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*Self-Determined Motivation in Physical Education and the Role of
Perceived Relevance: A Mixed Methods Study*

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Abstract

Physical education could play an important role in promoting future physical activity, but do students perceive the physical education content to be relevant for their personal and future goals? And does this affect their in-class motivation? The aim of this study was to investigate the role of perceived relevance of physical education course content in relation to students' contextual self-determined motivation and need satisfaction. Questionnaires containing validated scales as well as open-ended questions were distributed to 348 adolescents ($M = 17.01$ years) in Swedish upper secondary schools. Quantitative analyses supported previous research on self-determined motivation and need satisfaction, while further suggesting that perceived relevance also plays an important role. Gender differences were found in both behavior regulation and need satisfaction, showing less favorable circumstances for female students. Thematic analyses of the qualitative results suggested that both organized and unorganized sports have an important impact on intentions for future physical activity. Further research should take these factors in consideration, and longitudinal research following adolescents through the transition from upper secondary school into adulthood is warranted.

Keywords: self-determination theory, physical education, physical activity, adolescents, perceived relevance, motivation.

Self-Determined Motivation in Physical Education and the Role of Perceived Class
Relevance – A Mixed Methods Study

Physical inactivity has been recognized as the fourth leading factor for global mortality, contributing to six per cent of all deaths, while being physically active has shown to have several benefits for physical health, such as reducing the risk for cardiovascular diseases and several types of cancer (World Health Organization [WHO], 2011). Physical activity has also shown to be beneficial for brain functioning and scholastic performance (Bangsbo et al., 2016), as well as for mental health (Biddle & Asare, 2011). The term physical activity is generally defined as “any bodily movement produced by skeletal muscles that requires energy expenditure”, while the term exercise refers to physical activities that are planned and structured, with the purpose of maintaining physical fitness (WHO, 2011, p. 1). The Swedish recommendations for physical activity for children and adolescents (6-17 years) follow the global recommendations put together by WHO (2011) of 60 minutes of moderate intensity physical activity per day on most or preferably all days of the week (Berg & Ekblom, 2016). However, the Public Health Agency of Sweden (2014) recently reported that only 10-15 per cent of 13-15 year olds met these recommendations in 2013-2014.

According to Statistics Sweden (SCB, 2016), 54 per cent of Swedish upper secondary school students participate in organized sports at least once per week, while as much as 88 per cent "exercise until out of breath or sweating" at least once per week. Although, there is a tendency for physical activity levels to decrease with age (SCB, 2016). Similarly, research by Säfvenbom, Haugen, and Bulie (2015) and by Yli-Piipari, Barkoukis, Jaakkola, and Liukkonen (2013) has showed that attitudes toward physical activity, enjoyment of physical education (PE) and physical activity level decline during adolescence, which is why it is important to investigate motivation in physical education and physical activity at this time.

Physical Education in Sweden

In Swedish upper secondary schools, only one course in physical education is obligatory, which generally incorporates 80-100 hours distributed over one or two years. This is usually divided into one or two classes per week. The new curriculum for the course Physical Education and Health 1 (PEH1; The Swedish National Agency for Education [SNAE], 2012) includes knowledge requirements for the first time (Larsson & Karlefors, 2015). A report by Lundvall and Brun Sundblad (2017) put forward the most recent results from the “School – Sports – Health” study (Skola – idrott – hälsa; SIH), showing that the concept “health” has received a more important place in the curriculum, and that the subject has become more theoretical overall. Additionally, fitness training has become a more common lecture activity, while ball games have become less common.

According to the curriculum, the course should aim to increase students’ interest in and ability to use different kinds of physical activities; furthermore, students should develop knowledge of the importance of lifestyle and of consequences of physical activity and inactivity (SNAE, 2012). However, research has shown that the aims are not always clear to the students. In a mixed methods study on middle school and secondary school students, some students reported that the purpose was to acquire skills in different sports and to increase fitness level, while many others were unsure of the purpose (Larsson & Redelius, 2008). According to a recent qualitative study in upper secondary schools by Redelius, Quennerstedt, and Öhman (2015), the clarity of aims and learning goals seemed to differ between schools and the teaching style. Interestingly, the results also indicated that PEH teachers found aims and learning goals easier to communicate in regard to e.g. fitness or dance than in ballgames. International research has also pointed out the importance of clarifying a rationale for participating, (Goudas, Biddle & Fox, 1994), as well as the need for a variety of activities (Linda Rikard & Banville, 2006) in order to increase motivation among students.

According to a national evaluation of physical education for year 9 students by

Quennerstedt, Öhman, and Eriksson (2008), based on data from 2003, less than half of the participants (39.9 per cent) reported that physical education inspired them to be physically active in their leisure-time, while just about half (49.3 per cent) of the participants reported that they enjoyed the activities. In coherence with other studies (e.g. Säfvenbom et al., 2015), the results also showed that the boys and girls who were physically active in their leisure time were the ones who enjoyed physical education the most.

Although the link between physical education and physical activity is well-researched (e.g. Bagøien, Halvari, & Nesheim, 2010; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003), there are several possible factors - such as age, gender, socioeconomic status and family and peer influence – that could have an impact on leisure time physical activity engagement throughout life (Green, 2014). Furthermore, the results of a study by Olivares and colleagues (2015) showed that the influence of parents was stronger than the influence of the physical education teacher on leisure time physical activity.

Physical Education and Organized Sports

In Sweden, a recent report has shown that unorganized sport participation among adolescents has decreased while organized sport participation has increased; however, one fifth of 15-year old girls in Sweden do not participate in either (Lundvall & Brun Sundblad, 2017). Research has suggested that participation in organized sports during childhood could be an important factor in promoting and predicting leisure time physical activity in adulthood, as organized sport participation has showed to have a positive relationship to self-determined motivation (Säfvenbom et al., 2015; Shen, 2014), future physical activity levels (Scheerder et al., 2006), positive attitudes towards physical education (Prochaska, Sallis, Slymen & McKenzie, 2003; Säfvenbom et al., 2015) and psychological need satisfaction (Viira & Koka, 2012). A longitudinal study by Kjønnsen, Fjørtoft and Wold (2009) found that organized sport participation was the strongest predictor of physical activity at age 23, but only for male

participants.

Furthermore, a study investigating students' motivation in physical education classes in Greece found that those not involved in outside of school sports had lower scores on perceived physical competence, interest in the lesson and perceived importance of the lesson (Papaioannou, 1997). Some researchers have suggested that the physical education climate is similar to that in organized sports as it is often focused on team sports and/or general enjoyment in a structured setting, and it has further been pointed out that physical education seem to be most beneficial for students who are already engaged in outside of school sports (Fairclough, Stratton & Baldwin, 2002; Larsson & Redelius, 2008).

Physical Education and Gender Differences

Previous research has indicated that gender differences are present in factors related to physical education and physical activity, often pointing towards a less favorable climate for female students. In a study among Norwegian upper secondary school students, Bagøien and colleagues (2010) found that boys reported higher perceived competence than girls in both physical education and physical activity. Additionally, research has shown girls to score lower than boys on perceived meaningfulness (Barney, Pleban, Wilkinson & Prusak, 2015) as well as enjoyment (Cairney et al., 2012; Prochaska et al., 2003) of physical education, while a second Norwegian study showed that a majority of female students had negative attitudes towards physical education and were not satisfied with how the subject was being taught (Säfvenbom et al., 2015). Similarly, another study found that the strongest predictor for future physical activity for females was attitudes towards physical activity, while organized sport participation was the strongest predictor for male students (Kjønniksen et al., 2009). A retrospective study by Kimball, Jenkins and Wallhead (2009) further showed that physical activity levels in young adulthood could be negatively predicted by lack of learning and discomfort in high school physical education, but only for females.

Self-Determination Theory, Physical Activity and Physical Education

As explained by the self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000a), motivation can be intrinsic, extrinsic or amotivation (a complete lack of motivation), categories which are organized on a continuum from more to less self-determined motivation.

