to Christine, EA teachers resumed traditional PE teaching methods during the programme, which could explain why several other EA-students struggled to identify the real change in PE: "I can't really remember what was the big difference" (Susan, EA). "It's really the same" (Mats, EA). "I would say it's quite similar, actually. Nothing has changed much" (Eve, EA). All in all, there is much to suggest that the students experienced their former PE education to be very centred around traditional sports, and that the logic of traditional sports continued to govern the relationship between the students and the PE subject even in Interest-based PE. Because the focus on traditional sports in SA resembled "traditional" PE, and because the nature of EA gradually changed from being "something new" to the "traditional" sports logic of PE, students in both groups did not consider Interest-based PE to be a true change in the PE subject. This means that the change from "traditional" to "interest-based" PE was insufficient to change the student ↔ PE relationship, as adaptive student ↔ PE relationships still required the students to accept a logic of sports in PE. According to the students, Interest-based PE did not include a reflective emphasis on current curricular

objectives in PE, meaning that the traditional discourses, as rules of regulations, governing PE were never challenged, and that changes in the PE context did not alter students' already established relationships with PE. Consequently, students felt that their choice between EA and SA served only to separate the "good students" who performed well in traditional PE from those who did not.

"You get to be with people on your own level": Two approaches to learning or two levels of sport competence?

Many of the informants experienced EA and SA as two levels of a sportified PE, rather than two different activity approaches to PE.

Those sports people are there [in SA], and those who are very eager and like to do sports and stuff, the ones who have always really liked PE, (...) they are in SA.

And those who kind of really haven't been so good, they try their best [in EA].

(Alice, EA)

According to the students, Interest-based PE split them into two groups; those who were eager and good at sports became SA students, while those who were not so good at sports became EA students. Thus, according to the students, Interest-based PE did not actually offer two different approaches to PE, but only divided sports-based PE into two levels of ability. Alice (EA) explained that "It's good because you get to be with people on your own level, instead of being with the ones who are super good." Alice's reference to different "levels" among the students seems to be a description of their relative athletic ability, unrelated to the competence aims in the PE-curriculum. As such, "super good" PE students refers to the students who are skilled at sports and now participate in SA, suggesting that students consider their ability in PE to be based on their sport competency. The idea of EA and SA as two levels of a sportified PE was articulated by both EA- and SA-students. However, somewhat surprisingly, students in both approaches largely perceive this as a positive development in the PE subject.

You don't have those differences between "oh, you're good, I want you on my team", and the ones who are really bad at it [where it's like], "No, I don't want you." I think we're all more at the same level now. That's what's so nice about EA, that there's no difference between the good and the less good, because everyone is good no matter what. But it wasn't like that before. (Theresa, EA)

While students in EA felt that their new classmates were more respectful towards them because they were all at the same level of sports-competence, SA-students enjoyed their new PE group, as they now were able to play sports alongside other students who were enthusiastic about PE (that is, sports in PE).

In my previous PE-class [before Interest-based PE], my classmates were not really athletic, they were more like really good at school rather than sports. (...) It was more just playing around kind of, those PE classes. (...) But there's kind of more competition and more speed in PE now then there was back then. (Christopher, SA)

The students' enthusiasm regarding the increase in shared interests and abilities within their groups does indicate a relational change. However, SA-students' references to "enthusiasm" in PE were essentially about enthusiasm for playing various sports, which they themselves enjoyed. Their enthusiasm was noticeably related to students' physical ability and sports skills and not to learning or being good at school. The fact that SA-students perceived their classmates in SA to be more "enthusiastic" and "skilled" at various sports meant that PE no longer had to be just "playing around". "The students in SA take it [PE] a bit more seriously. (...) those who actually are interested in learning techniques and real sports" (Hannah, SA). Like Christopher and Hannah, the students perceived SA to be more "serious" about skill acquisition than traditional PE had been, and they appreciated this shift in focus.

Now I feel that we learn for real (...) how to play football. Rather than playing football just to play football (...) It's a bit more intense now than before. And now I have slightly more focus on pushing myself. (Julie, SA)

Students' prior experience of "playing football just to play football", combined with their new sensation of "learning for real", suggest that students' own understanding of the purposes of PE do not correspond with those of the national PE curriculum. An implicit understanding that PE is intended to develop students' sports skills was identifiable to varying degrees in all student interviews, and it became clear that students made no real distinction between the domain of sports and the domain of PE. Rather, our analysis suggests that the students perceived EA and SA as a division between two ability levels of the same type of PE.

I think it's very nice [to choose] because it affects your PE. (...) You can choose something that suits you better. (...) So, I think those who chose SA... it's very nice for them too because they can finally have a PE class where they work with students who are on their level. (Theresa, EA)

Theresa illustrates how some students held ideas that they may not have been suited for participation in sports activities, and thus unsuited for SA. This lack of relational fit largely seemed to rely on students' evaluations of their individual sport skills. Eve (EA), who had a hip injury and was advised by her doctor not to run during PE, shared the idea that some may not be suited to participate in SA: "I feel that [SA] has a more like... demanding PE, or sort of... more things that I couldn't have been part of. And then it was kind of just natural for me [to choose EA]".

There is much to suggest that students' understanding of the role of sports in PE, as well as their own perceived athletic competence and ability guide their choice of PE approach. EA-students believe that their sports-eager peers benefit from their absence, and that the SA-students enjoy not having to show consideration for their fellow students who

show less eagerness, are less skilled at sports, and who now participate in EA. This idea was confirmed by the SA-students who enjoyed their new, “serious”, and “intense” PE, which allowed them to learn sports in a serious way together with other students who, like them, were eager and genuinely interested in learning to play sports in PE. Because neither the Interest-based PE classes nor the teachers who taught them succeeded in challenging the students’ ideas of “PE-as-sports” and the students’ ideas of EA and SA as two different levels of the same old PE, the idea of PE-as-sports seemed to remain unquestioned. In other words, the same dynamic that governed the relationship between students and traditional PE survived the transition to Interest-based PE essentially unchanged. There is much to suggest that the dominant conception of PE-as-sports reduced Interest-based PE to no more than a pure differentiation programme based on students’ sporting skills and achievement potential in organized sports activities.

Discussion

Interest-based PE was developed and implemented by PE teachers who experienced that students who were eager about sports and those who were not did not benefit equally from the subject, and represented an attempt to optimize student ↔ PE relationships. Yet, this study shows that the students essentially experienced “Interest-based PE” as “two-level PE”, making it clear that the students’ chose EA or SA based on their perceived ability to achieve high standards of sports competence and physical performance. Our identification of sports achievement as the prevailing benchmark for student capability in Interest-based PE indicates that it did not succeed in optimizing student ↔ PE relations among all students.

Our study shows that the exchange between the PE subject and the students was – and continued to be – governed by a sports discourse, and as such, that this discourse determined the different students’ relationships with the subject. The students’ description of SA as a “professionalized” form of traditional PE also suggests that students – with over 11 years of

experience with traditional PE – have strong associations with PE as a subject dominated by sports. The students' lived experience of the subject seems aligned with Kirk's portrayal of "the idea of PE as sport techniques" (Kirk, 2010: 1). However, the Norwegian curriculum is clear in that improvement of physical performance and sports skills are not purposes of the PE subject (Utdanningsdirektoratet, 2012, 2015). Yet, like several other studies in PE (e.g. Moen et al., 2018; Smith and Parr, 2007), our study indicates that not only the students but also the teachers seem to neglect the official goals of this subject, and that teachers do not relate to them as rules of regulation. It seems rather clear from our analyses that the sports discourse – rather than the learning objectives in the subject curriculum – governed the student ↔ subject relationship also in Interest-based PE. The vital discrepancy between the written and taught curriculum was not targeted during the local didactic programme. It is also reason to believe that the students' histories with "PE-as-sports" may have made them more accepting of what they experienced as a two-level PE, yet that this also rendered them unable to draw potential benefits from the Interest-based PE programme. What the students describe as benefits of Interest-based PE can at best be understood as a relief from some of the negative symptoms inherent to the sports discourse in PE. It appears that some of these symptoms were alleviated as Interest-based PE spared the students from having to deal with the diversity in sports competence present in their traditional PE classes. Yet, what occurred during the implementation of Interest-based PE was essentially a separation between those students who felt confident and those who lacked confidence when participating in sports. Therefore, in its ultimate effect, this didactical differentiation programme may not only have made students' sports competencies even more explicit in the context of PE, but it may also have contributed to student segregation on the grounds of student confidence, competence, and ability in sports. Therefore, it may very well be that this programme – which was intended to level the learning field for diverse students in PE – may unfortunately have had quite the opposite effect,

preserving the sports discourse in PE and increasing the acceptance of this discourse among the students as well as their teachers.

The reproduction of “physical education as sports techniques” (Kirk, 2010: 10) and related discourses in the context of PE is considered a major challenge to student learning in PE (Wilkinson et al., 2013; Redelius et al., 2009), and has led researchers to describe PE as “backward-looking” (Stolz, 2014: 27), built on archaic notions of sport and pedagogy which have proven resistant to reform (Stolz, 2014). Siedentop, O’Sullivan and Tannehill (1994, in Kirk, 2010: 27) have explained the subject’s resistance to reform on the grounds of PE’s marginalized position and deep institutionalization in schools. Research on PE-teacher-education has also shown that PE teachers play an important role in the reproduction of traditional approaches to PE, such as “PE-as-sport-techniques.” For example, Mordal-Moen and Green (2014) have found that prospective PE teachers’ beliefs and practices may be difficult to change through PE teacher-education, and thus, that PE teachers are likely to reproduce the PE they were presented with during their early socialization into the PE subject, as students themselves. As such, the PE teachers who taught EA and SA may have found it hard to challenge dominant ideas inherent in the sports discourse because this, on some level, would have required them to confront their most basic conception of what PE is and should be. In line with the study by Mordal-Moen and Green (2014), it may be reasonable to believe that teachers heavily rooted in a sports discourse may find it easier to develop SA, which was centred on traditional sports, as opposed to EA, which had to be established on didactical approaches relatively distinct from classical learning practices in PE, such as the “Demonstration-Explanation-Practice” method (Tinning, 2010: 43). This may also explain why EA – which initially was experienced as different and new – gradually returned to a more “traditional” form of PE. The retrogression of EA suggests that teachers, at some point during the programme, returned to the idea of PE-as-sports, and as such, that Interest-based PE was

never able to fully change the dynamic of PE class. As a whole, these findings suggest that the sports discourse is still an embodied and highly “sedimented practice” (Kirk, 2010: 50) in PE that many teachers and students may have found monolithic and unchangeable, despite the introduction of new activity approaches in PE.

