

**Predicting Leisure Time Physical Activity in Finnish
School Students**
A longitudinal Study of The Trans-Contextual Model

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ABSTRACT

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Considering the consequences of inactivity among children, a central question is how to motivate them to become more physically active. The trans-contextual model (TCM) explains how autonomy support in one context lead to autonomous forms of motivation in the same context which can then transfer to other contexts. There is considerable research demonstrating links between autonomy supportive environment and student autonomous motivation and adaptive outcomes in class. However, comparatively less research has focused on the role of autonomy support in PE setting on children's behavior outside of school and no other studies have investigated the effect of time of the TCM variables. Thus, the aim of this study was to investigate the effect of time on the motivational sequence of the TCM.

Participants were 277 students aged 12-16 years from two Finnish secondary schools. Scales based on the Perceived Locus of Causality Questionnaire and the Theory of Planned Behavior Questionnaire, and self-reported PA level were distributed twice 4 weeks apart. Data were analyzed using SPSS for correlations and regression analysis of the change score variables calculated as the results from time 1 subtracted from results from time 2.

Results showed only minor changes between the two time points. In general, relatively low R squared values of the change score variables were found, with the strongest predictor variable being change in autonomous motivation in leisure time (LT) explaining 15% of the variance in change in intention. Especially interesting for the TCM, change in autonomous motivation in class explained 13% of the variance in change in autonomous motivation in LT. In conclusion, results supported the hypotheses demonstrating the TCM's efficacy in explaining variance in model variables. Future research implementing an intervention is needed to obtain a more complete understanding of the motivational sequence proposed by the model and the effect of autonomy support in PE on LT PA participation.

Keywords: trans-contextual model, autonomous motivation, physical activity

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1 INTRODUCTION

Physical activity (PA) has been connected to physical and psychological health. Increasing PA levels among children and young people should be of high priority, especially because literature has found that PA participation during childhood and adolescence predicts participation in adulthood.

This study is a part of the Physical Education Teacher Autonomy Support Intervention to Promote Leisure Time Physical Activity in School Students (PETALS) project, headed by Martin Hagger and Taru Lintunen at University of Jyväskylä (www.fidiproimpact.com) The PETALS project aims at increasing the level of PA participation among children and young people. One way of dealing with this issue is by a theoretical approach. Many psychological theories have aimed to explain behavior, and many of these have been adopted to explain behavior in PA context. Not only are the theories important for identifying which factors influence PA participation, but also for understanding the process behind this influence.

PA is defined as “Any bodily movement produced by skeletal muscles that results in energy expenditure” (Caspersen et al., 1985, p. 126). The benefits of PA include reduced risk of overweight, diabetes and cardiovascular diseases, strengthening of the bones and muscles, and improved mood and mental health (Strong et al., 2005). Furthermore, PA has shown to be dose-dependent in young people (Janssen & LeBlanc, 2010) which means that with increased PA level come increased health benefits. Interestingly, PA has also been related to better academic results and intellectual performance (Strong et al., 2005). Governments have made recommendations for ideal PA levels and limits for sedentary time, and global recommendations also exist (WHO, 2010). However, Tammelin et al. 2016 found that only 21% to 40% of Finnish children and youth meet the recommendations.

The importance of starting early in life with PA can be argued. During childhood some habits and values are developed, and throughout this thesis, different theories will be presented supporting the need of assisting children in developing active habits, to prevent future health issues. An example of evidence supporting this, and thereby the rationale for starting PA early in life, is Murphy, Rowe and Woods (2016) who showed that sport

participation among adolescence (10-18-year-old) predicts PA participation five years later in life.

The school appears to be an ideal place to promote PA, especially in physical education (PE) class. PE class is a context where children are provided with important life skills and where they learn about sports and PA. Here, they are introduced to, and have experiences with different types of PAs within a social context. What the children experience in PE class might therefore affect their view on PA in other contexts, which can influence future participation. Not surprising, teachers play an important role in the students' experience and motivation towards participating in activities in class (see e.g. Hein, 2012 for a review). However, there is relatively little research on how teachers can influence students' motivation towards PA in their leisure time (LT), and further, how they can influence the students' future engagement in PA.

A key construct in the transfer of motivation across contexts is perceived autonomy support (PAS) derived from self-determination theory (SDT: Deci & Ryan, 1985a, 2000). PAS is essential for enjoyment and self-determined or *autonomous* motivation, which is associated with adaptive educational outcomes, academic attainment and sustained behavior, in contrast to more controlling forms of motivation (Deci, Vallerand, Pelletier, & Ryan, 1991). Therefore, an autonomy supportive teaching style can be an important tool for the PE teacher who is interested in increasing their students' autonomous motivation towards PAs in their class and further, influence their motivation towards similar activities in other contexts and in their future.

In 2003, Hagger et al. introduced the trans-contextual model (TCM), which combines the Theory of Planned Behavior (TPB: Ajzen, 1985) and SDT with the Hierarchical Model of Intrinsic and Extrinsic Motivation (Vallerand 1997). This meta-theory explains how students' PAS from the teacher influences autonomous motivation towards activities in class, which can then transfer to similar activities in other contexts and predict future engagement in PA. Thus, the theory describes a motivational sequence and provides an understanding of which factors act as mediators of behavior. A meta-analytic review has recently provided support for the model across several studies (Hagger & Chatzisarantis 2016).

Being a part of the PETALS-project, this study will further examine the TCM by adopting a three-wave prospective design. The master thesis will first describe the theories behind the trans-contextual model, the model itself and its assumptions. The presented literature will mainly focus on the school context. The purpose of the study is to examine school children's PAS provided by the PE teacher and the motivational sequence proposed by TCM and its efficacy of predicting PA participation. Further, the focus is on predicting change in the TCM variables using the difference between scores of two time points. Based on the previous literature, specific hypotheses are formed on the relationships between the constructs within the model. The method of the study and taken measures are described in detail. Lastly, the results are reported and discussed. In conclusion, practical implications and suggestions for future research is presented.

2 THEORIES BEHIND THE TRANS-CONTEXTUAL MODEL

The TCM draws its hypotheses from the theory of planned behavior (Ajzen, 1985, 1991), self-determination theory (Deci & Ryan, 1985, 2000) and Vallerand's (1997, 2000, 2007) hierarchical model of intrinsic and extrinsic motivation. In this chapter, these theories are described and put into a PA and school context, as well as how the theories work together and complementing each other. Lastly, the trans-contextual model is explained in further detail including its empirical support.