Intrinsic motivation has been described as underlying behaviors that one engage in purely based on interest and enjoyment. Extrinsic motivation refers to engaging in behavior because of specific outcomes. SDT further explains different forms of extrinsic motivation in relation to how people regulate their behavior: external regulation, introjection, identification and integration. External regulation refers to engaging in behaviors in order to obtain rewards or satisfy external demands. Introjection takes places when a behavior is motivated by trying to avoid feelings of guilt, or by trying to attain feelings of pride or self-enhancement. Identification describes behaviors engaged when a person identifies with the value or importance of the activity, while integration refers to an internalization of the reasons for the behavior. The different kinds of behavior regulation can be described as more or less controlled or autonomous motivation. Intrinsic, integrated and identified regulation, are considered to be autonomous types of motivation, while external and introjected regulation are considered controlled types of motivation (Ryan & Deci, 2000b).

According to SDT, motivation is affected by the three basic psychological needs of autonomy, competence and relatedness (Deci & Ryan, 2000). These are regarded as innate, universal needs that play an important part in the optimal developmental process as well as in motivational contexts.

The theory has often been used when explaining motivation in physical activity and in physical education (e.g. Bagøien et al., 2010; Lim & Wang, 2009; Shen, 2014), and reviews of the research on physical education from a self-determination theory perspective have further confirmed the support for the theory and its components, including the sequence of

need satisfaction predicting autonomous motivation (Ntoumanis & Standage, 2009; Van den Berghe, Vansteenkiste, Cardon, Kirk, & Haerens, 2014).

Theory of Planned Behavior and Intentions for Physical Activity

The theory of planned behavior (TPB; Ajzen, 1991) is another motivational theory, which was originally formulated for the purpose of explaining and predicting behavior in specific contexts. A central factor in the theory is intention, which according to TPB is foregone by three factors: attitudes, social norms, and perceived behavioral control. TPB is commonly used in exercise psychology as it helps explain exercise motivation and behavior in relation to environmental and social factors. Furthermore, it has received support when predicting intentions for future physical activity as well as actual engagement in physical activity (e.g. Rhodes, MacDonald & McKay, 2006). The relationship between motivation and intentions has been noticed in several studies, where intrinsic motivation has been found to positively predict intentions to stay physically active in the future (Lim & Wang, 2009; Ntoumanis, 2001). Similarly, other studies have shown that autonomous motivation has a positive relationship with intentions for current leisure-time physical activity (Hagger et al., 2003; Standage, Duda & Ntoumanis, 2005).

Two Integrative Models of Motivation

Based on the self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000), two models have been developed in order to further explain the motivational process. The hierarchical model of intrinsic and extrinsic motivation (HMIEM; Vallerand, 1997; 2000) states that the process of motivation exists on three levels: a global level, a contextual level, and a situational level. In a physical education setting, the contextual level would refer to physical education in general, while the situational level would refer to a specific physical education lesson with specific content; motivation on a global level can be described as a more trait-like type of motivation (Vallerand, 2007). On each level, social and environmental

factors affect the level of self-determined motivation, a relationship which is mediated by need satisfaction and which leads to affective, cognitive and behavioral outcomes. The processes in HMIEM can be described as working both in a top-down manner and in a bottom-up manner. The top-down process means that global motivation can have an effect on contextual motivation, which in turn can affect the motivation in a specific situation. The bottom-up process implicates that it can also work the other way around - factors that contribute to a higher or lower level of self-determined motivation in a specific situation can affect the level of self-determined motivation on a contextual level, and ultimately on a global level. This shows that motivation is a complex and dynamic concept. In a cross-sectional study by Standage and colleagues (2005), results supported the prediction of affective, cognitive and behavioral outcomes (more specifically, positive affect, concentration, and preference to attempt challenging tasks) by intrinsic motivation, which further supports the HMIEM.

Another model commonly used when investigating motivation in physical education and physical activity is the trans-contextual model (TCM; Hagger et al., 2003), which has integrated self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) with the theory of planned behavior (TPB; Ajzen, 1991). In TCM, the first part of the model describes how perceived autonomy support affects autonomous motivation. The second part of TCM incorporates the theory of planned behavior, where the autonomous motivation affects attitudes, social norms, and perceived behavioral control, which in turn affects intentions; lastly, intentions affect behavior. This model has been confirmed in several studies (e.g. Barkoukis, Hagger, Lambropoulos, & Tsorbatzoudis, 2010; Hagger et al., 2003; Hagger, Chatzisarantis, Barkoukis, Wang, & Baranowski, 2005; Lim & Wang, 2009) investigating the relationship and predictive value of all or some of the included components.

Both models support so called facilitative interactions (Hagger et al., 2003; Vallerand,

2007), meaning that self-determined motivation in one context could influence the level of self-determined motivation in a different, similar context. This suggests that there could be a carry-over effect of the level of motivation between physical education and physical activity, which has received support from several studies showing that high levels of self-determined motivation in a physical education context can enhance self-determined motivation in leisure time physical activity (Bagøien et al., 2010; Hagger & Chatzisarantis, 2009; Hagger et al., 2003).

The motivational processes described in the models have received support from subsequent research. For example, results from a cross-sectional study by Shen (2014) confirmed the relationship between outside-school organized physical activity, need satisfaction and self-determined motivation. Furthermore, in a recent meta-analysis, Hagger and Chatzisarantis (2016) have acknowledged and discussed both strengths and critique that have been put forward in relation to the trans-contextual model.

Perceived Class Relevance in Education

Perceived relevance is a complex concept that is not often mentioned in the field of sport psychology. Although it is more frequently found in the field of teaching and learning, the operationalization differs. Keller (1987) defined it as perceptions of how the content satisfies personal needs, personal goals and/or career goals, and as one of four components in the ARCS (Attention, Relevance, Confidence, Satisfaction of outcomes) theory of motivation. Keller further explained that a feeling of perceived relevance was foregone by satisfied needs of affiliation and achievement. Additionally, relevance was thought to either come from the way something was taught or come from the content itself. Frymier and Shulman (1995) further investigated the relationship between perceived relevance and motivation, and found that perception of relevance in the communication from the teacher was positively related to state motivation.

A recent study investigated perceived relevance in physical education and its relation to state motivation, affective learning and intentions to use class content in the future (Webster, Mîndrilă & Weaver, 2011). In this study, teacher communication of content relevance and perceived relevance of class content were measured as two different constructs. The results supported the hypothesized model that state motivation influenced perceived communication of content relevance, which in turn influenced perceived class content relevance, which lastly influenced future intentions.

In some research, concepts that are very similar to, or perhaps the same as, perceived relevance have been used. Examples of this are perceived instrumentality (Lens & Rand, 1997; Simons, Dewitte & Lens, 2003), utility value (Eccles & Wigfield, 2002) and perceived importance (Moreno-Murcia, Huéscar, & Cervelló, 2012). According to Lens and Rand (1997), there are different types of instrumentality that can affect behavior; instrumentality can be either exogenous, and externally regulated, or endogenous, and internally regulated. Simons and colleagues (2003) used this definition when investigating the effect of instructions from a physical education teacher, emphasizing personal and/or future relevance (i.e. instrumentality), on goal orientation, motivation and performance in a basketball task. The results showed that participants who received instructions emphasizing both personal and future relevance had the highest positive impact on motivation and performance.

A study by Moreno-Murcia and colleagues (2012) investigated the concept perceived importance in relation to self-determination theory and in a physical education context. To measure perceived importance, three items from a previously validated scale was used, two of which were asking about perceived importance, and one asking about perceived usefulness. The authors found support for a model in which psychological need satisfaction predicted contextual intrinsic motivation, which in turn predicted perceived importance, and lastly intentions for future physical activity.

Despite the different conceptualizations and models that have been used in these

studies, perceived relevance has been found to be related to motivation. In this study, perceived relevance is defined as relevance of physical education class content and is investigated in relation to contextual motivation in physical education.

The Current Study

Physical education, health and physical activity are topics that are well-researched in Sweden as well as in the rest of the world. As physical education in Sweden has been undergoing changes since the reform of 2011, it is of great interest and importance to investigate the current situation. The additional exploration of the concept perceived class relevance in relation to self-determined motivation, need satisfaction and intentions in this study will add new knowledge to the field of research; to the knowledge of the author, no previous study has investigated the relationship between perceived relevance of physical education class content and contextual self-determined motivation in physical education.

In a critical review of research on the role of self-determination theory in relation to physical education, Van den Berghe and colleagues (2014) recommended future research to promote a better integration of psychological and pedagogical theory, which this study will attempt to do. Furthermore, it has been suggested that qualitative data can provide a valuable addition to the field as it can allow for causal conclusions to be proposed about the relationship between physical activity and physical education (Green, 2014). As previous research has often focused either on quantitative or qualitative data, the mixed methods design of this study has the potential to provide new and valuable insights.