Although this differentiation programme was developed as a means of drawing PE away from a sports-based discourse, the analysis presented in this study indicates that the teachers may have been unaware of the breadth and depth of the underlying discourse, and therefore, that this discourse was “neither shaken nor stirred” (Mordal-Moen and Green, 2014: 430) by the programme content. On the contrary, its continued dominance challenged the relational fit between diverse students and learning objectives in PE and acted as a barrier to the promotion of adaptive developmental regulations and thus, positive movement experiences and equal education in PE. That said, it should be noted that a prior study on Interest-based PE (Erdvik et al., in press) found that EA was the preferred approach to PE among the majority of girls and students who were not active in sports. According to their findings, girls were 3.9 times more likely to choose EA compared to boys, while students not active in sports were 4.4 times more likely to participate in EA compared to their sports-active peers (Erdvik et al., in press). The qualitative analysis presented in the present study provides a more nuanced understanding of these findings. Given students’ experience that EA (at least in the beginning) was less like traditional PE than SA, and that EA was the preferred option among girls and non-sports active students (Erdvik et al., in press), this suggests that student groups who typically report less positive PE-experiences would like the subject to be taught differently (Säfvenbom et al., 2015). Yet, despite their choice, there is much to suggest that students’ and teachers’ histories with “PE-as-sports” meant that Interest-based PE was always understood from the perspective of sports and therefore, that the “new” approach to teaching EA was not long lived. Because EA was not explicitly provided as curriculum driven, and

because it did not target students' and teachers' reflexivity, the sports discourse continued to dominate PE, counteracting the relational fit between diverse students and PE, and most possibly preventing this programme from contributing to a levelled educational field.

Concluding comments

Despite good intentions to optimize the student ↔ PE relationship by offering two different PE approaches, students' perceptions of a two-level PE show that Interest-based PE did not succeed in levelling the learning field for the students. The programme seems to have manifested as a classic systematic differentiation programme, based on established premises taken for granted and not questioned. This leads to an uncomfortable, but inevitable question: Is the implementation of Interest-based PE, and other likeminded programmes designed to level the learning field in PE, based on a primary misconception? While Interest-based PE was established to level the educational field, findings indicate that it served to make the sports discourse even more explicit by (a) splitting the students who were competent at sports from those who were not, (b) neglecting to address the possibility that the sports discourse would continue to govern the student ↔ subject relationship also in the new groups, and (c) neglecting the need to emphasize that learning objectives in the Norwegian PE curriculum do not include or concern students' sports achievements.

Based on prior research and the analysis presented in this study, there is reason to believe that the consequences of a dominant sports discourse triggered the need for a systematic differentiation programme, yet that this discourse also prevented any real change in the relational fit between students and the PE subject. Likewise, there is reason to believe that also other didactic differentiation programmes have been implemented for similar reasons, such as gender-based PE (e.g., Klomsten, 2013), which is intended to level the learning field among boys and girls. We believe that in all these programmes, teachers attempt to solve challenges caused by the sports discourse by engaging in systematic or

individual differentiation. Yet, there is reason to believe that these differentiation practices would be unnecessary if only the formally stated learning objectives in the national PE curriculum were sufficiently emphasized from the earliest stages of students' PE careers.

This study has shown that offering different approaches to PE activity in itself is not sufficient to optimize students' relations with PE, and suggests that a perspective on students' understanding and learning more in accordance with the PE curriculum might better achieve equal opportunities for learning among all students. Efforts to promote adaptive developmental regulations and equal education in PE will most probably continue to fail if the sports discourse remains the dominant regulation of PE. This has important implications for future intervention and action research in the context of PE.

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Appendices

Appendix I

Quantitative papers

Application to the Norwegian Centre for Research Data

Approval by the Norwegian Centre for Research Data

Information letter to students in upper secondary school

Information letter to students in lower secondary school and declaration of consent

REPAC Questionnaire (excerpt, time 1)



MELDESKJEMA

Meldeskjema (versjon 1.4) for forsknings- og studentprosjekt som medfører meldeplikt eller konsesjonsplikt (jf. personopplysningsloven og helseregisterloven med forskrifter).

1. Prosjekttittel		
Tittel	The RElevance of Physical Activity Contexts in the every-day life of adolescents (REPAC)	
2. Behandlingsansvarlig institusjon		
Institusjon	Norges idrettshøgskole	Velg den institusjonen du er tilknyttet. Alle nivå må oppgis. Ved studentprosjekt er det studentens tilknytning som er avgjørende. Dersom institusjonen ikke finnes på listen, vennligst ta kontakt med personvernombudet.
Avdeling/Fakultet	Seksjon for kroppsøving og pedagogikk	
Institutt		
3. Daglig ansvarlig (forsker, veileder, stipendiat)		
Fornavn	Reidar	Før opp navnet på den som har det daglige ansvaret for prosjektet. Veileder er vanligvis daglig ansvarlig ved studentprosjekt.
Etternavn	Säfvenbom	
Akademisk grad	Doktorgrad	Veileder og student må være tilknyttet samme institusjon. Dersom studenten har ekstern veileder, kan biveileder eller fagansvarlig ved studiestedet stå som daglig ansvarlig. Arbeidssted må være tilknyttet behandlingsansvarlig institusjon, f.eks. underavdeling, institutt etc.
Stilling	Førsteamanuensis	
Arbeidssted	Norges idrettshøgskole	
Adresse (arb.sted)	Postboks 4014, Ullevål stadion	NB! Det er viktig at du oppgir en e-postadresse som brukes aktivt. Vennligst gi oss beskjed dersom den endres.
Postnr/sted (arb.sted)	0806 Oslo	
Telefon/mobil (arb.sted)	23262425 /	
E-post	reidar.sefvenbom@nih.no	
4. Student (master, bachelor)		
Studentprosjekt	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
5. Formålet med prosjektet		
Formål	Studien skal føre til kunnskap om ungdommers utvikling gjennom ungdomstiden (ungdomsskole og videregående skole) og hvordan kroppsøvingfaget, organisert idrett og selvorganisert fysisk aktivitet påvirker denne utviklingen.	Redegjør kort for prosjektets formål, problemstilling, forskningsspørsmål e.l. Maks 750 tegn.
6. Prosjektomfang		
Velg omfang	<input type="radio"/> Enkel institusjon <input checked="" type="radio"/> Nasjonalt samarbeidsprosjekt <input type="radio"/> Internasjonalt samarbeidsprosjekt	Med samarbeidsprosjekt menes prosjekt som gjennomføres av flere institusjoner samtidig, som har samme formål og hvor personopplysninger utveksles.
Oppgi øvrige institusjoner	Universitetet i Agder Høgskolen i Østfold	
Oppgi hvordan samarbeidet foregår	Studien er forankret ved, og finansiert av Norges Idrettshøgskole. Studien koordineres herfra, men fordi data skal samles inn i Oslo, Agderfylkene og Østfold skal de to samarbeidsinstitusjonene bidra i dette arbeidet. Det skal også gjennomføres en intervensjon i Østfold som ansatte ved HiØ skal gjennomføre. DET er imidlertid Norges idrettshøgskole som står ansvarlig for gjennomføringen og utrapporteringen fra studien	
7. Utvalgsbeskrivelse		
Utvalget	Ca 3400 ungdommer i alderen 13 - 19 år fra Oslo, Aust Agder, Vest Agder og Østfold	Med utvalg menes dem som deltar i undersøkelsen eller dem det innhentes opplysninger om. F.eks. et representativt utvalg av befolkningen, skoleelever med lese- og skrivevansker, pasienter, innsatte.