2.1 THE THEORY OF PLANNED BEHAVIOR

The theory of planned behavior (TPB; Ajzen 1985) is a social cognitive theory aimed to explain and predict intentions and behavior. The efficacy of TPB as a predictor of intentions and behavior has been shown in previous studies (e.g. Armitage & Conner, 2001). TPB is based on Fishbein and Ajzen's (1975) *theory of reasoned action*. The following section will go in deeper explanation of the TPB. First, the theory of reasoned action and the basic components of the TPB are presented. Then the salient beliefs behind the predictors of intention are described and lastly, studies on the TPB related to physical activity are introduced.

2.1.1 FROM A THEORY OF REASONED ACTION

According to Fishbein and Ajzen's (1975) theory of reasoned action, the strongest predictor of volitional behavior is the intention to perform it. The intention indicates how willing a person is to try to perform a behavior. Generally, the higher the intention, the higher the chance that an actual behavior will occur. There are two basic determinants of intention: *attitude* towards the behavior and *subjective norm* (SN). The attitude is based on a person's positive or negative evaluation of outcomes of the behavior, an expectancy-value interaction. SN is the perceived pressure one is experiencing from significant others to perform the behavior. In other words, when we evaluate a behavior positively and we believe that important others think that we should perform it, we have an intention to do it, and this intention will lead to a behavior (Ajzen, 1985; Ajzen & Driver, 1991). When measuring attitude and SN, it is important to keep in mind that both variables are highly

specific to the actual behavior and Ajzen (1985) stresses that the measure of intention should be as close to the behavior as possible. The relationship between intention and behavior has been supported in meta-analytic reviews (e.g. Randall & Wolff, 1994). Randall and Wolff (1994) even reported that the intention-behavior relationship did not decline significantly over time as it was expected, adding additional support to the theory. The theory of reasoned action has however, been described as insufficient since it does not take into consideration behaviors that are under incomplete volitional control. (Ajzen, 1985). As described in the following, this issue was addressed by the theory of planned behavior.

2.1.2 THEORY OF PLANNED BEHAVIOR AND PERCEIVED BEHAVIORAL CONTROL

While the theory of reasoned action explains behavior under complete volitional control, the TPB is expanding the theory by taking into consideration the person's beliefs about whether or not they will succeed in the behavior and the degree of control over external factors, in other words one's subjective estimate of their *ability*, also called *perceived behavioral control* (PBC) (Ajzen, 1985, p.36). Consequently, the intention is a summary of a person's attitude towards the behavior, SN, and PBC. Thus, TPB is explaining not only volitional behaviors, but also non-volitional since it accepts that behavior can be influenced by factors over which people only have limited control. Ajzen (1991) stresses that PBC should not be confused with *actual* behavioral control. It should be clear that *actual* behavioral control over a behavior is vital. To reach behavioral achievement, the necessary resources and opportunities must be available. For example, people are unlikely to succeed in exercising more in the gym if they cannot afford a gym membership. However, *perceived* behavioral control and the effect on intention is of greater psychological interest. PBC has been linked to Bandura's (1977) self-efficacy construct. Armitage and Conner (2001) argue that there are however important differences between the two constructs, such as their ability to predict intention and behavior. In their meta-analytic review, they distinguished between self-efficacy, PBC and perceived control over the behavior. Self-efficacy was defined as 'confidence in one's own ability to carry out a particular behavior'. PBC was defined as 'the perceived ease or difficulty of performing behavior' and perceived control over behavior was defined as 'perceived controllability of behavior'.

They found that self-efficacy and PBC correlate with intention and behavior at a comparable level (Armitage & Conner, 2001).

Ajzen (1991) identified a number of studies with results showing that a combination of intentions and PBC significantly can predict behavior. It might not sound surprising that if two children have equally strong intention to learn how to play football, then the one with higher PBC is more likely to succeed than the one with lower belief in his own ability.

Armitage and Conner (2001) also showed that PBC independently predicted intentions and behavior in different areas. In contrast, results of the study by Hagger et al. 2003 revealed attitude to be a stronger predictor of intention than PBC. The importance of the three determinants in predicting intention is relative and depends on the situation and behavior (Ajzen, 1991). In some cases, not all determinants are relevant, in others, all three make an independent influence.

2.1.3 BELIEFS

The three determinants of intention, attitude, SN and PBC are influenced by a set of underlying salient beliefs: 1) *behavioral beliefs*, which influence attitude, 2) *normative beliefs*, which are behind SN, and 3) *control beliefs*, which are the basis of PBC. These are examined in the following.

Behavioral Beliefs

When we evaluate a behavior, we link it with a valued outcome (Ajzen, 1985). For example, a person might want to lose weight and believes that increasing the amount of physical activity during the week (behavior) will increase the amount of burned calories and help in the process of achieving their goal (outcome). These kinds of salient beliefs underpin a person's attitude toward a behavior and are called the behavioral beliefs (Ajzen, 1985). The strength of the belief is in direct proportion with the attitude and the probability of producing the outcome. Stated differently, the stronger the belief, the stronger attitude and the more likely it is to engage in the behavior (Ajzen & Driver, 1991). Ajzen and Driver (1991) distinguish between two to kinds of behavioral beliefs: 1) *instrumental beliefs*, which are about costs and benefits of the behavior and 2) *affective beliefs*, which are about feelings associated with the behavior. This differentiation makes it possible to go into more detail about the beliefs behind a given behavior. People may believe that an

activity is good for their health but not get any positive feelings when doing it, and conversely, another activity may be believed by people to be bad for them, but they enjoy doing it.

Normative Beliefs

The *normative beliefs* are the ones behind SN and are beliefs about what other people think about performing the behavior (Ajzen, 1985). The beliefs are concerned with the approval or disapproval of important others and these normative referents are typically friends and family (Ajzen & Driver, 1991). The construct of SN and the normative beliefs, have been found to be weak predictors of intention and behavior, whereas PBC and control beliefs are much stronger predictors (Chatzisarantis, Hagger & Brickell, 2008; Armitage & Conner, 2001; Ajzen & Driver, 1991; Neipp, Quiles & Rodríguez-Martín, 2013). Hagger and Chatzisarantis (2016) also found SN to be a weaker predictor of intention and behavior suggesting that this could be due to a considerable degree of variability because the construct may reflect both social pressures and internalized beliefs of others about the behavior.

Control Beliefs

Control beliefs form the basis for PBC (Ajzen, 1991). These beliefs deal with resources and opportunities. They may be partly based on past experiences, but mostly they are a product of information people obtain from surroundings about the behavior. This information will either increase or decrease the perceived difficulty of performing the behavior and produce the PBC (Ajzen & Driver, 1991). The more resources people believe to have, the more control they will have over the behavior, which will increase the possibility of performing the behavior.