The aim of this study is to investigate the role of perceived relevance of physical education course content and students' self-determined motivation and need satisfaction. Furthermore the study aims to confirm previous research based on self-determination theory, by investigating the effect of need satisfaction on autonomous motivation. Lastly, it aims to describe the current situation of Swedish upper secondary school students

undertaking PEH1 according to the 2011 curriculum. The aims are supported by the following research questions:

- What is the relationship between perceived class relevance, contextual self-determined motivation and need satisfaction?
- Can perceived class relevance, together with the three basic psychological needs, predict self-determined motivation?
- Do behavior regulation style, perceived need satisfaction and perceived class relevance differ depending on gender or organized sport participation?
- What do upper secondary school students perceive to be the purpose of having physical education?
- How can intentions for future engagement in leisure time physical activity be understood in relation to self-determined motivation?

It is expected that perceived class relevance will be positively correlated with need satisfaction and autonomous motivation in physical education.

Method

Participants

A total of 348 adolescents were asked to participate in the study. The adolescents were students of 18 different classes from a total of five upper secondary schools in the south of Sweden. Out of these, four participants were excluded because they had withdrawn their consent or not signed the consent form at all (98.9 % response rate). Another six cases were excluded due to inconclusive data, which resulted in a total number of 338 participants to be included in the analyses. All participants were enrolled in their final semester of the course PEH 1. The participants were 15-20 years old ($M = 17.01$) with 172 male students (50.9 %) and 162 female students (47.9 %); four participants did not report their gender, or had answered "other". 50 participants (14.8 %) were from vocational programs.

Materials

Current physical activity level. Two items were constructed in order to measure level of engagement in leisure-time physical activity. The first item was phrased "How often in your leisure-time do you exercise until you are sweating/catching your breath?" and four alternatives were given: More seldom/never; 1-2 times per week; 3-4 times per week; More than 5 times per week. The second item asked whether they in their leisure time were part of a sport organization, e.g. a football club, with a yes/no answering option.

Need satisfaction. For need satisfaction the Swedish version of the Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006; Weman-Josefsson, Lindwall, & Ivarsson, 2015) was used. For the purpose of the study, the Swedish version of BPNES was modified to fit a physical education setting. The scale consists of twelve items divided equally into three subcategories: autonomy (e.g. "The structure of the PE lessons is completely agreeable with my own interests and choices"), competence (e.g. "I feel that I have made great progress towards reaching my goals during the PE lessons") and relatedness (e.g. "I feel comfortable with others during the PE lessons"). The items are measured on a five-point Likert-scale ranging from "Not at all true for me" to "Very true for me". BPNES has been validated as supporting the theoretical model of the self-determination theory, having high test-retest reliability (Vlachopoulos & Michailidou, 2006), and as demonstrating gender invariance (Vlachopoulos, 2008) and cross-cultural validity (Vlachopoulos, Ntoumanis, & Smith, 2010). Cronbach's alpha was originally .84 for autonomy, .81 for competence, and .92 for relatedness, and there was little to no correlation between the items and the Social Desirability Scale (Vlachopoulos & Michailidou, 2006). In the current study, Cronbach's alpha was .76 for autonomy, .68 for competence, and .79 for relatedness. The reliability test further showed that the alpha-value for autonomy would increase to .79 if item 10 was deleted, and for relatedness would increase to .84 if item 9 was deleted.

Behavior regulation. In order to measure self-determined motivation, a Swedish version of the Behavioural Regulation in Exercise Questionnaire (BREQ-2; Markland & Tobin, 2004; Weman-Josefsson et al., 2015) was used. The Swedish version of BREQ-2 was modified in order to fit a physical education setting. The scale consists of nineteen items and five subcategories: external regulation (e.g. "I participate in the PE lessons because others say that I should"), introjected regulation (e.g. "I feel guilty if I don't participate in the PE lessons"), identified regulation (e.g. "There are many benefits to participating in the PE lessons"), intrinsic regulation (e.g. "I participate in the PE lessons because it's fun") and amotivation (e.g. "I don't see any reason to why I have to participate in the PE lessons"). The subcategories have four items each except for introjected regulation, which has three items. These are rated on a five-point Likert-scale ranging from "Not at all true for me" to "Very true for me". The scale has shown to have high validity and reliability (Markland & Tobin, 2004). Cronbach's alpha for the subcategories were originally: .79 for external motivation, .80 for introjected regulation, .73 for identified regulation, .86 for intrinsic regulation, and .83 for amotivation. In the current study, Cronbach's alpha were .76 for external motivation, .74 for introjected regulation, .73 for identified regulation, .90 for intrinsic motivation, and .79 for amotivation. The reliability test further showed that the alpha-value for identified regulation would increase to .76 if item 17 was deleted.

Perceived relevance. To measure perceived relevance of class content, the Perceived Class Relevance Scale (PCRS; Webster et al., 2011) was used. The measurement was developed to be used in a physical education learning context, and consists of eight items rated on a seven-point Likert-scale ranging from "Strongly disagree" to "Strongly agree". Three of the items are negatively phrased. The items are foregone by the unfinished sentence "The knowledge and skills I am learning in Physical Education..." and an example of an item is "Will help me reach my personal goals". Cronbach's alpha was originally .85, compared to .81 in the current study. The reliability test showed that the alpha-value would

increase to .84 if item 4 was deleted. The scale was translated to Swedish by the author, with suggestions for revision from the supervisor.

Perceived purpose of physical education. To investigate what students perceive as the main purpose of physical education, an open-ended question was constructed: "What do you perceive as the main reason for having physical education on the schedule?".

Intention. Intention to stay physically active in the future was measured with a single item: "How likely is it that you will keep exercising/training regularly in your leisure time next semester?" and was rated on a seven-point Likert-scale from "Not likely at all" to "Very likely". This item was followed up with the open-ended question: "Please explain why".

Procedure

All measurements were in Swedish in order to avoid any confusion, misunderstandings or difficulties that could arise from having the questionnaire in a non-native language. BREQ-2 and BPNES were originally designed to measure motivation in exercise, but was for the purpose of this study adjusted to measure motivation in physical education. Generally, this meant simply changing the word "training" or "exercise" in the items to "physical education" or "physical education lesson" (see Appendix B). PCRS was translated by the author in cooperation with the supervisor. The questionnaire was piloted for clarity and duration of time, with three male students aged 15 as participants. The students in the pilot study were slightly younger than the students who participated in the research in order to make sure that the clarity of the phrasing of the items was not questionable. Based on the feedback from the students, no adjustments to the items were needed. The pilot testing showed that it took about 10 minutes to fill out the questionnaire, which was also the average time for participants in the study. The orders of the scales were balanced in four different versions.

In order to recruit participants, emails were sent out first to principals and then to physical education teachers of different schools. Dates and times were then decided together with the physical education teachers. All classes were visited in person by the author to ensure that the procedure did not differ between classes and so that the participants had the opportunity to ask questions.

Ethical Considerations

Before distributing informed consent forms (see Appendix A), questionnaires and pencils, a short oral introduction was given. In this introduction students were told to read the consent form thoroughly, that participation was completely voluntary and anonymous, and that they could ask any questions that might arise while participating. Participants were also informed that it would take about 10 minutes to fill out the questionnaire and that they had the right to withdraw their participation at any time. The consent forms briefly described the thesis project and further explained the anonymity and voluntariness of the participation. Since the participants were given the opportunity to write their email-address in case they were interested in taking part of the results of the study, they were also informed that the consent forms would be kept separately from the questionnaires in order to not compromise the anonymity. The questionnaire did not ask for any sensitive data and thus participation was deemed to be of minimal risk.