Rekruttering og trekking	Et representativt klyngeutvalg (skoler / skoleklasser) stratifisert etter sentralitet og sosioøkonomiske forhold i de enkelte fylkene	Beskriv hvordan utvalget trekkes eller rekrutteres og oppgi hvem som foretar den. Et utvalg kan trekkes fra registre som f.eks. Folkeregisteret, SSB-registre, pasientregistre, eller det kan rekrutteres gjennom f.eks. en bedrift, skole, idrettsmiljø, eget nettverk.
Førstegangskontakt	Medlemmer av prosjektgruppa oppretter kontakt med den enkelte skole. Det utnevnes en kontaktperson ved den enkelte skole som skal bistå med praktiske forhold rundt datainnsamlingen. Informasjonsskriv og samtykkeerklæring sendes til foresatte med elever under 15 år. Førstegangskontakt med respondentene opprettes på dagen for datainnsamling og det vil være en representant for prosjektgruppa som informerer elevene om studien	Beskriv hvordan førstegangskontakten opprettes og oppgi hvem som foretar den. Les mer om dette på våre temasider.
Alder på utvalget	<input checked="" type="checkbox"/> Barn (0-15 år) <input checked="" type="checkbox"/> Ungdom (16-17 år) <input checked="" type="checkbox"/> Voksne (over 18 år)	
Antall personer som inngår i utvalget	Ca 34000	
Inkluderes det myndige personer med redusert eller manglende samtykkekompetanse?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Begrunn hvorfor det er nødvendig å inkludere myndige personer med redusert eller manglende samtykkekompetanse.
Hvis ja, begrunn		Les mer om Pasienter, brukere og personer med redusert eller manglende samtykkekompetanse
8. Metode for innsamling av personopplysninger		
Kryss av for hvilke datainnsamlingsmetoder og datakilder som vil benyttes	<input checked="" type="checkbox"/> Spørreskjema <input type="checkbox"/> Personlig intervju <input type="checkbox"/> Gruppeintervju <input type="checkbox"/> Observasjon <input type="checkbox"/> Psykologiske/pedagogiske tester <input type="checkbox"/> Medisinske undersøkelser/tester <input type="checkbox"/> Journaldata <input type="checkbox"/> Registerdata <input type="checkbox"/> Annen innsamlingsmetode	Personopplysninger kan innhentes direkte fra den registrerte f.eks. gjennom spørreskjema, intervju, tester, og/eller ulike journaler (f.eks. elevmapper, NAV, PPT, sykehus) og/eller registre (f.eks. Statistisk sentralbyrå, sentrale helseregistre).
Annen innsamlingsmetode, oppgi hvilken		
Kommentar	Det vil bli spurt om tilatelse fra elevene om å hente inn data om skolekarakterer fra den enkelte skole	
9. Datamaterialets innhold		
Redegjør for hvilke opplysninger som samles inn	Stort sett standardiserte instrumenter som måler personlig vekst og utvikling samt erfaringer med kroppssøving, organisert idrett og selvorganisert fysisk aktivitet	Spørreskjema, intervju-/temaguide, observasjonsbeskrivelse m.m. sendes inn sammen med meldeskjemaet. NB! Vedleggene lastes opp til sist i meldeskjema, se punkt 16 Vedlegg.
Samles det inn direkte personidentifiserende opplysninger?	Ja <input checked="" type="radio"/> Nei <input type="radio"/>	Dersom det krysses av for ja her, se nærmere under punkt 11 Informasjonssikkerhet.
Hvis ja, hvilke?	<input checked="" type="checkbox"/> 11-sifret fødselsnummer <input checked="" type="checkbox"/> Navn, fødselsdato, adresse, e-postadresse og/eller telefonnummer	Les mer om hva personopplysninger er NB! Selv om opplysningene er anonymiserte i oppgave/rapport, må det krysses av dersom direkte og/eller indirekte personidentifiserende opplysninger innhentes/registreres i forbindelse med prosjektet.
Spesifiser hvilke	Det opprettes et personregister basert på navn og skole fra første datainnsamling. Ved siste datainnsamling i 2016 vil respondentene bli spurt om å oppgi 11-sifret fødselsnummer for eventuell oppfølging seinere i livet.	
Samles det inn indirekte personidentifiserende opplysninger?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	En person vil være indirekte identifiserbar dersom det er mulig å identifisere vedkommende gjennom

Hvis ja, hvilke?		bakgrunnsopplysninger som for eksempel bostedskommune eller arbeidsplass/skole kombinert med opplysninger som alder, kjønn, yrke, diagnose, etc.
Samles det inn sensitive personopplysninger?	Ja ● Nei ○	
Hvis ja, hvilke?	<input checked="" type="checkbox"/> Rasemessig eller etnisk bakgrunn, eller politisk, filosofisk eller religiøs oppfatning <input type="checkbox"/> At en person har vært mistenkt, siktet, tiltalt eller dømt for en straffbar handling <input type="checkbox"/> Helseforhold <input type="checkbox"/> Seksuelle forhold <input type="checkbox"/> Medlemskap i fagforeninger	
Samles det inn opplysninger om tredjeperson?	Ja ○ Nei ●	Med opplysninger om tredjeperson menes opplysninger som kan spores tilbake til personer som ikke inngår i utvalget. Eksempler på tredjeperson er kollega, elev, klient, familiemedlem.
Hvis ja, hvem er tredjeperson og hvilke opplysninger registreres?		
Hvordan informeres tredjeperson om behandlingen?	<input type="checkbox"/> Skriftlig <input type="checkbox"/> Muntlig <input type="checkbox"/> Informeres ikke	
Informeres ikke, begrunn		
10. Informasjon og samtykke		
Oppgi hvordan utvalget informeres	<input checked="" type="checkbox"/> Skriftlig <input checked="" type="checkbox"/> Muntlig <input type="checkbox"/> Informeres ikke	Vennligst send inn informasjonsskrivet eller mal for muntlig informasjon sammen med meldeskjema.
Begrunn		NB! Vedlegg lastes opp til sist i meldeskjemaet, se punkt 16 Vedlegg. Dersom utvalget ikke skal informeres om behandlingen av personopplysninger må det begrunnes. Last ned vår veiledende mal til informasjonsskriv
Oppgi hvordan samtykke fra utvalget innhentes	<input checked="" type="checkbox"/> Skriftlig <input type="checkbox"/> Muntlig <input type="checkbox"/> Innhentes ikke	Dersom det innhentes skriftlig samtykke anbefales det at samtykkeerklæringen utformes som en svarslipp eller på eget ark. Dersom det ikke skal innhentes samtykke, må det begrunnes.
Innhentes ikke, begrunn		
11. Informasjonssikkerhet		
Direkte personidentifiserende opplysninger erstattes med et referansenummer som viser til en atskilt navneliste (koblingsnøkkel)	Ja ● Nei ○	Har du krysset av for ja under punkt 9 Datamaterialets innhold må det merkes av for hvordan direkte personidentifiserende opplysninger registreres.
Hvordan oppbevares navnelisten/ koblingsnøkkelen og hvem har tilgang til den?	Koblingsnøkkel oppbevares på separat PC beskyttet med brukernavn og passord	NB! Som hovedregel bør ikke direkte personidentifiserende opplysninger registreres sammen med det øvrige datamaterialet.
Direkte personidentifiserende opplysninger oppbevares sammen med det øvrige materialet	Ja ○ Nei ●	
Hvorfor oppbevares direkte personidentifiserende opplysninger sammen med det øvrige datamaterialet?		
Oppbevares direkte personidentifiserbare opplysninger på andre måter?	Ja ○ Nei ●	
Spesifiser		

Hvordan registreres og oppbevares datamaterialet?	<input checked="" type="checkbox"/> Fysisk isolert datamaskin tilhørende virksomheten <input type="checkbox"/> Datamaskin i nettverkssystem tilhørende virksomheten <input checked="" type="checkbox"/> Datamaskin i nettverkssystem tilknyttet Internett tilhørende virksomheten <input type="checkbox"/> Fysisk isolert privat datamaskin <input type="checkbox"/> Privat datamaskin tilknyttet Internett <input type="checkbox"/> Videoopptak/fotografi <input type="checkbox"/> Lydopptak <input type="checkbox"/> Notater/papir <input type="checkbox"/> Annen registreringsmetode	<p>Merk av for hvilke hjelpemidler som benyttes for registrering og analyse av opplysninger.</p> <p>Sett flere kryss dersom opplysningene registreres på flere måter.</p>
Annen registreringsmetode beskriv		
Behandles lyd-/videoopptak og/eller fotografi ved hjelp av datamaskinbasert utstyr?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	<p>Kryss av for ja dersom opptak eller foto behandles som lyd-/bildefil.</p> <p>Les mer om behandling av lyd og bilde.</p>
Hvordan er datamaterialet beskyttet mot at uvedkommende får innsyn?	Oppbevares på datamaskiner beskyttet med brukernavn og passord	Er f.eks. datamaskintilgangen beskyttet med brukernavn og passord, står datamaskinen i et låsbart rom, og hvordan sikres bærbare enheter, utskrifter og opptak?
Dersom det benyttes mobile lagringsenheter (bærbare datamaskin, minnepenn, minnekort, cd, ekstern harddisk, mobiltelefon), oppgi hvilke	Bærbare datamaskiner beskyttet med brukernavn og passord og mulighet for kryptering	NB! Mobile lagringsenheter bør ha mulighet for kryptering.
Vil medarbeidere ha tilgang til datamaterialet på lik linje med daglig ansvarlig/student?	Ja <input checked="" type="radio"/> Nei <input type="radio"/>	
Hvis ja, hvem?	Per Midthaugen, NIH Tommy Haugen, UiA Steffen Tangen HiØ Birgitte Nordahl Huseby HiØ	
Overføres personopplysninger ved hjelp av e-post/Internett?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	F.eks. ved bruk av elektronisk spørreskjema, overføring av data til samarbeidspartner/databehandler mm.
Hvis ja, hvilke?		
Vil personopplysninger bli utlevert til andre enn prosjektgruppen?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
Hvis ja, til hvem?		
Samles opplysningene inn/behandles av en databehandler?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Dersom det benyttes eksterne til helt eller delvis å behandle personopplysninger, f.eks. Questback, Synovate MMI, Norfakta eller transkriberingsassistent eller tolk, er dette å betrakte som en databehandler. Slike oppdrag må kontraktsreguleres
Hvis ja, hvilken?		Les mer om databehandleravtaler her
12. Vurdering/godkjenning fra andre instanser		
Søkes det om dispensasjon fra taushetsplikten for å få tilgang til data?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	For å få tilgang til taushetsbelagte opplysninger fra f.eks. NAV, PPT, sykehus, må det søkes om dispensasjon fra taushetsplikten. Dispensasjon søkes vanligvis fra aktuelt departement. Dispensasjon fra taushetsplikten for helseopplysninger skal for alle typer forskning søkes
Kommentar		Regional komité for medisinsk og helsefaglig forskningsetikk
Søkes det godkjenning fra andre instanser?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	F.eks. søke registreier om tilgang til data, en ledelse om tilgang til forskning i virksomhet, skole, etc.
Hvis ja, hvilke?		