In the attempt to predict leisure behavior, one can use either global measures of the determinants (attitudes, SN, and PBC) or measures of the salient beliefs (Ajzen & Driver, 1991). Ajzen and Driver (1991) measured salient beliefs and global beliefs about five different leisure activities and their relation to actual leisure participation one year later. Many of the observed correlations in their study were significant. They found that in accordance with TPB, people tend to engage in activities when they 1) positively evaluate the outcomes of them, 2) experience support and approval from friends and family and 3)

believe themselves that they have the necessary recourses required. In accordance with Ajzen's (1991) statement that the importance of the three determinants of intention is situation and behavior specific, different kinds of beliefs were found to matter in different kinds of activities (Ajzen & Driver, 1991).

2.1.4 THEORY OF PLANNED BEHAVIOR AND PREDICTING PHYSICAL ACTIVITY

The present study is a part of a program with the long-term aim of increasing children's PA levels in their LT. To make accurate predictions about volitional behavior like PA based on TPB, a measure of intention is necessary. Ajzen and Driver (1991) connected TPB to LT activities, most of them related to PA (e.g. mountain climbing, boating and biking) and found that salient beliefs influenced participation. Neipp, Quiles and Rodríguez-Martín (2013) compared individuals who did physical exercise with individuals who did not by analyzing differences in attitudes, SN, and PBC and the influence of these on intention. Their results supported the influence of the three determinants on intention and the validity of TPB in predicting intention to do PA. Similar results were found in a meta-analysis by Hagger, Chatzisarantis and Biddle (2002), however the size effect was relatively modest which means that people sometimes have the right intentions to do PA but just never act despite this. Different reasons for this problem have been suggested such as the relatively instability of intentions. Therefore, researchers have developed strategies to help people turn their intentions into actual behavior and strengthen the intention-behavior relationship within the model (Hagger & Luszczynska, 2014).

The TPB has also been shown capable of predicting intention towards PA among children (Hagger et al., 2001). Using a developed TPB questionnaire, Hagger et al. (2001) supported the construct and predictive validity of children's PA intentions, attitudes and PBC. Thus, in accordance with previously mentioned studies, SN was the only exception and did not predict intention as expected. Another interesting conclusion from the study is that children base their intention to engage in PA on their expectations to engage in the activity in the specific situation, as supposed to previous engagement, as it was expected (Hagger et al., 2001). This is however in accordance to Ajzen (1991).

2.2 SELF-DETERMINATION THEORY

Self-determination theory (SDT; Deci & Ryan, 1985a, 2000) is a meta-theory that has been used to explain human motivation (e.g. Ryan & Deci, 2000a; Hagger & Chatzisarantis, 2008). Central to SDT is the view that humans are proactive in their pursuing of goals, and their functioning and development is partly a function of the social conditions. Therefore, SDT explains how the environment or context can either facilitate or undermine intrinsic motivation, which is an important construct of human behavior (Ryan & Deci, 2000). The focus in SDT goes beyond variations in level or amount of motivation (Ryan & Deci, 2000a) and thus, SDT and its sub theories describe the *quality* of motivation and help us explain “why” people engage in activities (Deci & Ryan 2000).

In the following chapter, details about SDT and its elements will be presented. First, psychological needs are defined within SDT. Secondly, intrinsic motivation is described, followed by perceived locus of causality. Lastly, focus will be directed towards the school context and the construct of PAS is further described.

2.2.1 BASIC NEEDS THEORY

The basic needs theory (Ryan & Deci, 2000) is one of the sub-theories within SDT and explains one way of the environment to either facilitate or undermine intrinsic motivation. Basically, SDT is based on the understanding that motivation for a given activity requires the satisfaction of three basic psychological needs: competence, relatedness and autonomy (Deci & Ryan, 2000). The need for competence is about understanding what it takes to achieve various external and internal goals (Deci, Vallerand, Pelletier & Ryan, 1991) and possessing the necessary skills required to perform an activity successfully (Deci & Ryan, 2000). The need for relatedness is the desire to feel connected to others, being cared for by others and being accepted by others in one’s social environment (Deci & Ryan, 2000; Deci & Ryan, 2002; Deci, Vallerand, Pelletier & Ryan, 1991). The need for autonomy is the experience of freedom and refers to being self-initiating of one’s own actions (Deci & Ryan, 2000; Deci, Vallerand, Pelletier & Ryan, 1991).

In SDT, needs are defined as innate organismic necessities. They are psychological nutrients essential for psychological well-being, and satisfaction of the three psychological needs is associated with the most effective functioning (Deci & Ryan 2000).

Furthermore, it is a claim that satisfaction of the three needs is essential for optimal development. Even though a person does not consciously value the three needs, healthy and optimal development cannot be achieved if the needs are neglected (Deci & Ryan 2000).

While TPB and other motivation theories focus on the valued *outcomes* of a behavior, SDT is different as it differentiates the outcomes from the regulatory *process* people go through when pursuing their goals. In this process, it is essential to which degree people obtain satisfaction of the basic psychological needs (Deci & Ryan 2000).

2.2.2 INTRINSIC MOTIVATION

The construct intrinsic motivation has been studied in various contexts and has been linked to several positive consequences such as better adherence to an exercise program (e.g. Ryan et al., 1997; Hagger & Chatzisarantis, 2008; Wilson & Brookfield, 2009; Rahman et al., 2011). Deci and Ryan (2000) state that there are two aspects of intrinsic motivation. First, there is personal interest. There is no need of external reinforcement because engaging in an activity that a person finds interesting is rewarding enough in itself to motivate the behavior. The second aspect is that intrinsically motivated behaviors are a function of satisfaction of the psychological needs. A subtheory within SDT called Cognitive Evaluation Theory (CET; Deci & Ryan 1985a) aims to describe the variability of intrinsic motivation. It is this theory that explains the influence of the social environment in either facilitating or undermining intrinsic motivation by supporting or thwarting innate psychological needs, especially competence and autonomy. Deci and Ryan (2000) further state that these two aspects of intrinsic motivation are complementary in the way that intrinsically motivated behaviors are ones that people do because they are enjoying them and independently choose to do based on their interests, and to maintain, people need the satisfaction of the psychological needs.

The satisfaction of the psychological needs and the association with intrinsic motivation has been shown in later studies in school context (e.g. Liu & Chung, 2016; Yew Meng & Chee Keng, 2016). A study by Liu and Chung (2016) showed that satisfaction of competence and autonomy in PE class was significantly associated with intrinsic motivation towards exercise outside of school. This supports the hypothesis of CET (Deci & Ryan 1985a). On the other hand, thwarting of the psychological needs will undermine

intrinsic motivation (Deci & Ryan, 2000). In line with need thwarting is exposure to controlling practices. Here, the need for autonomy is especially thwarted since it represents the opposite of an environment that supports the need for autonomy. This can be done in an internal way like making people feel guilt and shame (Deci & Ryan, 2002) or an external way by exposing people to extrinsic rewards or threats of punishment (Deci, 1972; Ryan & Deci, 2000).