Analysis of Quantitative Data

All data was analyzed using IBM SPSS Statistics 24.0. In order to analyze the data, new variables were created for the measurements. Mean scores were calculated for the subscales of BREQ2, and the Relative Autonomy Index (RAI) was calculated based on the mean scores in order to obtain a value of the “degree of self-determined motivation” (Ryan & Connell, 1989). This meant that a weighting was applied to each of the subscale scores, where after the weighted scores were summed. The weighting was -3 for amotivation, -2 for external

regulation, -1 for introjected regulation, +2 for identified regulation, and +3 for intrinsic regulation. The total range of scores for the RAI for BREQ2 is from -25 to 19. In this sample the range was from -15.67 to 17.50, with a mean of 6.39 which is at 71.3% of the maximum score of the RAI. Mean scores were also calculated for the subscales of BPNES as well as an overall mean score to be the value of the “degree of need satisfaction”. Lastly, the mean score of PCRS was calculated. Descriptive analyses were made for the main variables in order to obtain frequencies and to confirm normality and homoscedasticity. There were 49 cases with missing data on one or more variables; for this reason, cases were excluded pairwise in all statistical tests. The scales and subscales were tested for internal reliability. In order to answer the research questions, a number of analyses were made. Pearson correlations were calculated for the three main variables (RAI, BPNES and PCRS) as well as for all the subscales. Furthermore, a multiple regression was run to investigate the predictive value of BPNES and PCRS on RAI. A MANOVA was run to test for differences between genders and between organized sport participation on the three main variables and a follow-up t-test was run to see which subscales had the largest gender differences.

Analysis of Qualitative Data

The data obtained from the two open-ended questions was transcribed and subjected to thematic analysis (Braun & Clarke, 2006; Ryan & Bernard, 2003). In line with the six phases suggested by Braun and Clarke (2006), the data was coded according to gender and to the scores on intention for future physical activity; the frequency of occurrence was also noted. Themes were then derived and further analyzed, compared and reduced, as themes deemed as similar were combined. This process was executed on two separate time points by the author to compare the results. Lastly, a word frequency was run with the online tool TextFixer Word Analysis to confirm the identified themes. Examples of wordings for each theme were created based on commonly occurring wordings or combinations of wordings from different

participants to ensure anonymity.

Results

Outside of School Physical Activity and Sport Participation

Descriptive statistics showed that 140 participants (41.4 %) were taking part in organized sports outside of school, out of which 85 were male students (60.7 %). 157 participants were active in non-organized sports, out of which 71 were male students (45.2 %). For exercise frequency, 39 participants (16 males, 23 females) reported exercising less than once per week, 102 participants (43 males, 58 females) reported exercising 1-2 times per week, 131 participants (68 males, 62 females) reported exercising 3-4 times per week, and 66 participants (45 males, 19 females) reported exercising more than five times per week.

The Relationship between Perceived Relevance and Self-Determination

Pearson correlations of the three scales and their subscales were performed (see Table 1). The correlation between external regulation and introjected regulation was significant at a level of .05; all other correlations were significant at a level of .01. A multiple regression was used to see the predictive value of autonomy, competence, relatedness and perceived relevance on self-determined motivation. Preliminary analyses were conducted in order to ensure that there were no violations to any of the assumptions normality, linearity, multicollinearity and homoscedasticity. The whole model explained 51.5% of the variance of RAI ($R^2 = .52$, $F(4, 294) = 77.98$, $p < .001$). Analyses of the coefficients showed that PCRS alone explained the largest amount of the variance ($\beta = .32$, part. = .24, $p < .001$). Competence had the second highest beta value ($\beta = .29$, part. = .20, $p < .001$), while Relatedness had a lower value ($\beta = .20$, part. = .16, $p < .001$). Autonomy did not explain a significant amount of the variance of RAI ($\beta = .05$, part. = .04, $p = .365$).

Table 1*Correlations*

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Relative Autonomy Index	6.39	6.90	-										
2. Amotivation	1.66	0.80	-.83	-									
3. External Regulation	1.98	0.97	-.63	.41	-								
4. Introjected Regulation	2.68	1.10	.19	-.24	.13	-							
5. Identified Regulation	3.57	0.85	.76	-.60	-.19	.50	-						
6. Intrinsic Regulation	3.58	1.02	.87	-.60	-.32	.39	.76	-					
7. Need Satisfaction	3.33	0.68	.67	-.45	-.29	.31	.59	.73	-				
8. Autonomy	2.66	0.77	.52	-.31	-.22	.32	.49	.60	.83	-			
9. Competence	3.38	0.79	.63	-.43	-.29	.23	.57	.64	.87	.63	-		
10. Relatedness	3.95	0.87	.55	-.39	-.23	.23	.44	.62	.83	.49	.58	-	
11. Perceived Class Relevance	4.58	1.07	.62	-.52	-.19	.33	.63	.64	.66	.60	.59	.47	-

Note: $r > |.16|$ has $p < .01$

Differences between Genders and Organized Sport Participation

A two-way multivariate analysis of variances was performed to check for differences between male and female students, and between participating and not participating in organized sports. Gender and organized sport participation was entered as fixed factors, and RAI, BPNES and PCRS were entered as dependent variables. The results indicated that there are main effects of gender ($F(3, 280) = 11.79, p < .001$; Wilks' Lambda = .89; $\eta_p^2 = .112$) and organized sport participation ($F(3, 280) = 3.24, p = .023$; Wilks' Lambda = .97; $\eta_p^2 = .034$) on the combined DV; however, there was no significant interaction effect ($F(3, 280) = 1.62, p = .184$; Wilks' Lambda = .98; $\eta_p^2 = .017$). Univariate ANOVA results showed that male and female students differed significantly on scores on RAI ($F(1, 282) = 7.72, p = .006, \eta_p^2 = .027$), where male students had higher scores ($M = 7.80, SD = 6.33$) than female students ($M =$

5.36, $SD = 6.97$), and on BPNES ($F(1, 282) = 27.01, p < .001, \eta_p^2 = .087$), where male students scored higher ($M = 3.57, SD = 0.57$) than female students ($M = 3.11, SD = 0.72$). There was no significant difference between gender on PCRS ($F(1, 282) = 1.83, p = .170, \eta_p^2 = .007$). Participation in organized sport had a significant difference on scores on BPNES ($F(1, 282) = 8.04, p = .005, \eta_p^2 = .028$), where participation showed higher scores ($M = 3.50, SD = 0.62$) than non-participation ($M = 3.33, SD = 0.69$), and on PCRS ($F(1, 282) = 4.78, p = .030, \eta_p^2 = .017$), where participation showed higher scores ($M = 4.77, SD = 1.06$) than non-participation ($M = 4.45, SD = 1.09$). There was no significant difference between organized sport participation on RAI ($F(1, 282) = 1.19, p = .277, \eta_p^2 = .004$).

A follow-up independent samples t-test was performed to further investigate the gender differences in the subscales. Significant differences at a level of $p < .05$, with small to medium effect sizes, were found for autonomy, competence, relatedness, external regulation, identified regulation, and intrinsic regulation (see Table 2). For external regulation, females scored higher than males; for all other variables males scored higher than females.

Table 2*T-test for gender differences*

Variables	Equal Variance Assumed	<i>t</i>	<i>df</i>	Sig.	Mean Difference*	Cohen's <i>d</i>
Self-Determined Motivation						
Amotivation	Yes	-0.23	328	.820	-0.02	.03
External Regulation	Yes	-2.27	325	.024	-0.24	.25
Introjected Regulation	Yes	-0.74	329	.461	-0.09	.08
Identified Regulation	Yes	2.14	323	.033	0.20	.24
Intrinsic Regulation	Yes	3.90	327	.000	0.43	.43
Need Satisfaction						
Autonomy	Yes	4.56	326	.000	0.38	.50
Competence	No	5.33	305.13	.000	0.44	.59
Relatedness	No	6.64	295.04	.000	0.60	.73

*Note.** Negative mean difference scores indicate higher mean value for female students

Perceived Purpose of Physical Education

283 participants (144 males, 138 females, 1 did not specify gender) responded to the first open-ended question. The data was analyzed for themes and frequencies on two separate occasions by the author, after which the results were compared and revised to a final version. Seven major themes were identified for the responses to the question about the purpose of physical education, which were confirmed by a word frequency analysis. Some of the most common words used were “move”, “learn”, “good/well”, “health”, “body”, “train/training”, and “important”.

Knowledge – to learn. Answers related to attaining knowledge of some sort were recorded 93 times for male students and 101 times for female students. The most common answers were “to learn about the body”, “to learn about health/nutrition” and “to learn about how to train/exercise”. There were many variations, such as “to learn how to reach training

goals”, “to learn how to prevent injuries” and “to learn how to get stronger”. Another common response was “because it’s important” or “to learn why it is important to be physically active/healthy”. Less common answers in this category included “to learn how to cooperate”, “to learn CPR/how to save lives/about drugs” and “to learn how to get better cohesion”.