13. Prosjektperiode		
Prosjektperiode	Prosjektstart:01.01.2014 Prosjektstutt:31.12.2022	Prosjektstart Vennligst oppgi tidspunktet for når førstegangskontakten med utvalget opprettes og/eller datainnsamlingen starter. Prosjektstutt Vennligst oppgi tidspunktet for når datamaterialet enten skal anonymiseres/slettes, eller arkiveres i påvente av oppfølgingsstudier eller annet. Prosjektet anses vanligvis som avsluttet når de oppgitte analyser er ferdigstilt og resultatene publisert, eller oppgave/avhandling er innlevert og sensurert.
Hva skal skje med datamaterialet ved prosjektstutt?	<input type="checkbox"/> Datamaterialet anonymiseres <input checked="" type="checkbox"/> Datamaterialet oppbevares med personidentifikasjon	Med anonymisering menes at datamaterialet bearbejdes slik at det ikke lenger er mulig å føre opplysningene tilbake til enkeltpersoner.NB! Merk at dette omfatter både oppgave/publikasjon og rådata. Les mer om anonymisering
Hvordan skal datamaterialet anonymiseres?		Hovedregelen for videre oppbevaring av data med personidentifikasjon er samtykke fra den registrerte.
Hvorfor skal datamaterialet oppbevares med personidentifikasjon?	Dette er en longitudinell studie og det er ønskelig å opprettholde muligheten for å kontakte informantene i voksen alder	Arsaker til oppbevaring kan være planlagte oppfølgingsstudier, undervisningsformål eller annet.
Hvor skal datamaterialet oppbevares, og hvor lenge?	Prosjektleders PC i første omgang til 2030	Datamaterialet kan oppbevares ved egen institusjon, offentlig arkiv eller annet. Les om arkivering hos NSD
14. Finansiering		
Hvordan finansieres prosjektet?	Gjennom strategiske forskningsmidler bevilget fra Norges idrettshøgskole	
15. Tilleggsopplysninger		
Tilleggsopplysninger		
16. Vedlegg		
Antall vedlegg	4	



Reidar Säfvenbom
Seksjon for kroppøving og pedagogikk Norges idrettshøgskole
Postboks 4042, Ullevål stadion
0806 OSLO

Vår dato: 11.03.2014

Vår ref: 37624 / 3 / LT

Deres dato:

Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 12.02.2014. Meldingen gjelder prosjektet:

37624 *The RElevance of Physical Activity Contexts in the every-day life of adolescents (REPAC)*
Behandlingsansvarlig *Norges idrettshøgskole, ved institusjonens øverste leder*
Daglig ansvarlig *Reidar Säfvenbom*

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 31.12.2020, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Lis Tenold

Kontaktperson: Lis Tenold tlf: 55 58 33 77

Vedlegg: Prosjektvurdering

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Avdelingskontorer / District Offices

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no

TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrre.svarva@svt.ntnu.no

TROMSØ: NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmaa@svt.uit.no

Personvernombudet for forskning



Prosjektvurdering - Kommentar

Prosjektnr: 37624

Formålet er med prosjektet er å samle kunnskap om ungdommers utvikling gjennom ungdomstiden (ungdomsskole og videregående skole) og hvordan kroppsøvningsfaget, organisert idrett og selvorganisert fysisk aktivitet påvirker denne utviklingen.

Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Informasjonsskrivene mottatt 06.03.2014 finner personvernombudet tilfredsstillende. For ungdomsskoleelevene innhentes det skriftlig samtykke fra foresatte, videregående elever samtykker til egen deltakelse.

Det behandles sensitive personopplysninger om etnisk bakgrunn eller politisk/filosofisk/religiøs oppfatning, .

Personvernombudet legger til grunn at forsker etterfølger Norges idrettshøgskole sine interne rutiner for datasikkerhet. Dersom personopplysninger skal lagres på mobile enheter, bør opplysningene krypteres tilstrekkelig.

Forventet prosjektslutt er 31.12.2020. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Med anonymisering innebærer at navnelister slettes/makuleres, og ev. kategorisere eller slette indirekte personidentifiserbare opplysninger. Ved publisering vil ingen enkeltpersoner kunne gjenkjennes.

Prosjektet gjennomføres i samarbeid med Universitetet i Agder og Høgskolen i Østfold. Norges idrettshøgskole er behandlingsansvarlig institusjon. Personvernombudet forutsetter at ansvaret for behandlingen av personopplysninger er avklart mellom institusjonene. Vi anbefaler at det inngås en avtale som omfatter ansvarsfordeling, ansvarsstruktur, hvem som initierer prosjektet, bruk av data og eventuelt eierskap.

Det er mulig dersom det blir gitt finansiering at ungdomsskoleelevene kontaktes for oppfølgingsundersøkelse inn i videregående. Dersom slikt blir aktuelt må det sendes inn endringskjema i god tid før kontakt med elevene og datainnsamlingen tar til.

Til elever i 1. klasse på videregående skole

Orientering om, og invitasjon til å delta i forskningsprosjekt.
The RElevance of Physical Activity Contexts in the every-day life of adolescents” (REPAC)

Bakgrunn og formål med prosjektet

Nyere studier fra Norge viser at vi vet for lite om hvordan kroppsøving, organisert idrett og selvorganiserte aktivitetsformer påvirker ungdommer over tid. Det som imidlertid finnes av norske studier indikerer at mange tiltak som rettes mot barn og unge ikke virker slik som vi tror eller ønsker.

Norges idrettshøgskole (NIH) har bevilget tre millioner kroner til et forskningsprosjekt som skal studere hvordan kroppsøving, den lokale idretten og selvorganiserte aktivitetsformer påvirker ungdomstiden i både positiv og negativ retning. Studien skal følge to kull ungdommer gjennom henholdsvis ungdomsskole og videregående skole. Ungdommene skal rapportere sine tanker, opplevelser og erfaringer gjennom et standardisert spørreskjema hver vår, så lenge de er elever på skolen de nå går på. Målet med prosjektet er å komme fram til kunnskap som kan bidra til å optimalisere muligheten for involvering og utvikling blant alle unge.

Hva innebærer deltakelse i studien

Ungdom fra videregående skole som er plukket ut til å delta i studien skal besvare et nettverksbasert spørreskjema på VG1, VG2 og VG3 (hvis aktuelt). Deltakerne vil bli bedt om å rapportere på standardiserte utsagn som skal måle personlig vekst, selvpoppfattelse/selvaktelse, livskvalitet, selvregulering, iver etter å være i aktivitet og robusthet. I tillegg skal det samles inn data om involvering i, og erfaringer med kroppsøving, den organiserte idrettslagsaktiviteten og selvorganiserte aktivitetsformer.

Du er elev på en skole som er plukket ut til å delta i studien. Utfyllingen av skjemaet skal forgå i samlet klasse under ledelse av en representant fra forskningsprosjektet. Det er frivillig å delta i studien. Du har anledning til å unnlate å svare på enkeltspørsmål og har full rett til å trekke deg fra undersøkelsen på hvilket som helst tidspunkt, uten å måtte oppgi noen spesiell grunn. Forskerne i prosjektet er underlagt taushetsplikt, og besvarelsene vil bli behandlet og oppbevart konfidensielt ved Norges idrettshøgskole. Publisering av opplysninger fra prosjektet vil bli rapportert på en slik måte at ingen enkeltpersoner kan gjenkjennes.

Det er tilsammen ca. 130 skoleklasser (3400 ungdommer) som skal delta i studien og det er viktig for prosjektet at vi får med så mange som mulig fra klassen. Hver klasse får tre universalgavekort á kr. 250 (totalt kr. 750,-) for hver datainnsamling dere deltar på. Disse gavekortene kan dere disponere som dere selv vil.

Selve datainnsamlingen skal foregå i samlet klasse.. Dere vil få beskjed om hvor og når datainnsamlingen skal foregå. **Dere behøver kun å ta med dere en bærbar PC eller et lesebrett med tilstrekkelig batterikapasitet for ca. 45 minutters bruk.**

Samarbeid og godkjenninger

Prosjektet er utviklet i samarbeid med «Institute for Applied Research in Youth Development» (Tufts University, USA) og NIH gjennomfører studien i samarbeid med Universitetet i Agder og Høgskolen i Østfold. Studien er forelagt Utdanningsdirektoratet, utdanningsetaten i de aktuelle fylkene og den er innmeldt til Personvernombudet for forskning, Norsk Samfunnsvitenskapelig Datatjeneste.

Med vennlig hilsen

Reidar Säfvenbom
l.amanuensis
Norges idrettshøgskole

Til elever i 8. klasse og deres foresatte

Samtykke
- til deltakelse i forskningsprosjektet
«The RElevance of Physical Activity Contexts in the every-day life of adolescents»
(REPAC)

Bakgrunn og formål med prosjektet

Nyere studier fra Norge viser at vi vet for lite om hvordan kroppøving, organisert idrett og selvorganiserte aktivitetsformer påvirker ungdommer over tid. Det som imidlertid finnes av norske studier indikerer at mange tiltak som rettes mot barn og unge ikke virker slik som vi tror eller ønsker.

Norges idrettshøgskole (NIH) har bevilget tre millioner kroner til et forskningsprosjekt som skal studere hvordan kroppøvfingsfaget, den lokale idretten og selvorganiserte aktivitetsformer påvirker ungdomstiden i både positiv og negativ retning. Studien skal følge to kull ungdommer gjennom henholdsvis ungdomsskole og videregående skole. Ungdommene skal rapportere sine tanker, opplevelser og erfaringer gjennom et standardisert spørreskjema hver vår, så lenge de er elever på skolen de nå går på.

Målet med prosjektet er å komme fram til kunnskap som kan bidra til å optimalisere muligheten for involvering og utvikling blant alle unge.

Hva innebærer deltakelse i studien

Deltakelse i studien innebærer at ungdommen besvarer et nettverksbasert spørreskjema nå i 8. klasse, i 9. klasse og i 10. klasse. De unge vil bli bedt om å rapportere på standardiserte utsagn som skal måle personlig vekst, selvoppfattelse/selvaktelse, livskvalitet, selvregulering, iver etter å være i aktivitet og robusthet. I tillegg skal det samles inn data om ungdommenes involvering i, og erfaringer med kroppøvfingsfaget, den organiserte idrettslagsaktiviteten og selvorganiserte aktivitetsformer.

Den ungdommen som du/dere er foresatt(e) for er elev på en skole som er plukket ut til å delta i studien. Utfyllingen av skjemaet skal forgå i samlet klasse under ledelse av en representant fra forskningsprosjektet. Det er frivillig å delta i studien. Den enkelte ungdom har anledning til å unnlate å svare på enkeltspørsmål og har full rett til å trekke seg fra undersøkelsen på hvilket som helst tidspunkt, uten å måtte oppgi noen spesiell grunn.