Intrinsic motivation is an important and extensively discussed construct as research has shown that this type of motivation leads to positive psychological outcomes in different contexts such as exercise referral (Rahman et al., 2011). Further, it has been linked to better adherence to a given health related activity such as exercise programs, (Wilson & Brookfield, 2009; Ryan et al., 1997) and PA (Hagger & Chatzisarantis, 2008). Thus, knowledge about satisfaction of the three psychological needs and the influence on intrinsic motivation is important for placing the right focus if one wants to foster, rather than undermine intrinsic motivation in a given context such as a PE class. More specifically, an environment supporting the basic needs, including activities with the right characteristics, will enhance intrinsic motivation and the positive consequences that follows. However, this is a challenge for the teachers, as the school might not be the easiest context to reach pure intrinsic motivation in the students, because not all tasks that they want the students to perform will be in line with everyone's personal interest and/or will satisfy everyone's basic psychological needs. Consequently, understanding the different types of motivation proposed by the SDT, can be a valuable tool for the teacher for fostering a behavior through motivation. As discussed in the following chapter, pure intrinsic motivation is not the only way to enhance behavior.

2.2.3 PERCEIVED LOCUS OF CAUSALITY

As mentioned earlier, the feeling of competence is important for fostering intrinsic motivation, nevertheless, some degree of autonomy over the behavior is essential. The Organismic Integration Theory (OIT: Deci & Ryan, 1985), another sub-theory within SDT, explains motivation in further detail differentiating between different qualities of motivation that lie on a continuum of motivational styles or *regulations*, called Perceived locus of causality (PLOC; Ryan & Connell, 1989). Where a value or behavior lies on the

continuum depends to which degree the person perceives their degree of autonomy over the behavior. In other words, how close the behavior is to the self (Ryan & Connell 1989). Deci and Ryan (2000) speak of *internalization* of extrinsic motivation. This means that intrinsic motivation is a process where people internalize external values so that they have autonomy and can identify with them (Deci & Ryan, 2000; Ryan & Deci 2000a). PLOC describes four states of regulation.

At the right end of the continuum is *integrated regulation*, which is described as the fullest form of internalization of extrinsic motivation and the most autonomous. The person has fully identified with the value and integrated it in their self. Therefore, when a behavior is integrated, that behavior is a reflection of who the person is and what the person values. This form of regulation is very close to intrinsic motivation but differs since an activity is done because the outcome is valued and personally important and not because of interest in the activity itself as with intrinsic motivation (Deci, Vallerand, Pelletier & Ryan, 1991).

Identified regulation is a state where a person positively values the behavior and can see the personal importance of it but is not necessarily enjoying it. Exercise is a good example of this as many people exercise volitionally because they know that it is beneficial for their own health, but not because of pure satisfaction. These two types of regulation lie next to each other at the internal end of the continuum and can be called *internal PLOC* (IPLOC).

Introjected regulation is where the behavior is done mostly due to external reinforcement. It is partly internalized but not yet a part of a person's self (Deci & Ryan 2000). Examples of this are avoidance of guilt and concerns about approval (Ryan & Connell, 1989), but can also be attaining ego-enhancements (Ryan & Deci 2000a). Ryan and Connell (1989) showed that avoidance of "feeling bad about oneself" is a common form of motive within school children in an academic context.

At the left end of the continuum is the most controlled form of motivation also called *external regulation* (Deci & Ryan 2000). Behaviors here are performed to obtain external rewards or to avoid punishment (Deci & Ryan, 2008). Here, the answer to why to participate in PE class could be "because it is the rule". These two types of regulation are at the external end of the continuum and are defined as *external PLOC* (EPLOC).

In addition, at the far-left end of the continuum, amotivation is shown. Whereas even the extrinsic motivation involves a degree of intention, amotivation contrasts with all the other

types of regulation because it is a state with a complete lack of self-determination and intention (Deci & Ryan 2000).

Over the life span, people continually internalize values, which makes this process developmentally important. However, the continuum of motivational regulation is not necessarily developmental. It is not necessary to progress through each of the stages. Depending the situation, one can adopt any regulation on the continuum (Ryan & Deci, 2000a). One might initially be motivated to do an activity for extrinsic reasons, but then later begin to fully enjoy the activity and jump to intrinsic motivation. Or it can go “backwards” on the continuum. A student might have identified with a certain PA in PE but then is exposed to a new, and more controlling teacher and lose that identification and therefore move to the left of the continuum.

What is interesting about PLOC is that it allows one to explore and describe how people understand their own purposes for acting and what degrees of autonomy they have over their activities. The role of the teacher in PE class in supporting the students’ autonomy and creating the right environment for facilitating the internalization process is evident (e.g. Black & Deci, 2000; Standage et al., 2005; Jang, Kim & Reeve, 2016). Deci and Ryan (1985) state that “events” can be either *informational*, *controlling* or *amotivating*, where informational events facilitate IPLOC and perceived competence. Events that are controlling facilitate EPLOC and undermine intrinsic motivation, and amotivating events promote incompetence. Similar to the effects of intrinsic motivation, Turban et al. found that an IPLOC has been shown to correlate with greater effort, performance and enjoyment in an educational setting (Turban et al., 2007).

2.2.4 BASIC NEEDS, PLOC AND SCHOOL CONTEXT

As mentioned, the internalization of values is a process people go through as part of a natural development which happens partly as a function of social conditions (Deci & Ryan 2000). Consequently, children are influenced and can be affected by the environment they grow up in. The school is a place where children spend much of their time and where they engage in social interactions and can be exposed to new experiences, such as different sports. Therefore, the school is an ideal context to place focus when promoting PA and enhancing intrinsic motivation. The internalization does not just happen by itself but

requires nutrition. When engaging in an activity, in school for example, the degree to which the students are able to internalize and identify with it depends on the degree to which they perceive the support of the basic needs (Deci & Ryan, 2000). This is the nutrition of internalization and the requirement behind intrinsic motivation. Feelings of relatedness and competence are important in the process of internalization and leads towards the right end of the autonomy continuum. Ryan and Deci (2000a) suggest, that for the process of internalization, support of the sense of relatedness is important, because it is not always possible to reach intrinsic motivation, and we do many activities because of important others and for social reasons. Further, people need to feel a degree of competence in order to internalize an extrinsic goal (Ryan & Deci, 2000a). This goal could be a PA in PE class decided by the teacher. It is therefore important that the teacher makes sure that the students understand the task and that he or she adjusts the challenge of the task and give positive feedback in order to facilitate internalization.