Exercising – to move. The second most common category contained answers such as “to move”, “to be/stay active” and “to exercise”. These answers were often the only statement written, but were sometimes combined with answers that fit into the other categories. Answers in this category were recorded 48 times for male students and 49 times for female students.

For those who are not physically active. Another common answer (40 times for male students, 47 times for female students) was that physical education was mainly for those adolescents who are not physically active outside of school. Examples of phrasings were “to make sure everyone exercises at least once per week”, “for those who don’t have the opportunity to be active on their leisure time” and “to inspire those who are not active and increase their interest in physical activity”. Less common answers were “to try different activities” and “to get motivated”.

Physical and psychological benefits – to feel better. Many participants pointed out physical and/or psychological benefits that could be obtained from participating in physical education and being physically active; this was mentioned 41 times by male students and 44 times by female students. For example, some answered “to get fit”, “to get stronger” and “to reduce stress”, while others simply wrote “to feel good/better” or “because it’s good for you/for the health”.

Carryover effect – to increase performance in other subjects. A common response (34 times for male students, 38 times for female students) was that the purpose of physical education was “because it’s good for academic performance”, “to get a break from ‘normal’ lectures” and “to do something different than to just sit still all day in school”. Others replied

“to have fun” or “to concentrate better”.

The bigger picture – to improve future personal health or national health. This was a less frequent theme, recorded by 15 male participants and 13 female participants. Examples of answers was “it’s important for the future”, “to increase national/global health levels” and “to learn important life skills”.

No purpose at all – “I don’t know”. A few participants (13 male students, 4 female students) reported that they didn’t know what the purpose of having physical education was, or that it was “to get grades/credits” or “it’s the rules”. Six females reported that the focus was solely on physical performance and not on health and well-being.

Additional comments. Some of the longer comments added additional information and opinions of interest. For example, some students wrote that the benefits of physical education and of moving in general are so important that there should be physical activities in school every day, while others perceived physical education as being directed mainly towards those who are unhealthy. There were also comments stating that the physical education lessons have become too theoretical and that instead of providing a good break from other lectures and sitting down, physical education has become focused on theory, examinations and thus has become stressful. However, there were also students commenting on the benefits of the theoretical parts.

Intentions for Future Physical Activity and Self-Determined Motivation

270 participants (138 males, 131 females, 1 did not specify gender) responded to the second open-ended question. Descriptive statistics of the variable for reported intention showed a ceiling effect; 196 participants scored seven (107 males, 86 females), which was the highest score. 106 participants scored four to six (50 males, 56 females) and 32 participants scored one to three (12 males, 20 females); there were four cases of missing data. The word frequency analysis showed that some of the most common words used were “good/well”,

“train/training”, “feel”, “want”, “fun”, “important”, “continue”, “better”, and “love”.

Strong intentions. Participants with strong intentions were likely to report intrinsic reasons for engaging in future physical activity, such as “I love it”, “I like it”, “it’s fun”, “I’m passionate about it”, “it’s important” (38 times for male students, 49 times for female students) as well as “I have always done it” and “it’s a big part of my life/of who I am” (21 times for males, 16 times for females). Many participants in this group also answered that they were already involved in sports, either organized or unorganized, that they were training on an elite level or that it was a part of their routine, as reasons for why they had strong intentions to continue (23 times for males, 31 times for females). Reporting strong intentions was also related to integrated and identified regulation reasons, such as “to feel good/better”, “it’s good for your health”, “to feel relaxed/reduce stress/reduce anxiety” (21 times for males, 37 times for females) as well as “to improve in my sport”, “to reach goals”, “to look good” and “to get better self-image” (13 times for males, 9 times for females).

Medium intentions. The above mentioned examples of autonomous motivation (intrinsic, identified and integrated regulation) were commonly present among participants reporting medium intentions as well. For example, answers like “I love it” and “it’s fun” were recorded 12 times each for female and male students, while health benefits were mentioned 16 times by male students and 28 times by female students. Being involved in sports was also present, but less common, in this category (2 times for males, 8 times for females). Other common answers were “to stay in shape” and “to be social” (4 times each for males and females). Some participants with medium intentions also reported reasons related to introjected or external regulation, such as “to avoid feeling guilty”, “to avoid getting restless”, “to avoid gaining weight” and “to feel like I am doing something good” (3 times for males, 5 times for females). In this group there were also a few cases reporting reasons related to amotivation.

Weak or no intentions. Participants reporting weak or no intentions to stay physically active in the future often reported reasons such as “I’m not interested”, “I’m not motivated”, “there’s not enough time”, “I am lazy” (8 male students, 13 female students), as well as “I’m not good at it”, “I’m busy with E-sports”, “I’m content with how I look” and “it’s enough to walk everyday” (3 male students, 4 female students). A few participants answered “I want to be motivated”, “I’m not active outside of school” or “I won’t be exercising regularly” (2 male students, 2 female students). Answers in this category were generally related to amotivation.

Additional comments. More elaborate answers to the question described how some participants were looking forward to organizing their own exercise habits and choosing the activities, rather than being forced to do something they didn’t like in the physical education lessons. Other people commented that they would be able to exercise without having to worry about getting good grades and being evaluated.

Discussion

The analyses showed strong correlations between the variables, supporting self-determination theory and confirming the relationships that have been put forward by previous research (e.g. Ntoumanis & Standage, 2009; Shen et al., 2008). This also confirmed the expected results that perceived relevance has a strong association to both need satisfaction and self-determined motivation, correlating most strongly with the overall mean score for need satisfaction and with the subscales of intrinsic and identified regulation.

Perceived Relevance Conceptual Discussion

Even though the concept of perceived relevance has been in use for a long time, the variety of different definitions and terms used in research is problematic and makes confirmatory, as well as exploratory, research difficult. Keller’s (1987) definition states not only that relevance is defined as the perception of how the content satisfies personal needs and personal and future goals, but also that relevance is a component of motivation. Keller

also describes that perceived relevance can be thought of either as coming from teaching methods or as coming from the content itself. Webster and colleagues (2011) measured both relevance of communication and relevance of content in itself, but as different constructs.

Worth noting is also that perceived relevance often has been investigated in relation to state motivation, whereas the current study measured content relevance in relation to contextual motivation. The reason for often using state motivation could be that motivation is seen as existing on two levels – state or trait. In the hierarchical model of intrinsic and extrinsic motivation (HMIEM; Vallerand, 1997), there are instead three levels – situational, contextual and global. Thus, depending on the underlying theory, the level of motivation investigated in relation to relevance might differ.

Some studies on the area have indicated that perceived relevance is an outcome of motivation (Moreno-Murcia et al., 2012; Webster et al., 2011), while others have suggested that perceived relevance rather is a predictor of motivation (Frymier & Shulman, 1995; Keller, 1983). Frymier and Shulman (1995) also found that relevance had different impacts on state and trait motivation, which further supports a multidimensional model of motivation.

This study aimed to investigate the perceived relevance of the content of the course Physical Education and Health 1 (PEH1). Furthermore, the measurement Perceived Class Relevance Scale (PCRS) was designed to measure content relevance on a contextual level, and should thus be compared to contextual motivation. It is possible that perceived relevance could have different relationships to different levels of motivation, but more research is needed in order to establish this, especially in relation to the three levels of motivation suggested by the HMIEM.

Moreover, Keller's ARCS (Attention, Relevance, Confidence, Satisfaction of outcomes; 1987) model of motivation has several parallels to self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000), which further supports the role of perceived relevance in this context. In the ARCS model, the definition of relevance is similar to that of

perceived need satisfaction, which leaves the question to what relationship it actually has to the three basic psychological needs. Students' perceptions of confidence are similar to the perceived competence variable in self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000a). Satisfaction of outcomes is described as an evaluation of the outcome which then predicts the likelihood of engaging in the same behavior in the future, much like the prediction of intentions. Perceived relevance also has conceptual similarities to identified regulation, in that the individual values the benefits of the activity, e.g. if it's useful for the future. In support of this, the results of the correlation analysis showed a strong association between the mean scores of perceived relevance and identified regulation, but also with intrinsic motivation. These two dimensions also correlate very strongly with each other and with the relative autonomy index, suggesting that the usefulness of a task can have an impact on autonomous motivation. It does however raise the question to whether perceived relevance is a dimension of motivation as Keller (1987) proposed, and thus could be explained in terms of behavior regulation, or whether it is more strongly associated with need satisfaction and then would be an antecedent of self-determined motivation. Theoretically, it seems more reasonable that perceived relevance would be a part of, or a predictor of, motivation rather than an outcome, but as previously mentioned, this could perhaps differ between different levels of motivation.