Forskerne i prosjektet er underlagt taushetsplikt, og samtykkeerklæringene og besvarelsene vil bli behandlet og oppbevart konfidensielt ved Norges idrettshøgskole. Publisering av opplysninger fra prosjektet vil bli rapportert på en slik måte at ingen enkeltpersoner kan gjenkjennes.

Vi ønsker også å kunne følge ungdommene etter endt ungdomsskole og vi vil søke om finansiering til dette. Dersom vi lykkes med finansiering vil vi ved siste datainnsamling i 2016, når ungdommen går i 10. klasse, be de av elevene som kunne tenke seg å bli med videre i studien om å oppgi bostedsadresse og adresse for e-post. Dette er selvfølgelig også frivillig. Dersom det ikke blir aktuelt med

oppfølgingsundersøkelse utover 10. klasse vil allerede innsamlet materiale bli anonymisert senest ved utgangen av 2020.

Krav om samtykke fra foresatte

Dersom eleven ikke er fylt 15 år skal det innhentes samtykkeerklæring fra elevens foresatte. **Dersom foresatte samtykker i at eleven kan delta i undersøkelsen, ber vi om at samtykkeerklæringen under fylles ut.** Dette samtykket vil også gjelde dersom eleven ikke har fylt 15 år ved datainnsamlingen i 2015. Dersom eleven ønsker å delta i studien og dette samtykkes fra foresatte må svarslippen returneres til skolen innen den dag datainnsamlingen skal foretas. Elever uten samtykke vil ikke få anledning til å delta i undersøkelsen. Elevene må selv sørge for å bringe med seg bærbar PC eller lesebrett med tilstrekkelig batterikapasitet. Dette gjelder ikke dersom datainnsamlingen skal gjennomføres i et rom med fastinstallerte datamaskiner.

Det er tilsammen ca. 130 skoleklasser (3400 ungdommer) som skal delta i studien og det er viktig for prosjektet at vi får med så mange som mulig fra klassen. **Hver klasse får tre universalgavekort á kr. 250 (totalt kr. 750,-) for hver datainnsamling de deltar på.** Disse gavekortene kan de disponere som de selv vil.

Samarbeid og godkjenninger

Prosjektet er utviklet i samarbeid med «Institute for Applied Research in Youth Development» (Tufts University, USA) og NIH gjennomfører studien i samarbeid med Universitetet i Agder og Høgskolen i Østfold. Studien er forelagt Utdanningsdirektoratet, utdanningsetaten i de aktuelle fylkene og den er innmeldt til Personvernombudet for forskning, Norsk Samfunnsvitenskapelig Datatjeneste.

Med vennlig hilsen

Reidar Säfvenbom
1.amanuensis
Norges idrettshøgskole

Samtykkeerklæring fra foresatte til elever som ikke er fylt 15 år

Vi som foresatte er informert om spørreskjemaundersøkelsen (REPAC) og samtykker i at

..... **kan delta dersom han / hun selv ønsker det.**

.....
Sted

.....
Dato

.....
Underskrift



VELKOMMEN!

Velkommen til denne spørreundersøkelsen om ditt forhold til kroppsøving og deltakelse i fysisk aktivitet i fritiden! Ved å svare på disse spørsmålene kan du hjelpe oss til å finne ut mer om hvordan ungdommer opplever kroppsøvingfaget og hva som gjør at ungdommer får et godt forhold til å være i bevegelse.

Det er viktig at du leser spørsmålene nøye, og at du svarer så ærlig som mulig.

På forhånd takk for hjelpen!

**ALLER FØRST BER VI DEG SETTE INN ID-NUMMERET
DU HAR FÅTT AV LÆREREN DIN.**

SJEKK AT TALLET BLIR HELT RIKTIG!

(Må fylles ut: skriv inn ID-nummer – seks siffer)

BAKGRUNNSSPØRSMÅL

Først kommer noen spørsmål om deg:

Kjønn

- Jente
- Gutt

Fødselsår - hvilket år er du født?

(skriv inn årstall - fire siffer)

Nå kommer noen spørsmål om hvordan du synes du selv er. Kryss av for det som passer best på deg.

Nedenfor er noen spørsmål om hvordan du synes du selv er. Kryss av for det som passer best på deg.

	Stemmer svært dårlig	Stemmer nokså dårlig	Stemmer nokså godt	Stemme r svært godt
1. Jeg synes jeg er like smart som andre på min alder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg er flink i all slags sport.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg er ikke fornøyd med utseendet mitt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg er ofte skuffet over meg selv.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg er ganske sein med å bli ferdig med skolearbeidet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg tror jeg kan gjøre det bra i nesten hvilken som helst ny sport.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Jeg ønsker at kroppen min var annerledes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Jeg liker ikke den måten jeg lever livet mitt på.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jeg gjør det svært godt på skolen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Jeg synes at jeg er bedre i sport enn andre på min alder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Jeg ønsker at jeg så annerledes ut.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Jeg er stort sett fornøyd med meg selv.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Jeg har vansker med å svare riktig på skolen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Jeg gjør det ikke så godt i nye øvelser i gymtimene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Jeg synes jeg ser bra ut.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Jeg liker meg selv slik jeg er.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Jeg tror jeg er ganske intelligent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Jeg synes ikke at jeg har så sterk kropp som andre på min alder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Jeg liker utseendet mitt svært godt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Jeg er svært fornøyd med hvordan jeg er.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Godt jobbet så langt!
 Nå kommer noen spørsmål om kroppsøvingstimene på skolen, og hvordan du opplever disse timene.

Hva synes du om kroppsøvingstimene? Her kommer noen påstander om kroppsøvingstimene som du skal vurdere som usanne eller sanne for deg.

	Fullstendig usant						Fullstendig sant
	1	2	3	4	5	6	7
1. Aktivitetene i kroppsøvingstimene er i stor grad forenlig med mine valg og interesser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg føler jeg har stor fremgang i forhold til målet med kroppsøving.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg føler meg veldig bekvem sammen med de andre elevene i kroppsøvingstimene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg føler sterkt at kroppsøvingen passer måten jeg vil være i aktivitet på.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg føler jeg utfører øvelsene i kroppsøving veldig riktig.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg føler jeg kan omgås de andre elevene på en vennlig måte i kroppsøvingstimene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Det vi driver med i kroppsøvingstimene er helt klart et uttrykk for hvordan jeg ønsker at kroppsøving skal være.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Jeg føler aktivitetene i kroppsøvingstimene er noe jeg får til bra.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jeg føler jeg har god og åpen kommunikasjon med de andre elevene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Jeg føler sterkt at jeg har mulighet til å gjøre valg i forhold til aktivitetene i kroppsøvingstimene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Jeg føler jeg kan klare de oppgavene det legges opp til i kroppsøvingstimene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Jeg føler meg veldig fortrolig med de andre elevene.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Trener eller konkurrerer du i regi av et idrettslag?

Her tenker vi på alle slags former for organisert idrett, trening og konkurranse (for eksempel ballidrett, kampsport, skiidrett, dans og lignende) som foregår i regi av et idrettslag.

- Ja
 Nei

Hva synes du om den aktiviteten du har valgt? Her kommer noen påstander om denne aktiviteten som du skal vurdere som usanne eller sanne for deg.

	Fullstendig usant						Fullstendig sant
	1	2	3	4	5	6	7
1. Treningen er i stor grad forenlig med mine valg og Interesser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg føler jeg har stor fremgang i forhold til målet mitt med treningen.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg føler meg veldig bekvem sammen med de andre deltakerne.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg føler sterkt at treningen passer måten jeg vil trene på.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg føler jeg utfører øvelsene i treningen veldig riktig.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg føler jeg kan omgås de andre deltakerne på en vennlig måte.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Måten jeg trener er helt klart et uttrykk for hvordan jeg ønsker at trening skal være.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Jeg føler denne treningen er noe jeg får til bra.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jeg føler jeg har god og åpen kommunikasjon med de andre deltakerne.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Jeg føler sterkt at jeg har mulighet til å gjøre valg i forhold til min aktivitet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Jeg føler jeg kan klare de oppgavene treningen legges opp til.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Jeg føler meg veldig fortrolig med de andre treningsdeltakerne.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Driver du med noen form for trening/fysisk aktivitet utenom idrettslag og kroppsøving slik at du blir varm eller andpusten (for eksempel skating, parkour, sykling, gå på ski, svømming, løping, helsestudio)?

Vi tenker på aktivitet som du organiserer mer eller mindre selv (eller sammen med venner), og som ikke er organisert av en trener eller familien.

- Ja
 Nei

Hva synes du om den aktiviteten du driver med?

Her kommer noen påstander om denne aktiviteten som du skal vurdere som usanne eller sanne for deg.

	Fullstendig usant						Fullstendig sant
	1	2	3	4	5	6	7
1. Aktiviteten er i stor grad forenlig med mine valg og interesser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg føler jeg har stor fremgang i forhold til målet mitt med aktiviteten.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg føler meg veldig bekvem sammen med de andre deltakerne.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg føler sterkt at aktiviteten passer måten jeg vil være fysisk aktiv på.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg føler jeg utfører øvelsene i aktiviteten veldig riktig.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg føler jeg kan omgås de andre deltakerne på en vennlig måte.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Måten jeg driver med denne aktiviteten er helt klart et uttrykk for hvordan jeg ønsker at fysisk aktivitet skal være.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Jeg føler denne aktiviteten er noe jeg får til bra.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jeg føler jeg har god og åpen kommunikasjon med de andre deltakerne.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Jeg føler sterkt at jeg har mulighet til å gjøre valg i forhold til min aktivitet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Jeg føler jeg kan klare de oppgavene aktiviteten legger opp til.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Jeg føler meg veldig fortrolig med de andre som driver med dette sammen med meg.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix II

Qualitative paper

Application to the Norwegian Centre for Research Data

Approval by the Norwegian Centre for Research Data

Invitation and information to the school principal

Information letter to the students

Declaration of consent

Interview guide



MELDESKJEMA

Meldeskjema (versjon 1.4) for forsknings- og studentprosjekt som medfører meldeplikt eller konsesjonsplikt (jf. personopplysningsloven og helseregisterloven med forskrifter).