However, for enhancing full integration, the support of autonomy is obligatory (Deci & Ryan 2000). Doing an activity that satisfies the needs for competence and relatedness might enhance motivation in general and lead to introjection, but to reach integration or intrinsic motivation one has to feel fully self-determined by feeling satisfaction of the need for autonomy (Deci, Vallerand, Pelletier & Ryan.,1991). In other words, perceived autonomy is strongly related to intrinsic motivation since intrinsically motivated behaviors are defined as behaviors that people engage in freely and based on their own interests.

In conclusion, if the goal is to enhance children's intrinsic motivation in a school context, one must secure that the environment is supportive of their basic needs, especially autonomy, and further, is informational and not controlling and pressuring (Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004). The role of the school context in providing autonomy support and the positive correlation with intrinsic forms of motivation has been shown in different studies (e.g. Black & Deci, 2000; Hagger & Chatzisarantis, 2016). This is important because if the PE teacher can foster intrinsic motivation towards PA, the students are more likely to pursue these activities in their LT without any external reinforcement. Interestingly, a study by Viira and Koka (2012) showed that satisfaction of the basic psychological needs and motivation in PE class, provided both from the teacher

and peers, was associated with higher participation in sport in LT. A limit is however, that this connection may be explained by the differences in perception of competence and autonomy support in children with different amount of sport experience. This only underlines the importance of the teacher's role in supporting the needs for all their students, regardless of the students' experience and competence.

2.2.5 AUTONOMY SUPPORT AND PERCEIVED AUTONOMY SUPPORT

Autonomy support is by Reeve and Jang (2006) defined as an interpersonal behavior that supports another person's "internally focused, volitional intentions to act". PAS can then be defined as that individual person's interpretation of another person's behaviors as being autonomy supportive. PAS has so far been mentioned as a critical factor for the internalization process because it is the degree of autonomy that determines whether the motivational regulation is more or less self-determined. Thus, PAS leads to self-determined types of motivation. Because of the evident adaptive outcomes of self-determined types of motivation, it seems interesting to examine how these types are facilitated. As mentioned above, full integration is only possible when others are autonomy supportive. The interpersonal style a person (e.g. teacher) uses, influences the effect of the event they are instructing, and some characteristics have been found to be more autonomy supportive than others (Deci, Vallerand, Pelletier & Ryan, 1991; Mageau & Vallerand, 2003; Reeve & Jang, 2006). In their review of studies on autonomy support in sport context, Mageau and Vallerand (2003) define how an individual can provide autonomy support to others. Basically, an individual of authority (e.g., teacher, coach, parents) is autonomy supportive when he/she takes the other's (e.g., student) perspective. More specifically, the individual provides choices, give clear explanation of the tasks and rationale for regulations, acknowledges others' feelings and perspectives, provide opportunities for initiative taking, and provide positive competence feedback (Mageau & Vallerand, 2003). These are all behaviors that facilitate internalization. In addition, Pihu, Hein, Koka and Hagger (2008) defined learning strategies and positive general feedback as two specific components of autonomy support and found positive effects of these two components on intrinsic motivation.

An important point made by Reeve and Jang (2006) is that an autonomy supportive behavior does not necessarily promote student's experiences of autonomy. Based on this thought, they tested the correlations between each of 11 autonomy supportive behaviors and students' PAS and found all of them positive and, after a stringent test, 8 of them also significant. This might not be a surprising finding, but indeed important. Another conclusion of the study is in line with the interpersonal style just discussed. Teachers cannot directly give students a sense of autonomy but can provide students with the right interpersonal relationships to promote it (Reeve & Jang, 2006).

The positive correlation between PAS and adaptive educational outcomes and positive functioning is evident. Students' PAS from their teacher and parents has been linked to higher engagement (e.g., Jang, Kim & Reeve, 2016; Reeve & Jang, 2006), academic performance (e.g. Grolnick, Ryan, & Deci, E. L., 1991) and interest-enjoyment (Reeve & Jang, 2006). Yew Meng and Chee Keng (2016) found similar results in their study on autonomy support and autonomy supportive structure in PE class. They found that students in PE class with an autonomy supportive structure showed higher engagement, higher PA levels, higher need satisfaction and more autonomous types of motivation than the control group.

In conclusion, autonomy supporting behaviors by significant others are important for PAS and therefore intrinsic motivation.

2.3 THE HIERARCHICAL MODEL OF INTRINSIC AND EXTRINSIC MOTIVATION

Another motivation theory is the hierarchical model of intrinsic and extrinsic motivation. Like SDT, Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation is based on the perceived locus of causality and basic needs theory, and according to the model, a distinction between intrinsic motivation, extrinsic motivation and amotivation is important for a complete analysis of motivation (Vallerand, 2007). Vallerand's model suggests that motivation takes place at three levels of generality: the global, the contextual, and the situational level (Vallerand, 2007). Vallerand speaks of *motivational dynamics* which implies that there is a motivational interplay between the three levels. This interplay, Vallerand (2007) states is a source of motivation. A so called *top-down effect* means that if a person is motivated at the global level, this will affect the motivation at contextual level

and this also applies from contextual to situational level. A *bottom-up effect* is also seen, where motivation moves from a lower to a higher level (Vallerand, 2000). A good example is the sport player who is extrinsically motivated towards his sport because he is driven by fame (contextual level). Therefore, he will be “predisposed” to have the same form of motivation towards training (situational level). The coach’s approach during training, however, changes his situational motivation to more self-determined forms of motivation and in the end of the season, his contextual motivation towards the sport has changed to become more intrinsic (bottom-up effect) (Vallerand, 2007, p. 268). In addition, motivation in one context can influence motivation in another context, for example the educational context (e.g. the classroom) and leisure-time context (e.g. at home) (Vallerand, 2007). Another source of motivation is the social environment mediated by satisfaction of the three basic needs. Like in SDT, if the basic needs are satisfied in the social context, this can result in intrinsic motivation (Vallerand, 2007). In the example above, the coach’s approach was that he supported the player’s autonomy during training. Lastly, the hierarchical model suggests that the motivation will result in psychological outcomes at the same generality level as of the motivation they came from. Thus, in this causal sequence, motivation is seen to have a direct effect on outcomes whereas need satisfaction has an indirect effect mediated by motivation (Vallerand, 2000). Intrinsic motivation will lead to positive outcomes whereas extrinsic motivation leads to negative outcomes and amotivation leads to the most negative ones (Vallerand, 2007).