Perceived Relevance Statistical Discussion

In relation to physical education, perceived relevance was expected to give an image of how the content of the Physical Education and Health 1 course is thought of in relation to the students' other interests and goals, and whether they perceive the knowledge and skills they are being taught as valuable and useful. This is especially important in regard to the students who do not participate in organized sports in their leisure time.

The results of the correlations showed that the Perceived Class Relevance Scale is

highly correlated with all variables except external regulation. External regulation did however not have very strong correlations overall, except for a positive correlation to amotivation and a negative correlation to the relative autonomy index. One possibility is that there are different types of externally regulated people – those who experience controlling motivation as something negative that doesn't provide any benefits, but is still necessary, and those who experience controlling motivation as something that is not enjoyable, but will provide benefits for the current or future state. The behavioral regulations are often seen either as on a continuum (Deci & Ryan, 1985) or in a multidimensional manner (Vallerand, 1997), but neither of these models imply that a person can only score high on one of the categories. It is possible that some have scored high on external regulation while also scoring high on one of the other kinds of regulations.

The multiple regression analysis was performed in order to see whether need satisfaction together with perceived relevance could predict scores on the relative autonomy index. Interestingly, the results showed that the two factors together accounted for 51.5% of the variance, but that only perceived relevance, or only autonomy, competence and relatedness, would account for about 5-6% of the variance. Although this does not mean for certain that perceived relevance does predict self-determined motivation rather than the other way around, it does seem like there is a close relationship, and speculations of whether perceived relevance and need satisfaction might covary are not unreasonable. Future research should further investigate the relationship between these concepts in order to try to establish how they are working together in the motivational process.

Another interesting result of the regression analysis was that perceived autonomy showed non-significant results, meaning that the scores of autonomy could not predict any variance of the relative autonomy index unless considered in combination with competence and relatedness. The quantitative and qualitative results together imply that students overall feel relatively self-determined in their motivation to participate in physical education classes,

even if the perceived autonomy is low. The role of perceived autonomy could be dependent on the individual; some people prefer to structure their exercising by themselves, while others prefer to go to exercise classes where someone else has set the structure and tells them what to do. This is perhaps dependent on what kind of behavior regulation and what goals they have.

When interpreting these results it is however important to have in mind that the internal consistency tests for the subscales showed a lower than expected value for the competence subscale. This suggests that more revision might be needed for the Swedish Basic Psychological Needs in Exercise Scale in order to provide a good fit for a physical education setting.

Gender Differences

The multivariate analysis of variance showed significant differences between male and female students in need satisfaction and self-determined motivation, where females generally scored lower than males. This is in line with previous research showing less favorable conditions for female adolescents, such as less positive attitude towards physical education (Säfvenbom et al., 2015), less perceived meaningfulness of physical education (Barney et al., 2015), and lower perceived competence and lower effort towards physical activity (Bagøien, et al., 2010). As there was no significant difference between male and female students on perceived content relevance in the current study, this suggests that any issues are not in the content in itself, but perhaps rather in need support or other influencing factors, such as family support, less experience with outside-of-school sports, or social norms and beliefs. An interesting finding was that although male students scored significantly higher on all three subscales of need satisfaction, the largest difference was in relation to perceived relatedness, suggesting that female students perceive the social climate as less favorable than male students do.

The results also showed that female students scored significantly higher on extrinsic

regulation but significantly lower on intrinsic and identified regulation than male students. Although the largest difference was in intrinsic regulation, the differences in behavior regulation and need satisfaction both indicate that the climate of physical education is more beneficial for male students. These differences could also be a result of concerns about body image or gender stereotypes, such as sport being perceived as more masculine. However, the qualitative results did not include any comments that could further explain the gender differences, and thus future research should include interviews in order to investigate this.

Organized Sport Participation Differences

The results further showed that those involved in organized sports scored higher in need satisfaction and on perceived content relevance than those not involved in organized sports. This confirms the results of previous studies showing favorable conditions in physical education classes for students with experience of organized sports (Shen, 2014; Säfvenbom et al., 2015; Viira & Koka, 2012). The difference in perceived relevance could mean that those already involved in sports are more likely to find the physical education lessons relevant to their personal interests and goals, or possibly that finding physical education lesson content relevant for personal and future goals makes a person more likely to seek out a sport organization. It seems clear that sport participation plays an important role in motivation for physical education, especially as it was often mentioned in the open-ended questions as a reason for staying physically active in the future. However, there are many other factors that also need to be taken into consideration, such as need support and global motivation.

Perceived Purpose of Physical Education

The results from the open-ended questions provide interesting insights in addition to the quantitative results. The responses to the first question, the perceived purpose of physical education, showed that many participants thought it was to learn about health, body and training, although another very common response was that the purpose was to simply move or

be active. One of the more elaborate comments, as well as many shorter comments, described that one of the perceived purposes was that physical education is mainly meant for those who are not already healthy and/or physically active, “to make sure everyone is active”. This response could indicate that some students consider physical education to be relevant for others, but not as much for themselves. It could also be connected to the quantitative results showing a significant difference in perceived class relevance between those who were and those who were not participating in organized sports. It is therefore important to provide content that can be adapted so that all students get the opportunity to develop in the context.

Although it is important to remember that many of the participants did not respond at all to the open-ended questions, there were only a few of those who did that answered that they didn't know what the purpose was, or who replied “to get credits”. This indicates that learning aims and goals still vary in clarity of communication, as has been pointed out by previous research (Larsson & Redelius, 2008; Redelius et al., 2015).

The results from the SIH study put forward by Lundvall and Brun Sundblad (2017) has implied that physical education in Sweden is undergoing some changes, where it is becoming more theoretical and where the health perspective is taking up more space; this could be an effect of the inclusion of requirements of knowledge in the new curriculum (Larsson & Karlefors, 2015). In line with this, the increasing role of theory in physical education was mentioned by several participants, where both advantages and disadvantages were brought up. Some perceived it as too theoretical, while others thought it was not theoretical enough. Advantages included acquiring useful skills and knowledge about the body, nutrition and training, enabling them to create a healthy lifestyle for themselves. The disadvantages mentioned was that physical education has become a more “sedentary” lecture, and that it now induces the same levels of stress and pressure as many students perceive exist in the other subjects. As many participants mentioned, one of the perceived purposes of physical education is to get a break from the other lectures, and do something other than just sitting

down, which suggests that students often appreciate doing some physical activity during the school day and also believe that it is beneficial both for their health and for their concentration and performance in other subjects. The frequent use of the words “health” and “healthy” further supports that health has become more important in physical education in Sweden (Lundvall & Brun Sundblad, 2017).

Another interesting finding was a part of the “knowledge”-theme, where many participants responded that the purpose of having physical education was because it is important. Most students seemed to be aware that physical education and physical activity is important, but the question is if they know why it is important. This is not always apparent from the answers, but would be interesting to investigate further in interviews.

Future Intentions and Self-Determined Motivation

The data derived from the second open-ended question had many similarities to the different types of behavior regulation described by the self-determination theory (Deci & Ryan 1985; Ryan & Deci 2000). Interestingly, the occurrence of the types of behavior regulation that were identified among the answers corresponded well to the respondents' scores on intention for future physical activity, despite the ceiling effect. This means that intrinsic reasons were more common among those with high scores on intention, while extrinsic reasons were more common among those with low scores on intention. This supports a relationship between self-determined motivation and intentions for future physical activity, which is in line with previous quantitative research (e.g. Lim & Wang, 2009; Hagger et al., 2005) and which also supports the trans-contextual model (TCM; Hagger et al., 2003).