1. Intro		
Samles det inn direkte personidentifiserende opplysninger?	Ja ● Nei ○	En person vil være direkte identifiserbar via navn, personnummer, eller andre personentydige kjennetegn.
Hvis ja, hvilke?	<input type="checkbox"/> Navn <input type="checkbox"/> 11-sifret fødselsnummer <input type="checkbox"/> Adresse <input type="checkbox"/> E-post <input checked="" type="checkbox"/> Telefonnummer <input type="checkbox"/> Annet	Les mer om hva personopplysninger . NB! Selv om opplysningene skal anonymiseres i oppgave/rapport, må det krysses av dersom det skal innhentes/registreres personidentifiserende opplysninger i forbindelse med prosjektet.
Annet, spesifiser hvilke		
Skal direkte personidentifiserende opplysninger kobles til datamaterialet (koblingsnøkkel)?	Ja ○ Nei ●	Merk at meldeplikten utløses selv om du ikke får tilgang til koblingsnøkkel, slik fremgangsmåten ofte er når man benytter en databehandler
Samles det inn bakgrunnsopplysninger som kan identifisere enkeltpersoner (indirekte personidentifiserende opplysninger)?	Ja ● Nei ○	En person vil være indirekte identifiserbar dersom det er mulig å identifisere vedkommende gjennom bakgrunnsopplysninger som for eksempel bostedskommune eller arbeidsplass/skole kombinert med opplysninger som alder, kjønn, yrke, diagnose, etc.
Hvis ja, hvilke	Utvalget er kun fra Østfold, elevene i utvalget vil gå på 1 av 4 potensielle skole. Vi vil vite noe om kjønn og muligens etnisitet (hvis dette viser seg å bli aktuelt). Etnisitet vil imidlertid ikke gjengis direkte i rapporter/artikler på annen måte enn at det kan være hensiktsmessig å skille mellom elever som er etnisk norske, vestlige innvandrere eller ikke-vestlige innvandrere. Dette er ikke noe mål i seg selv, men etnisk bakgrunn kan være noe som dukker opp i intervjuene og det kan vise seg å være viktig å få med dette for å forstå fenomenet det forskes på.	NB! For at stemme skal regnes som personidentifiserende, må denne bli registrert i kombinasjon med andre opplysninger, slik at personer kan gjenkjennes.
Skal det registreres personopplysninger (direkte/indirekte/via IP-/epost adresse, etc) ved hjelp av nettbaserte spørreskjema?	Ja ● Nei ○	Les mer om nettbaserte spørreskjema .
Blir det registrert personopplysninger på digitale bilde- eller videoopptak?	Ja ○ Nei ●	Bilde/videoopptak av ansikter vil regnes som personidentifiserende.
Søkes det vurdering fra REK om hvorvidt prosjektet er omfattet av helseforskningsloven?	Ja ○ Nei ●	NB! Dersom REK (Regional Komité for medisinsk og helsefaglig forskningsetikk) har vurdert prosjektet som helseforskning, er det ikke nødvendig å sende inn meldeskjema til personvernombudet (NB! Gjelder ikke prosjekter som skal benytte data fra pseudonyme helseregistre). Dersom tilbakemelding fra REK ikke foreligger, anbefaler vi at du avventer videre utfylling til svar fra REK foreligger.
2. Prosjekttittel		
Prosjekttittel	The REPAC-intervention	Oppgi prosjektets tittel. NB! Dette kan ikke være «Masteroppgave» eller liknende, navnet må beskrive prosjektets innhold.
3. Behandlingsansvarlig institusjon		
Institusjon	Høgskolen i Hedmark	Velg den institusjonen du er tilknyttet. Alle nivå må oppgis. Ved studentprosjekt er det studentens tilknytning som er avgjørende. Dersom institusjonen ikke finnes på listen, har den ikke avtale med NSD som personvernombud. Vennligst ta kontakt med institusjonen.
Avdeling/Fakultet	Avdeling for folkehelsefag	
Institutt	Institutt for idrett og aktiv livsstil	
4. Daglig ansvarlig (forsker, veileder, stipendiat)		

Fornavn	Irina Burchard	<p>Før opp navnet på den som har det daglige ansvaret for prosjektet. Veileder er vanligvis daglig ansvarlig ved studentprosjekt.</p> <p>Veileder og student må være tilknyttet samme institusjon. Dersom studenten har ekstern veileder, kanbiveileder eller fagansvarlig ved studiestedet stå som daglig ansvarlig.</p> <p>Arbeidssted må være tilknyttet behandlingsansvarlig institusjon, f.eks. underavdeling, institutt etc.</p> <p>NB! Det er viktig at du oppgir en e-postadresse som brukes aktivt. Vennligst gi oss beskjed dersom den endres.</p>
Etternavn	Erdvik	
Stilling	Stipendiat	
Telefon	46697850	
Mobil	46697850	
E-post	irina.erdvik@hihm.no	
Alternativ e-post	irinaerdvik@yahoo.no	
Arbeidssted	Høgskolen i Hedmark	
Adresse (arb.)	Terningen Arena, Hamarvegen 112	
Postnr./sted (arb.sted)	2411 Elverum	
Sted (arb.sted)	Elverum	
5. Student (master, bachelor)		
Studentprosjekt	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Dersom det er flere studenter som samarbeider om et prosjekt, skal det velges en kontaktperson som føres opp her. Øvrige studenter kan føres opp under pkt 10.
6. Formålet med prosjektet		
Formål	<p>Målet med dette (del-)prosjektet er å undersøke hvordan elever opplever det å delta i en intervensjon i kroppsøving der de får velge mellom to varianter av kroppsøving: En variant basert på "idrettsglede" og en variant basert på "bevegelsesglede".</p> <p>Intervensjonen er en del av REPAC-prosjektet (prosjektnummer 37624): Den kvantitative delen av prosjektet er allerede godkjent. Nå søkes det tillatelse til å intervju ungdommene på 3. trinn i VGS om deres opplevelser i kroppsøvingsfaget generelt og hvordan de opplever at faget har/ikke har endret seg etter at intervensjonen ble iverksatt.</p> <p>Formålet med studien er å undersøke om en alternativ organisering av kroppsøvingsfaget (som i intervensjonen) kan bidra til at flere elever trives i kroppsøving.</p>	Redegjør kort for prosjektets formål, problemstilling, forskningsspørsmål e.l.
7. Hvilke personer skal det innhentes personopplysninger om (utvalg)?		
Kryss av for utvalg	<input type="checkbox"/> Barnehagebarn <input checked="" type="checkbox"/> Skoleelever <input type="checkbox"/> Pasienter <input type="checkbox"/> Brukere/klienter/kunder <input type="checkbox"/> Ansatte <input type="checkbox"/> Barnevernsbarn <input type="checkbox"/> Lærere <input type="checkbox"/> Helsepersonell <input type="checkbox"/> Asylsøkere <input type="checkbox"/> Andre	
Beskriv utvalg/deltakere	Elever på 3. trinn i videregående skole i Østfold som deltar i en intervensjon i kroppsøvingsfaget.	Med utvalg menes dem som deltar i undersøkelsen eller dem det innhentes opplysninger om.
Rekruttering/trekking	Utvalget vil være strategisk og vil til en viss grad styres av praktiske hensyn / gjennomførbarhet. Elevene kan rekrutteres fra inntil 4 aktuelle videregående skoler i Østfold.	Beskriv hvordan utvalget trekkes eller rekrutteres og oppgi hvem som foretar den. Et utvalg kan trekkes fra registre som f.eks. Folkeregisteret, SSB-registre, pasientregistre, eller det kan rekrutteres gjennom f.eks. en bedrift, skole, idrettsmiljø eller eget nettverk.
Førstegangskontakt	Elevene vil få informasjon av undertegnede i slutten av en skoletime. Elevene vil motta skriftlig (se vedlagt informasjonsskriv) samt muntlig informasjon om prosjektet. Dersom elevene kunne tenke seg å delta får de mulighet til å gi tilbakemelding til meg uten at læreren er tilstede. Eleven tilbys å gjennomføre intervjuet i skoletiden eller etter skoletiden. Sistnevnte kan være å foretrekke for elever som ikke ønsker at læreren skal vite om deres deltakelse i prosjektet eller elever som ikke vil gå glipp av undervisning.	Beskriv hvordan kontakt med utvalget blir opprettet og av hvem. Les mer om dette på temasidene .