2.4 INTEGRATION OF THE THEORIES

Each of the above described theories present a different approach for understanding human behavior. For a more comprehensive explanation of such behavior however, the three theories have been combined as they complement each other well. Essentially, SDT can explain the quality of the relationships in TPB, while the hierarchical model suggests that contextual factors affect the perceived locus of causality, which can then transfer to other contexts. The integration of the three theories is further described in the following.

The integration of SDT and TPB within a given context has received support from previous studies (e.g. Chatzisarantis, Hagger & Brickell, 2008; Hagger & Chatzisarantis,

2009). For example, Chatzisarantis, Hagger and Brickell (2008) examined the influence of PAS on PA intentions and behavior and found perceived autonomy to improve predictive validity of TPB by explaining additional 3% of the variance on intentions and thus, support the integration of a central construct of SDT within TPB. In addition, Moreno-Murcia, Gimeno, Hernández, Belan-do Pedreño and Marín (2003) found a positive relationship between intrinsic motivation and attitude, SN, PBC and intention. According to Chatzisarantis, Hagger and Brickell. (2008), the SN construct is creating a weakness for TPB as the theory does not capture the antecedents of intentions sufficiently alone. SDT is contributing with perceived autonomy, which is a construct reflecting support from the social environment (supporting autonomy) while SN can reflect social pressure, which is associated with decreasing motivation.

Hagger and Chatzisarantis (2012) proposed four premises for the integration of the three theories. First, for a behavior to occur, intention (TPB) is formed based on the form of motivational regulation (SDT) and the effect of motivation on intention is mediated by the constructs of TPB. Support for autonomy provided by the teacher in PE class for example will enhance autonomous forms of motivation, which is important for increasing the students' intention and PA behavior, as PAS will influence their judgement and expectations about future behavioral engagement. In this way, future engagement in PA will be promoted.

Second premise is about beliefs about outcomes of the behavior. As mentioned, the TPB suggests that there are beliefs behind attitude and PBC, beliefs about the outcomes the behavior will lead to. But the TPB does not specify the reasons why we pursue these outcomes. More specifically, it does not distinguish between behaviors that originates from the self and are autonomous, and behaviors that are done because of obligations and are controlled. An example would be people that do PA and in a questionnaire answer that they do this because they want to stay healthy. This reason behind the PA behavior may be perceived by some people as autonomous and by others as controlling. To deal with this issue, SDT makes a valuable contribution by describing how the beliefs are interpreted (autonomous or controlling) and answering the question “why” behind behaviors. Thus, provides a more comprehensive understanding of behavior.

A third premise is that, based on the hierarchical model (Vallerand, 2000), SDT works

on the contextual level while the constructs of TPB is on the situational level. Most important is the hypothesis that there can be a transfer of motivation at the contextual level, and therefore that autonomous motivation in one context can promote autonomous motivation in other contexts. This is important for the design of interventions that promote PA because it makes it possible to influence the children where they are easy to reach (in school) to be physically active also in other context where access is more difficult (LT).

The fourth premise deals with the difference in focus in the measure of motivation. While measures of SDT informs about a person's current motivation towards a given activity and reasons for acting in the relevant context, the intentions from the TPB say something about expected future engagement in behavior but does not describe any reasons behind the intentions. In this fashion, both theories contribute to the explanation of intentional behavior with each their focus, so it seems sensible to implement both when the goal is a more complete measure of motivation, intention and behavior.

The combination of all three theories was presented by Hagger et al. (2003) to explain the relationship between PAS and perceived locus of causality across different contexts. This is the foundation of the trans-contextual model described in the following chapter.

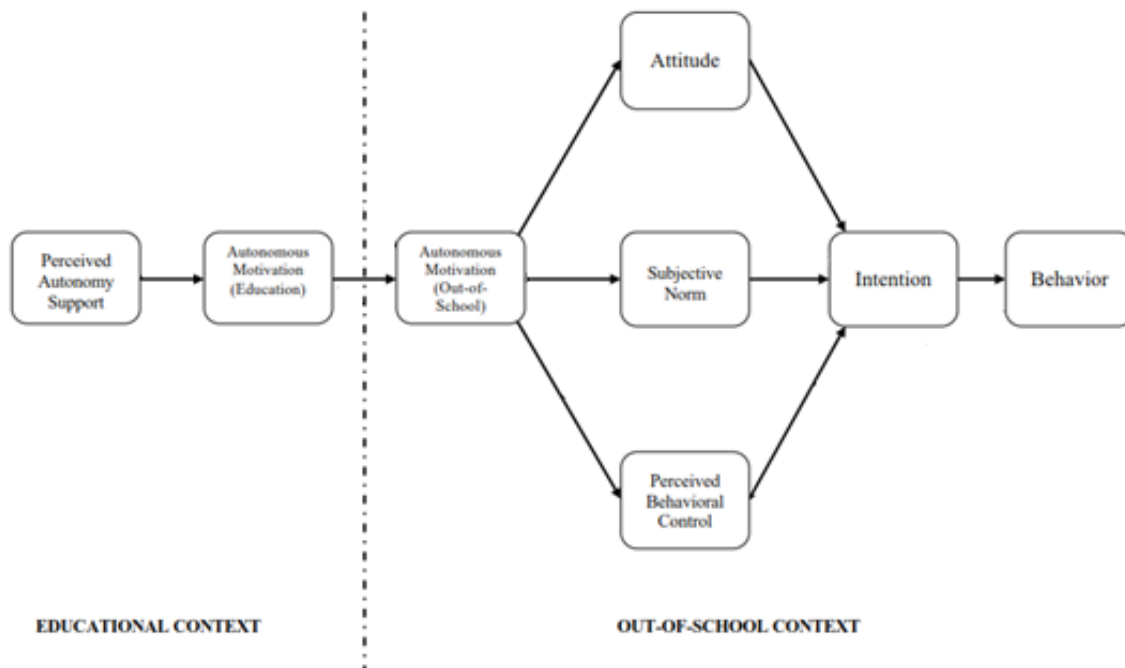
2.5 THE TRANS-CONTEXTUAL MODEL

By combining the theories, one can achieve a more comprehensive explanation of motivation and behavior, not only within a given context but also across contexts. This is important since it makes it possible to influence people at a general level in a context where they are easy to reach, such as the school. Based on the currently presented theories, Hagger et al. (2003) proposed the hypothesis that students' PAS in PE class promotes self-determined types of motivation in that context and that this will predict PA intentions and behavior in the context of LT mediated by perceived locus of causality (p.793).