Some participants reported strong intentions with the motivation that on their leisure time they have more autonomy, as they can choose and organize their activity as they wish. This suggests that motivation for leisure time physical activity could still be high even if motivation for physical education is low. Another noteworthy result was the examples of the

intrinsic reasons, such as “I have always done it”, and “it’s a part of my life”. The answers in this category suggest that previous experience of organized or unorganized sports is of great value for intrinsic motivation. This is in line with findings from a longitudinal study by Scheerder and colleagues (2006), showing that the likelihood of being physically active in adulthood increased with the amount of years that the person had been involved in organized sports during adolescence. Perhaps this suggests that setting a routine for physical activity during childhood and adolescence could decrease the risk of becoming physically inactive in adulthood, even if dropping out of organized sports. Similarly, a longitudinal study by Kjønniksen and colleagues (2009) showed that organized sport participation predicted future physical activity, although only for male participants and only with a moderate association. The strongest predictor of future physical activity for female participants was attitudes towards physical education, which is very interesting in the light of the quantitative results comparing genders, where female students scored higher on extrinsic motivation and lower on need satisfaction. Perhaps slightly contradictory are the results that a few students report medium intentions while also describing that they are involved in sports, suggesting that they might be thinking about leaving that sport.

It is possible that unorganized sport participation has not received enough attention in its impact on motivation in physical education. While organized sport often can have a similar structure to physical education classes, perhaps simply having the experience and the routine of being physically active can have a large impact on self-determined motivation in physical education as well as physical activity. Future research should therefore investigate the predictive value of both organized and unorganized sport participation, with emphasis on amount of participation years, on self-determined motivation and on intentions to stay physically active.

Towards a Multidimensional Process Model of Motivation

Two of the main models used to describe and explain the motivational process in a physical education and physical activity context, the trans-contextual model (TCM; Hagger et al., 2003) and the hierarchical model (HMIEM; Vallerand, 1997), have several notable similarities and differences. The first part of the TCM (perceived autonomy support affects autonomous motivation) can be compared to HMIEM, in which perceived autonomy support is described as one of the social/environmental factors which affect motivation. TCM includes the three antecedents of intention from the theory of planned behavior (attitudes, social norms, and perceived behavioral control; Ajzen, 1991) which in turn lead to behavior. Comparably, in HMIEM intentions can be viewed as one of the behavioral outcomes, but are not explicitly mentioned.

While they both support a facilitative cross-over interaction between self-determined motivation in physical education and physical activity, HMIEM promotes a multidimensional image of motivation by proposing three hierarchical levels, situational, contextual, and global motivation. TCM is intended to explain the effect of motivation in physical education on motivation in physical activity, but does not account for the other way around. Thus it is more specific, while HMIEM explains motivation on a more general level and could be fitted into different contexts. This might also be the reason why it does not include perceived autonomy support, which is a variable often investigated in relation to physical education. As these models both have strengths and limitations, one cannot say that one is the more correct to use. The quantitative results of this study can only confirm the relationship between self-determined motivation and need satisfaction in physical education, which is present in both models. However, the hierarchical and multidimensional view of motivation suggested by Vallerand (1997) could mean that motivation is too complex to be described on a continuum, as was originally suggested by Deci and Ryan (1985). A recently published article by Chemolli and Gagne (2014) also advised against the use of the relative autonomy index, as it is dependent on the view of motivation as on a continuum. While being aware of that, the

relative autonomy index was still used in this study for the statistical analyses, as a better solution is yet to be attained by the current field of research.

While it is important to have in mind that the results obtained using the relative autonomy index might not provide the best description of multidimensional self-determined motivation in relation to other constructs, it does provide an adequate image of the strength of the relationships to other variables. It would be interesting to see a version of the HMIEM which has adapted some additional aspects from the TCM (e.g. autonomy support, intentions, and perhaps perceived relevance) and which could be used specifically for the complex motivational process that concerns both physical education and physical activity.

Methodological Discussion

The psychometric analyses showed less than optimal results for the measurements. For example, one of the items (Item 4) in Perceived Class Relevance Scale showed unreliable statistics compared to the other items. This was one of the items that were negatively phrased, and it is likely that many participants failed to notice. Overall, there were several cases with missing or inconclusive data. This could be due to hurrying through the questionnaire and accidentally skipping some items or failing to notice the reversed phrasing of some of the items. It is also possible that some participants thought the questionnaire to be too long, and thus did not feel motivated to read and think through everything. Seven cases were excluded due to apparent inconclusive data, but there were many cases where the coherence was unclear.

Some participants expressed item 7 (autonomy subscale) of the Basic Psychological Needs in Exercise Scale as vague or difficult to understand. This item was phrased “I feel that the PE content definitely expresses who I am”, which was adapted from the original version “I feel that my exercising definitely expresses who I am”. Although the psychometric analysis did not show any unreliable results for this item, it does suggest that this item better fits an

exercise context than a physical education context. The phrase “PE content” can seem a bit vaguer than just “exercising”, especially since physical education also has theoretical content, and this implies that further revision of the Swedish measurement is needed in order to use it for physical education. Thus, future research should look into revising the items of both the Behavioural Regulation in Exercise Questionnaire (BREQ-2) and the Basic Psychological Needs in Exercise Scale (BPNES), as well as confirming them with factor analyses.

Strengths and Limitations

A number of limitations were identified for the current study. The thematic analysis was performed by one person only. However, the themes derived by the author were largely supported by the keyword analysis, suggesting that the results are reliable. Due to limited time and resources, using revised versions of the validated Swedish versions of BREQ2 and BPNES was deemed to be the best option. Although later versions of the BREQ have been developed to include a subscale for integrated regulation, these have not yet been validated in Swedish and thus would need to be both translated and adapted to a physical education context. Furthermore, the cross-sectional nature of this study meant that no conclusions could be drawn about the direction of the relationships between variables. Thus, the role of perceived content relevance in relation to self-determined motivation, need satisfaction and intentions is still somewhat unclear and would need to be further investigated in a more extensive longitudinal study. Using only self-report measures also limits the validity of the results, and future research is encouraged to use objective measures as well.

Moreover, there are several possibly confounding variables not controlled for in this study, such as amount of years in sport participation, family sporting habits and socioeconomic status, which could have an impact on level of motivation, organized sport participation and/or physical activity level.

One of the main strengths of this study was the large sample size, which consisted of students from several different schools in different cities. The sample size has enabled great power value for the statistical tests and promoted reliable results. Furthermore, by integrating a relevant concept from pedagogical research and theory with the psychological theory of self-determined motivation, this study has attempted interdisciplinary bridging, which is a step toward a more unified research field. By using both quantitative and qualitative data, the results of this study have provided more in-depth insights of adolescents' perceptions of physical education. In order to affect the cognitions, affects and behaviors of a specific group of people, it is important to understand their thoughts and point of view; this study has further given some light to how the changes in the new curriculum have altered the conditions for physical education in Sweden.

Future Research

Future research should work towards validating the measurements Behavioural Regulation in Exercise Questionnaire (BREQ-2), Basic Psychological Needs in Exercise Scale (BPNES) and Perceived Class Relevance Scale (PCRS) for physical education and in Swedish. Furthermore, research should investigate whether perceived relevance is of importance and where it belongs in a motivational process model, as well as work towards finding a way of working with self-determined motivation as a multidimensional context with an alternative to the relative autonomy index. Moreover, it would be interesting to see more longitudinal research including continuous follow-ups once or twice per year in order to investigate what happens during the last year of upper secondary school and during the transition to "adulthood", e.g. if there are any differences between those who move on to higher education and those who move on to a profession. Future studies should also investigate both self-reported and actual physical activity levels and include previous sport experience, both organized and unorganized, as well as family sporting habits. It would also

be interesting with more in-depth interviews with adolescents and young adults to get even more information about perceptions of physical education and physical activity.

Conclusion

The aim of the study was to investigate the role of perceived relevance of physical education in relation to self-determined motivation and need satisfaction. The results of this study have provided a picture of the current state of physical education in Swedish upper secondary schools and how it is perceived by the students. One of the most interesting findings was the perceived unfavorable social climate for female students. The quantitative results supported previous research regarding the relationship between behavior regulation and need satisfaction, while further suggesting that perceived content relevance is also closely related to these concepts. In line with previous research, gender differences were found for both self-determined motivation and perceived need satisfaction, while participating in organized sports or not was related to differences in perceived need satisfaction and perceived content relevance. The qualitative findings emphasized that experiences of both organized and unorganized sport participation have an important impact on intentions for future engagement in leisure time physical activity, which should be taken into consideration in future research. Additionally, the results showed that many, but not all, students are aware of the purpose of physical education and perceive it as important, and the qualitative data reflected the increased importance of theory and health in the new curriculum.