Alder på utvalget	<input type="checkbox"/> Barn (0-15 år) <input checked="" type="checkbox"/> Ungdom (16-17 år) <input checked="" type="checkbox"/> Voksne (over 18 år)	Les om forskning som involverer barn på våre nettsider.
Omtrentlig antall personer som inngår i utvalget	17	
Samles det inn sensitive personopplysninger?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Les mer om sensitive opplysninger .
Hvis ja, hvilke?	<input type="checkbox"/> Rasemessig eller etnisk bakgrunn, eller politisk, filosofisk eller religiøs oppfatning <input type="checkbox"/> At en person har vært mistenkt, siktet, tiltalt eller dømt for en straffbar handling <input type="checkbox"/> Helseforhold <input type="checkbox"/> Seksuelle forhold <input type="checkbox"/> Medlemskap i fagforeninger	
Inkluderes det myndige personer med redusert eller manglende samtykkekompetanse?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Les mer om pasienter, brukere og personer med redusert eller manglende samtykkekompetanse .
Samles det inn personopplysninger om personer som selv ikke deltar (tredjepersoner)?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Med opplysninger om tredjeperson menes opplysninger som kan spores tilbake til personer som ikke inngår i utvalget. Eksempler på tredjeperson er kollega, elev, klient, familiemedlem.
8. Metode for innsamling av personopplysninger		
Kryss av for hvilke datainnsamlingsmetoder og datakilder som vil benyttes	<input type="checkbox"/> Papirbasert spørreskjema <input type="checkbox"/> Elektronisk spørreskjema <input checked="" type="checkbox"/> Personlig intervju <input type="checkbox"/> Gruppeintervju <input type="checkbox"/> Observasjon <input type="checkbox"/> Deltakende observasjon <input type="checkbox"/> Blogg/sosiale medier/internett <input type="checkbox"/> Psykologiske/pedagogiske tester <input type="checkbox"/> Medisinske undersøkelser/tester <input type="checkbox"/> Journaldata	<p>Personopplysninger kan innhentes direkte fra den registrerte f.eks. gjennom spørreskjema, intervju, tester, og/eller ulike journaler (f.eks. elevmapper, NAV, PPT, sykehus) og/eller registre (f.eks. Statistisk sentralbyrå, sentrale helseregistre).</p> <p>NB! Dersom personopplysninger innhentes fra forskjellige personer (utvalg) og med forskjellige metoder, må dette spesifiseres i kommentar-boksen. Husk også å legge ved relevante vedlegg til alle utvalgs-gruppene og metodene som skal benyttes.</p> <p>Les mer om registerstudier her.</p> <p>Dersom du skal anvende registerdata, må variabeliste lastes opp under pkt. 15</p>
	<input type="checkbox"/> Registerdata	
	<input type="checkbox"/> Annen innsamlingsmetode	
Tilleggsopplysninger		
9. Informasjon og samtykke		
Oppgi hvordan utvalget/deltakerne informeres	<input checked="" type="checkbox"/> Skriftlig <input checked="" type="checkbox"/> Muntlig <input type="checkbox"/> Informeres ikke	<p>Dersom utvalget ikke skal informeres om behandlingen av personopplysninger må det begrunnes.</p> <p>Les mer her.</p> <p>Vennligst send inn mal for skriftlig eller muntlig informasjon til deltakerne sammen med meldeskjema.</p> <p>Last ned en veiledende mal her.</p> <p>NB! Vedlegg lastes opp til sist i meldeskjemaet, se punkt 15 Vedlegg.</p>
Samtykker utvalget til deltakelse?	<input checked="" type="radio"/> Ja <input type="radio"/> Nei <input type="radio"/> Flere utvalg, ikke samtykke fra alle	<p>For at et samtykke til deltakelse i forskning skal være gyldig, må det være frivillig, uttrykkelig og informert.</p> <p>Samtykke kan gis skriftlig, muntlig eller gjennom en aktiv handling. For eksempel vil et besvart spørreskjema være å regne som et aktivt samtykke.</p> <p>Dersom det ikke skal innhentes samtykke, må det begrunnes.</p>
Innhentes det samtykke fra foreldre for ungdom mellom 16 og 17 år?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Les mer om forskning som involverer barn og samtykke fra unge .
Hvis nei, begrunn		
10. Informasjonssikkerhet		
Spesifiser	Direkte personidentifiserende opplysningene dreier seg om samtykkeskjema. Disse vil bli oppbevart innelåst i et skap på kontoret.	NB! Som hovedregel bør ikke direkte personidentifiserende opplysninger registreres sammen med det øvrige datamaterialet.

Hvordan registreres og oppbevares personopplysningene?	<ul style="list-style-type: none"> ■ På server i virksomhetens nettverk □ Fysisk isolert PC tilhørende virksomheten (dvs. ingen tilknytning til andre datamaskiner eller nettverk, interne eller eksterne) ■ Datamaskin i nettverkssystem tilknyttet Internett tilhørende virksomheten □ Privat datamaskin □ Videoopptak/fotografi ■ Lydopptak ■ Notater/papir □ Mobile lagringsenheter (bærbar datamaskin, minnepenn, minnekort, cd, ekstern harddisk, mobiltelefon) □ Annen registreringsmetode 	<p>Merk av for hvilke hjelpemidler som benyttes for registrering og analyse av opplysninger.</p> <p>Sett flere kryss dersom opplysningene registreres på flere måter.</p> <p>Med «virksomhet» menes her behandlingsansvarlig institusjon.</p> <p>NB! Som hovedregel bør data som inneholder personopplysninger lagres på behandlingsansvarlig sin forskningsserver.</p> <p>Lagring på andre medier - som privat pc, mobiltelefon, minnepinne, server på annet arbeidssted - er mindre sikkert, og må derfor begrunnes. Slik lagring må avklares med behandlingsansvarlig institusjon, og personopplysningene bør krypteres.</p>
Annen registreringsmetode beskriv		
Hvordan er datamaterialet beskyttet mot at uvedkommende får innsyn?	Datamaskinen der intervjutranskripsjoner osv. er lagret på er beskyttet med brukernavn og passord. PCen lagres låst på kontoret eller låst hjemme. Opptaksutstyr, papirer med personidentifiserende opplysninger ol. vil oppbevares på låst kontor, innelåst i skap.	Er f.eks. datamaskintilgangen beskyttet med brukernavn og passord, står datamaskinen i et låsbart rom, og hvordan sikres bærbare enheter, utskrift og opptak?
Samles opplysningene inn/behandles av en databehandler?	Ja ○ Nei ●	Dersom det benyttes eksterne til helt eller delvis å behandle personopplysninger, f.eks. Questback, transkriberingsassistent eller tolk, er dette å betrakte som en databehandler. Slike oppdrag må kontraksreguleres.
Hvis ja, hvilken		
Overføres personopplysninger ved hjelp av e-post/internett?	Ja ○ Nei ●	F.eks. ved overføring av data til samarbeidspartner, databehandler mm.
Hvis ja, beskriv?		<p>Dersom personopplysninger skal sendes via internett, bør de krypteres tilstrekkelig.</p> <p>Vi anbefaler for ikke lagring av personopplysninger på nettskytjenester.</p> <p>Dersom nettskytjeneste benyttes, skal det inngås skriftlig databehandleravtale med leverandøren av tjenesten.</p>
Skal andre personer enn daglig ansvarlig/student ha tilgang til datamaterialet med personopplysninger?	Ja ● Nei ○	
Hvis ja, hvem (oppgi navn og arbeidssted)?	Reidar Säfvenbom, Norges Idrettshøgskole. Undertegnedes (PhD-kandidatens) hovedveileder. Kjersti Mordal Moen, Høgskolen i Hedmark. Undertegnedes (PhD-kandidatens) bi-veileder.	
Utleveres/deles personopplysninger med andre institusjoner eller land?	<ul style="list-style-type: none"> ○ Nei ● Andre institusjoner ○ Institusjoner i andre land 	F.eks. ved nasjonale samarbeidsprosjekter der personopplysninger utveksles eller ved internasjonale samarbeidsprosjekter der personopplysninger utveksles.
Spesifiser hvordan utleveringen foregår	Transkriberte intervju kan sendes via mail for å bidra til at veilederne kan veilede PhD-kandidaten i sitt arbeide. Materiale av personidentifiserende karakter (samtykkeskjema) vil ikke lagres elektronisk eller deles via mail.	
11. Vurdering/godkjenning fra andre instanser		
Søkes det om dispensasjon fra taushetsplikten for å få tilgang til data?	Ja ○ Nei ●	For å få tilgang til taushetsbelagte opplysninger fra f.eks. NAV, PPT, sykehus, må det søkes om dispensasjon fra taushetsplikten. Dispensasjon søkes vanligvis fra aktuelt departement.
Hvis ja, hvilke		
Søkes det godkjenning fra andre instanser?	Ja ○ Nei ●	F.eks. søke registreier om tilgang til data, en ledelse om tilgang til forskning i virksomhet, skole.
Hvis ja, hvilken		
12. Periode for behandling av personopplysninger		
Prosjektstart	26.10.2015	Prosjektstart Vennligst oppgi tidspunktet for når kontakt med utvalget skal gjøres/datainnsamlingen starter.
Planlagt dato for prosjektlutt	31.12.2020	Prosjektlutt: Vennligst oppgi tidspunktet for når datamaterialet enten skal anonymiseres/slettes, eller arkiveres i påvente av oppfølgingsstudier eller annet.

Skal personopplysninger publiseres (direkte eller indirekte)?	<input type="checkbox"/> Ja, direkte (navn e.l.) <input type="checkbox"/> Ja, indirekte (bakgrunnsopplysninger) <input checked="" type="checkbox"/> Nei, publiseres anonymt	NB! Dersom personopplysninger skal publiseres, må det vanligvis innhentes eksplisitt samtykke til dette fra den enkelte, og deltakere bør gis anledning til å lese gjennom og godkjenne sitater.
Hva skal skje med datamaterialet ved prosjektslutt?	<input checked="" type="checkbox"/> Datamaterialet anonymiseres <input type="checkbox"/> Datamaterialet oppbevares med personidentifikasjon	NB! Her menes datamaterialet, ikke publikasjon. Selv om data publiseres med personidentifikasjon skal som regel øvrig data anonymiseres. Med anonymisering menes at datamaterialet bearbejdes slik at det ikke lenger er mulig å føre opplysningene tilbake til enkeltpersoner. Les mer om anonymisering .
13. Finansiering		
Hvordan finansieres prosjektet?	Prosjektet er finansiert av Norges Idrettshøgskole. Daglig ansvarlig (phd-stipendiat) lønnes av Høgskolen i Hedmark.	
14. Tilleggsopplysninger		
Tilleggsopplysninger		



Irina Erdvik
Institutt for idrett og aktiv livsstil Høgskolen i Hedmark, campus Elverum
Postboks 400
2418 ELVERUM

Vår dato: 06.11.2015

Vår ref: 45155 / 3 / LB

Deres dato:

Deres ref:

TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 14.10.2015. Meldingen gjelder prosjektet:

45155	<i>The REPAC-intervention</i>
Behandlingsansvarlig	Høgskolen i Hedmark, ved institusjonens øverste leder
Daglig ansvarlig	Irina Erdvik

Personvernombudet har vurdert prosjektet, og finner at behandlingen av personopplysninger vil være regulert av § 7-27 i personopplysningsforskriften. Personvernombudet tilrår at prosjektet gjennomføres.

Personvernombudets tilråding forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, ombudets kommentarer samt personopplysningsloven og helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, <http://pvo.nsd.no/prosjekt>.