Basically, the trans-contextual model includes three propositions which each comprise several hypotheses: 1) PAS predicts autonomous motivation within the school context; 2) Autonomous motivation towards activities in school context predicts autonomous motivation towards similar activities in contexts outside of school; and 3) autonomous motivation in an out-of-school context predicts future intention to engage in the activity and actual behavior (Hagger & Chatzisarantis, 2016). Figure 1 of the TCM shows the proposed

motivational sequence. First, autonomy support in PE context is affecting PAS, which then increases autonomous motivation towards activities in the same context. Then the autonomous motivation towards activities in PE context transfers to autonomous motivation towards similar activities in an out-of-school context. The autonomous motivation affects the three components of TPB which is expected to cause an intention to do a behavior and, in the end, behavior occurs.

Figure 1. The Trans-Contextual Model (Hagger et al., 2003)



2.5.1 EMPIRICAL SUPPORT FOR THE TRANS-CONTEXTUAL MODEL

A meta-analysis provides evidence to support the key hypotheses of the TCM across multiple studies (Hagger & Chatzisarantis, 2016). Results showed that the motivational sequence from autonomy support by the PE teacher to autonomous motivation in out-of-school context is supported across studies. Further, it is suggested that the transfer of autonomous motivation from one context to another may be explained by internalization of activities in school and satisfaction of the psychological needs, which makes people pursue the same type of activities in out-of-school context. Lastly, there were only small direct effects of autonomous motivation on intentions and behavior compared to the indirect

effects of these variables mediated by the constructs of TPB, thus, supporting a key mechanism in the model. In addition, consistent across studies was the finding that SN was a modest predictor of intention compared to PBC and attitude (Hagger & Chatzisarantis, 2016).

Most empirical tests of the TCM have focused on PE and exercise context examining the role of the PE teacher in influencing students' motivation towards PA not only in PE class, but also in their LT (Hagger & Chatzisarantis, 2016). Initial data to support the hypotheses of the TCM was provided with a three wave prospective study in 2003 by Hagger et al. (2003). Since then, a growing number of studies have applied similar methods to support the model in different cultures and with different samples (e.g. Barkoukis & Hagger, 2009; Hagger et al., 2009; Ntovolis, Barkoukis, Michelinakis & Tsorbatzoudis, 2015) and some of them extending the model by including peers and parents as providers of autonomy support (e.g. Pihu & Hein, 2007; González-Cutre, Sicilia, Beas-Jiménez & Hagger, 2014). Pihu, Hein, Koka & Hagger (2008) extended the model by incorporating learning strategies and positive general feedback in PE. Their study provided further support for the motivational sequence proposed by the TCM.

The above-mentioned studies measure PAS and the effect on intrinsic motivation, but the very first step in the sequence proposed by the TCM is the transformation of actual autonomy support to PAS. This can only be studied in experimental studies where the provided autonomy support can be manipulated and compared to a control group. However, so far, these studies applying the TCM are sparse (Müftüler & İnce, 2015; Wallhead, Hagger & Smith 2010). The existing studies have supported the effect of a TCM based intervention on intentions and self-reported PA. Chatzisarantis & Hagger (2009) developed a school-based intervention based on the SDT to change pupils' PA behavior and found that pupils with autonomy supportive teachers experienced higher levels of intentions and participation in exercise in their LT than control group.

Despite the growing amount of studies on the TCM the recent years, the support of the model is still limited and a need for further testing of the model is evident. There is especially a need for tests of the model using experimental designs as these can confirm the causal nature of the sequence of effects proposed by the model. Furthermore, while most

previous studies on the model have adopted a three-wave prospective design, no previous study has looked at how the variables of the model change over time.

3 PURPOSE OF THE STUDY

The purpose of this study was to examine school children's PAS provided by the PE teacher and the motivational sequence proposed by TCM and its efficacy of predicting PA participation. The focus of the study was on predicting changes in the TCM variables using the difference between scores collected at two time points 4 weeks apart.

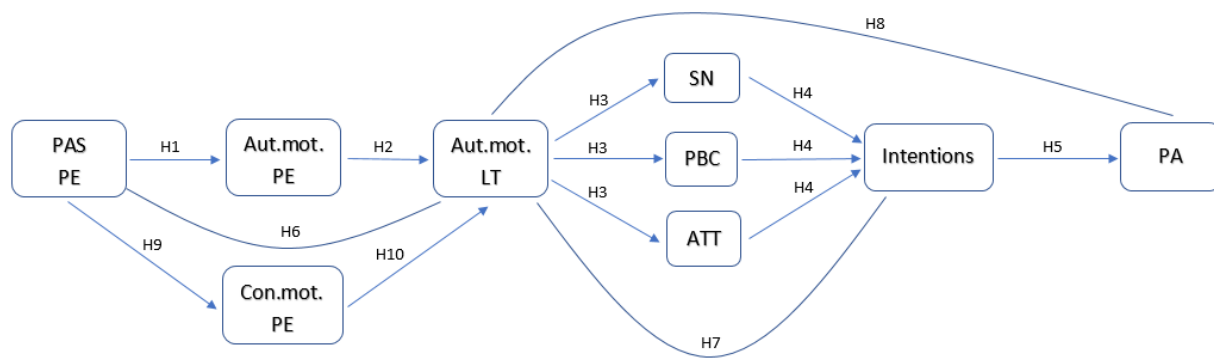
Hypotheses are based on assumptions of the TCM (Hagger et al., 2003). The hypotheses (also illustrated in figure 2) are as follows:

- Changes in PAS, provided by the PE teacher in class, predict changes in autonomous motivation for PA within PE (H1).
- Changes in autonomous motivation towards PA in PE predict changes in autonomous motivation towards PA in LT (H2).
- Changes in autonomous motivation in LT predict changes in PBC, attitude and SN (H3).
- Changes in PBC, attitude and SN predict changes in intentions to engage in PA (H4).
- Changes in intention predict changes in self-reported PA behavior (H5).
- Changes in PAS provided by the PE teacher in class predict changes in autonomous motivation in LT (H6).
- Changes in autonomous motivation in LT predict changes in intentions to engage in PA (H7).
- Changes in autonomous motivation in LT predict changes in self-reported PA behavior (H8).

In addition, the study incorporated two hypotheses about controlled motivation in PE:

- Changes in PAS, provided by the PE teacher in class predict changes in controlled motivation for PA within PE (H9).
- Changes in controlled motivation in PE predict changes in autonomous motivation in LT (H10).

Figure 2. The hypothesized links between the variables of this study based on the trans-contextual model.