Thus, despite being a well-researched area, it is still apparent that young girls are at risk of becoming sedentary and that it is of great importance to communicate clear aims and learning goals for physical education in order to increase self-determined motivation and perceived relevance.

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Appendix A – Informed consent

Enkätstudie om skolidrott och motivation
Informerat samtycke

Denna studie angående skolidrott och motivation kommer under några veckor framöver att genomföras på gymnasieskolor i Lunds omkrets. Studien genomförs som underlag till en masteruppsats i ämnet psykologi vid Lunds Universitet. Jag är intresserad av att veta just Din upplevelse av skolidrotten.

Enkäten handlar om skolidrott på gymnasiet. Det kommer även att finnas demografiska frågor, såsom ålder, kön och gymnasieprogram, för att se till att urvalet är representativt. Sist i enkäten finns två öppna frågor där jag gärna vill veta mer om vad just Du tycker. Enkäten tar ca 10 minuter att besvara. Det är helt frivilligt att delta och Du får avbryta när Du vill utan att ange någon orsak. Om Du väljer att avbryta kommer Dina svar inte att användas i studien.

All data som samlas in kommer att behandlas helt anonymt. Datan kommer att användas till de analyser som kommer att ligga till grund för uppsatsarbetet som pågår under vårterminen 2017. Ingen data kommer att presenteras på individnivå i uppsatsen, utan grupperas i analyserna utifrån exempelvis kön för att få en generell bild av gymnasieungdomars åsikter. Den färdiga uppsatsen kommer att presenteras inför de handledare och lärare vid Lunds Universitet som är ansvariga för examinationen, samt finnas tillgänglig för andra som vill ta del av resultatet.

Om Du är intresserad av att ta del av resultatet kan Du fylla i Din e-mailadress nedan, så kommer den färdiga uppsatsen att skickas till Dig. Resultatet i denna studie kan komma att ligga till underlag för en uppföljningsstudie i framtiden. Detta är såklart också helt frivilligt, och även om Du tackar ja nu går det bra att ångra sig när som helst. Om Du inte vill bli kontaktad behöver Du inte fylla i Din e-mail.

Genom att skriva under bekräftar Du att Du har läst ovanstående information och gått med på att delta i studien, med vetskap om att Du har möjlighet att avbryta Ditt deltagande när som helst utan konsekvenser.

Datum

Signatur

FRIVILLIGT:

- Ja, jag vill gärna ta del av resultatet (masteruppsats skriven på engelska)
- Ja, det går bra att ni kontaktar mig i framtiden för en uppföljningsstudie

E-mail: _____

Tack för Ditt deltagande!

Om Du har frågor om studien eller frågorna i enkäten kan Du ställa dem direkt till mig alternativt kontakta mig via mail:

Ebba Dalqvist, ebba.dalqvist.870@student.lu.se

Handledare: Sofia Bunke, sofia.bunke@psy.lu.se

Appendix B - Questionnaire

Ålder: _____

Kön: _____

Gymnasieprogram: _____

Hur ofta brukar du på din fritid träna så att du blir andfådd/svettas?

- Mer sällan/Aldrig
- 1-2 gånger per vecka
- 3-4 gånger per vecka
- Mer än 5 gånger per vecka

Är du delaktig inom någon föreningsidrottsverksamhet på din fritid?

(Exempelvis fotbollsklubb, eller friidrottsförening)

- Ja
- Nej

Läs igenom påståendena noggrant. Vänligen markera hur väl du tycker att påståendena nedan stämmer överrens på dig. Observera att det inte finns några rätta eller felaktiga svar, det är endast din egen uppfattning och hur du känner gällande skolidrotten och skolidrottslektionerna som vi är intresserade av.

	Stämmer inte alls	Stämmer ibland	Stämmer helt		
1 Jag deltar på idrottslektionerna för att andra säger att jag borde	1	2	3	4	5
2 Jag får dåligt samvete om jag inte deltar på idrottslektionerna	1	2	3	4	5
3 Det finns många fördelar med att delta på idrottslektionerna	1	2	3	4	5
4 Jag deltar på idrottslektionerna för att det är kul	1	2	3	4	5
5 Jag ser ingen anledning till varför jag måste delta på idrottslektionerna	1	2	3	4	5
6 Jag deltar på idrottslektionerna för att vänner/föräldrar/lärare säger att jag borde	1	2	3	4	5
7 Jag skäms när jag missar en idrottslektion	1	2	3	4	5
8 Det är viktigt för mig att delta på idrottslektionerna	1	2	3	4	5
9 Jag ser inga skäl till varför jag skulle bry mig om att delta på idrottslektionerna	1	2	3	4	5
10 Jag har en positiv känsla under idrottslektionerna	1	2	3	4	5
11 Jag deltar på idrottslektionerna för att andra skulle bli besvikna om jag inte gör det	1	2	3	4	5
12 Jag ser inte poängen med att delta på idrottslektionerna	1	2	3	4	5
13 Jag blir besviken när jag inte kan delta på idrottslektionerna	1	2	3	4	5
14 Jag tycker det är viktigt att ta idrottslektionerna på allvar	1	2	3	4	5
15 Jag deltar för att jag tycker om idrottslektionerna	1	2	3	4	5
16 Jag känner press från vänner/föräldrar/lärare att delta på idrottslektionerna	1	2	3	4	5
17 Jag blir rastlös om jag inte deltar på idrottslektionerna	1	2	3	4	5
18 Jag känner glädje och tillfredsställelse under idrottslektionerna	1	2	3	4	5
19 Jag tycker att idrottslektionerna är bortkastad tid	1	2	3	4	5

	Stämmer inte alls		Stämmer ganska bra		Stämmer helt
20 Upplägget på idrottslektionerna stämmer helt överrens med mina intressen och val	1	2	3	4	5
21 Jag känner att jag har gjort stora framsteg för att nå mina mål på idrottslektionerna	1	2	3	4	5
22 Jag känner mig bekväm tillsammans med andra på idrottslektionerna	1	2	3	4	5
23 Jag känner att upplägget på idrottslektionerna stämmer helt överrens med hur jag föredrar att träna	1	2	3	4	5
24 Jag känner att jag tränar på ett mycket effektivt sätt på idrottslektionerna	1	2	3	4	5
25 Jag känner att jag kan umgås med andra på idrottslektionerna på ett mycket trevligt sätt	1	2	3	4	5
26 Jag känner att lektionsinnehållet definitivt ger uttryck för vem jag är	1	2	3	4	5
27 Jag känner att jag är mycket bra på skolidrott	1	2	3	4	5
28 Jag känner att det finns en öppen atmosfär i kommunikationen med idrottsläraren	1	2	3	4	5
29 Jag känner mycket starkt att jag har möjlighet att påverka upplägget på idrottslektionerna	1	2	3	4	5
30 Jag känner att jag kan klara av de krav som skolidrotten/idrottsläraren ställer på mig	1	2	3	4	5
31 Jag känner mig avslappnad tillsammans med andra på idrottslektionerna	1	2	3	4	5

Kunskapen och förmågorna jag lär mig på skolidrotten...

	Håller inte alls med		Håller delvis med			Håller n helt och hå	
1 Kommer att hjälpa mig nå mina personliga mål	1	2	3	4	5	6	7
2 Är relaterade till intressen jag har utanför skolidrotten	1	2	3	4	5	6	7
3 Är viktiga för mig	1	2	3	4	5	6	7
4 Är inte relaterade till mina personliga mål	1	2	3	4	5	6	7
5 Har väldigt lite gemensamt med mina personliga intressen	1	2	3	4	5	6	7
6 Kommer att hjälpa mig lyckas i andra områden av mitt liv	1	2	3	4	5	6	7
7 Är inte värdefulla för mig	1	2	3	4	5	6	7
8 Kan användas i andra aspekter av mitt liv	1	2	3	4	5	6	7

- Vad uppfattar du vara det huvudsakliga syftet med att ha skolidrott på schemat?

- Hur sannolikt är det att du kommer att fortsätta motionera/träna regelbundet på fritiden nästa termin?

Inte alls sannolikt
sannolikt

Ganska sannolikt

Mycket

1

2

3

4

5

6

7

Förklara gärna varför.