Personvernombudet vil ved prosjektets avslutning, 31.12.2020, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen

Katrine Utaaker Segadal

Lene Christine M. Brandt

Kontaktperson: Lene Christine M. Brandt tlf: 55 58 89 26

Vedlegg: Prosjektvurdering

Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.

Avdelingskontorer / District Offices

OSLO: NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. nsd@uio.no

TRONDHEIM: NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. kyrre.svarva@svt.ntnu.no

TROMSØ: NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. nsdmaa@sv.uit.no

Personvernombudet for forskning



Prosjektvurdering - Kommentar

Prosjektnr: 45155

Formålet med studien er å undersøke om en alternativ organisering av kroppsøvfaget kan bidra til at flere elever trives i kroppsøving.

Utvalget består av elever over 17 år i 3. klasse på videregående skoler. De rekrutteres blant skoler hvor det tidligere har vært gjennomført en intervensjonsstudie i kroppsøving (REPAC-prosjektet - prosjektnummer 37624). Det vil ikke utveksles personidentifiserende opplysninger prosjektene i mellom, jf. telefonsamtale med Irina Erdvik 05.11.2015. Personvernombudet legger til grunn at forsker på forhånd har avklart gjennomføring av prosjektet med ledelsen i de aktuelle skolene.

Utvalget informeres skriftlig og muntlig om prosjektet og samtykker til deltakelse. Det reviderte informasjonsskrivet mottatt 05.11.2015 er godt utformet.

Det tas høyde for at det behandles sensitive personopplysninger om etnisk bakgrunn, jf. personopplysningsloven § 2 nr. 8 a).

Hovedregelen når det registreres sensitive opplysninger til forskningsformål om ungdom under 18 år, er at det må innhentes samtykke fra foreldrene. I dette prosjektet vurderer personvernombudet det imidlertid slik at ungdommer over 17 år kan samtykke til deltakelse på selvstendig grunnlag. Dette ut fra en helhetsvurdering av opplysningenes art og omfang.

Personvernombudet legger til grunn at forsker etterfølger Høgskolen i Hedmark sine interne rutiner for datasikkerhet.

Forventet prosjektslutt er 31.12.2020. Ifølge prosjektmeldingen skal innsamlede opplysninger da anonymiseres. Anonymisering innebærer å bearbeide datamaterialet slik at ingen enkeltpersoner kan gjenkjennes. Det gjøres ved å:

- slette direkte personopplysninger (som navn/koblingsnøkkel)
- slette/omskrive indirekte personopplysninger (identifiserende sammenstilling av bakgrunnsopplysninger som f.eks. bosted/arbeidssted, alder og kjønn)
- slette digitale lydopptak



*Invitasjon til deltakelse i en kvalitativ oppfølgingsstudie tilknyttet
REPAC-prosjektet*

Som deltakende skole i REPAC-prosjektet* (også kjent som «kroppsøvningsprosjektet») tilbyr [REDACTED] elever *interessebasert kroppsøving*. I tillegg til den kvantitative studien deres skole allerede er involvert i ønsker vi som jobber med REPAC-prosjektet å gjennomføre en kvalitativ oppfølgingsstudie.

Den kvalitative oppfølgingsstudien er godkjent av Norsk Samfunnsvitenskapelig Datatjeneste (NSD) og er en del av REPAC-prosjektet. Målet med den kvalitative studien er å fange opp elevens opplevelser og erfaringer knyttet til interessebasert kroppsøving, undersøke hvordan elever opplever overgangen til interessebasert kroppsøving, samt å få en økt forståelse for hvordan interessebasert kroppsøving kan påvirke elevenes trivsel i faget. Vi ønsker derfor å gjennomføre personlige intervjuer med 10 til 20 elever på VG3 om deres opplevelser og erfaringer knyttet til interessebasert kroppsøving.

[REDACTED] er herved invitert til å delta i denne kvalitative studien. Vi setter stor pris på om dere kan sende undertegnede en tilbakemelding på om [REDACTED] har mulighet til ta del i studien innen **17. november**. Tilbakemelding kan sendes skriftlig pr mail til irina.erdvik@hihm.no. Dersom deres skole takker ja til deltakelse er det også flott om dere i mailen oppgir navn på en person som kan fungere som kontaktperson i forbindelse med gjennomføring av datainnsamlingen.

Dersom dere har spørsmål tilknyttet denne kvalitative studien, eller om noe er uklart; ta gjerne kontakt med undertegnede, enten pr telefon (46 69 78 50) eller pr mail (irina.erdvik@hihm.no).

*For mer informasjon om REPAC-prosjektet, kontakt undertegnede eller se: <http://www.nih.no/om-nih/organisasjon/fagseksjoner/seksjon-for-kroppsoving-og-pedagogikk/the-repac-project/>.

Håper jeg hører fra dere.

Med vennlig hilsen,

Irina B. Erdvik

PhD-stipendiat i kroppsøving

Høgskolen i Hedmark / Norges Idrettshøgskole

irina.erdvik@hihm.no

Tlf. 46 69 78 50



NORGES IDRETTSHØGSKOLE



Høgskolen i Østfold



UNIVERSITETET I AGDER

INVITASJON TIL Å DELTA I FORSKNINGSPROSJEKT

Kjære elev,

Du er en av mange elever i Østfold som deltar i et forsøk der dere kan velge mellom bevegelsesglede og idrettsglede. Som forsker ved Høgskolen i Hedmark ønsker jeg å intervjuere elever som deltar i dette forsøket, og jeg vil derfor invitere deg til å delta i et intervju. Målet med intervjuene er å få en økt forståelse for hvordan dere opplever det å ha gym.

Intervjuene vil skje som en samtale mellom deg og meg og det er frivillig å delta. Som forsker har jeg taushetsplikt. Alle opplysninger vil bli behandlet konfidensielt. Ingen lærere eller foreldre får tilgang til informasjonen du gir meg: Informasjonen vil kun være tilgjengelig for meg og to andre forskere (Kjersti Mordal Moen ved Høgskolen i Hedmark og Reidar Säfvenbom ved Norges Idrettshøgskole).

Våre samtaler vil bli tatt opp på lyd dersom du samtykker til dette. Alle innsamlede opplysninger vil være anonymisert og lydopptak slettes når prosjektet er ferdig (senest 31. desember 2020). Du vil ikke kunne gjenkjennes i rapporter eller publikasjoner.

Prosjektet er meldt inn til Norsk Samfunnsvitenskapelig Datatjeneste (NSD). Før intervjuet vil du skrive under en samtykkeerklæring. Du kan trekke deg fra studien når du måtte ønske – uten at du må oppgi noen grunn til det. Alle data om deg vil da bli slettet umiddelbart.

Intervjuet vil skje i et egnet rom på skolen der kun vi to er tilstede. Dersom du ønsker å delta kan jeg gjøre en avtale med læreren din så vi kan gjennomføre intervjuet i skoletiden. Hvis du ønsker det kan vi selvfølgelig også gjennomføre intervjuet etter skoletid. Intervjuet vil vare i ca. 1 time.

Hvis det er noe du lurer på (om det er aldri så lite) så håper jeg at du kontakter meg!

Du kan nå meg på telefon (46 69 78 50) eller mail (irina.erdvik@hihm.no).

Tusen takk for hjelpen, og jeg håper jeg hører fra deg!

Med vennlig hilsen,

Irina B. Erdvik
Høgskolen i Hedmark

Mobil: 46 69 78 50
Mail: irina.erdvik@hihm.no



**SAMTYKKEERKLÆRING VED INNSAMLING OG BRUK AV
PERSONOPPLYSNINGER TIL FORSKNINGSFORMÅL**

Prosjektleder: Irina Burchard Erdvik

Prosjekttittel: «The REPAC-intervention»: Bevegelsesglede og idrettsglede i kroppsøving

Jeg samtykker herved til at anonymiserte opplysninger innhentet fra meg kan benyttes av Irina Burchard Erdvik i hennes doktorgradsavhandling, i tidsskriftartikler og i faglige bøker.

Jeg er kjent med at det er frivillig å delta i forskningsprosjektet.

Sted

Dato

Underskrift



Intervjuguide

Oppstartsspørsmål

1. Kan du begynne med å fortelle meg litt om deg selv? – er det noe du tenker jeg bør vite?
2. Tenk deg at noen *A) i klassen din, B) i gymmen* skulle beskrive deg og hvem du er - eller hvordan du er - i klassen. Hva tror du de hadde sagt?

Generelle spørsmål om gym

3. Kan du beskrive en vanlig gymtime for meg?
4. Hvordan opplever du en slik time?
5. Hva er det som *A) får deg til å ha lyst B) gjør at du ikke får lyst* til å ha gym? Hvorfor?
6. Hva er ditt *A) beste, B) verste minne* fra gymtimen?

Om bevegelsesglede og idrettsglede

7. Dere fikk lov til å velge mellom idrettsglede eller bevegelsesglede: Hva synes du om det?
8. Hvordan synes du det er å ha bevegelsesglede / idrettsglede?
9. Føler du at gymmen har forandret seg etter at dere begynte med bevegelsesglede og idrettsglede?
10. Nå som dere er delt inn i 2 grupper, enten bevegelsesglede eller idrettsglede: Hvordan synes du det å ha delt undervisning, i forhold til tidligere, når alle hadde gym sammen?
11. Hvis du tenker tilbake på gym slik det var før dere fikk velge bevegelsesglede / idrettsglede – hvordan synes du at det er å ha gym nå i forhold til tidligere?

Læring i gymmen

12. Kan du beskrive for meg det du selv synes er en god gymtime?
13. Hvorfor tror du dere har gym på skolen (*A) nå, B) før*?
14. Hva tenker du at er målet med kroppsøvfaget?
15. Hva lærer dere i gymmen?

Avslutning

16. Er det noe vi ikke har snakket om som du synes jeg burde vite for å kunne forstå bedre hvordan du opplever å ha gym?
17. Er det noe dere ønsker å spørre meg om før vi avslutter?