4 METHODS

4.1 PARTICIPANTS

388 pupils from 7th to 9th grade and their parents from two upper elementary schools in southeast Finland, were initially contacted to participate in this study. 61 parents refused to participate. Answers from participants who were in special education and participants who had Finnish as their second language were excluded later ($n=13$). Participants who only answered one of the questionnaires were not included in the final analysis ($n=37$). Finally, 277 pupils (142 females and 134 males ($SD=.501$)) and 1 “other” at the ages 12-16 ($SD=.914$)) were included.

4.2 PROCEDURE

Firstly, the principle of the respective schools were contacted and gave approval of the study, and schedules for the surveys were organized. There were two data collection points separated by 4 weeks. The first data collection took place at the end of September, two months after the start of the term. This was to allow participants’ familiarization with the PE teacher and his/her educational methodology before having to answer questions about him/her.

Participants’ parents were contacted beforehand, informed about the study and asked to give informed consent for their children to participate. The contact was initially done in the online environment of the school, but due to a great amount of non-responses from parents, in one of the schools, a paper form was handed out to the students to take home to their parents. Students were given the chance not to participate without having to give any explanation for this. In this case, they were given alternative tasks.

Data were gathered by quantitative questionnaires measuring variables of the TCM. The questionnaires were in paper form and given to the participants by the researchers during school time (intentionally not PE class). The students were given information about the researchers and about the questionnaire before receiving it. Instructions were carefully prepared especially in order to avoid that the pupils had a feeling of evaluating their teacher

which could interfere with their answers, and they were instructed not to help each other when filling it out. They were also informed that they could withdraw at any moment without consequences and that there were no right or wrong answers. It took 15-20 minutes to fill out the questionnaire. A member of the research team was present so that the participants had the opportunity to ask questions regarding the questionnaire if necessary.

Lastly, answers from the questionnaires were typed into two Excel files. One file was created to organize the participants. Each one was given a number for later anonymization and it was marked whether the students had consent or not, if they had Finnish as second language and if both questionnaires were filled out or not. Data were then typed into a second Excel file only with the number of the student to identify the questionnaires. Questionnaires and data file with names were kept safe in the researcher's office.

4.3 MEASURES

Questionnaires were originally in English and then later translated into Finnish following normal back-translation procedure. First part of the questionnaire contained demographic information (name, age, grade, date of birth, gender, teacher, parents' profession and postal code). Hereafter, the questionnaire focused on variables described in the following. (See questionnaires in appendix).

Perceived Autonomy Support in PE Class

The Perceived Autonomy Support Scale for Exercise Settings (PASSSES; Hagger, et al., 2007) was used to measure the degree of PAS provided by the teacher in PE lessons (Appendix 1, page 55, question 1-12). A list of 12 statements focused on the teacher's style in relation to PA, measuring the degree of controlling versus autonomous environment the teacher is creating. Examples of statements are "My PE teacher tries to control everything I do" and "I am able to talk to my PE teacher about physical activity". Another six statements focused on the teacher's style in relation to supporting students' autonomy for PA in their free time (Appendix 1, page 55-56, question 13-18). These were statements like "My PE teacher listens to me about physical activity in my free time", or "I feel that my PE teacher provides me with choices, options, and suggestions about whether to do physical

activity in my free time”. In this section, the participants marked on a 7-point Likert-type scale the extent of agreement with the statement listed (1=strongly disagree, 4=neutral, and 7=strongly agree). Cronbach’s alpha of PAS in PE was .78.

Motivational Regulation in PE and in Leisure Time Context

An 8-item scale, extracted from the work of Ryan, R. M., & Connell, J. P. (1989), was used to measure motivational regulation towards PA in PE and in LT respectively. For the PE context, the stem for each question is “I do PE...” (Appendix 1, page 58, question 1-8) and for the LT context the stem is “I do physical activity during my free time...” (Appendix 1, page 59, question 1-8). In both cases, the constructs of external regulation (e.g., “Because I must do it, it’s the rule”), introjected regulation (e.g., “I will feel bad about myself if I don’t”), identified regulation (e.g., “...Because it is important to me to improve in PE”), and intrinsic motivation (e.g., “...Because PE is fun”) are assessed. Participants were asked to rate on a 7-point Likert-type scale the degree of which the statement was true for them (1=not true for me, 4=sometimes true for me, and 7=very true for me). For analysis, motivational regulations were divided into controlled motivation (external regulation) and autonomous motivation (introjected regulation, identified regulation and intrinsic motivation) in PE and LT. Cronbach’s alpha of autonomous motivation in PE was .79, and autonomous motivation in LT was .79. The correlations between the two items measuring controlled motivation in PE was .54 ($P<.001$) and in LT it was .55 ($P<.001$).

Attitude

Based on the TPB (Ajzen, I., 1985), attitude towards PA in the LT was measured with the stem: “Participating in active sports and/or vigorous physical activities during my LT in the next 5 weeks is...”. Participants were provided with three different attitudes (unenjoyable-enjoyable, bad-good, and useless-useful) all to be rated from 1 to 7 (1 indicated a low score of attitude and 7, a high level). (Appendix 1, page 59). Cronbach’s alpha of attitude was .82.

Intention

Also based from TPB (Ajzen, I., 1985), intention towards PA in the LT was measured with two questions (Appendix 1, page 59): “I intend to do active sports and/or vigorous physical

activities during my leisure time in the next 5 weeks” and “I plan to do active sports and/or vigorous physical activities during my leisure time in the next 5 weeks”. Participants were asked to rate their agreement with the statement on a 7-point Likert-type scale from 1 (disagree) to 7 (agree). The correlation between the items of intentions was .88 ($P < .001$).

Perceived Behavioral Control and Subjective Norms

Two questions were measuring PBC (Appendix 1, page 60): “How much control do you have over doing active sports and/or vigorous physical activities in your leisure time in the next 5 weeks?” where to participants rated on a 7-point Likert-type scale from 1 (very little control) to 7 (complete control), and “I am confident I could do active sports and/or vigorous physical activities during my leisure time in the next 5 weeks”. Here, participants rated their level of agreement (1=strongly disagree, 7=strongly agree). The correlation between the items of PBC was .53 ($P < .001$).

Two questions were measuring SN (Appendix 1, page 60): “Most people who are important to me think I should do active sports and/or vigorous physical activities during my leisure time for the next 5 weeks” and “Most people important to me put pressure on me to do active sports and/or vigorous physical activities during my leisure time for the next 5 weeks”. A 7-point Likert-type scale was used to measure the level of agreement with the statement (1=strongly disagree, 7=strongly agree). The correlation between the items of SN was .70 ($P < .001$).

Physical Activity Behavior

Participants’ self-reported PA participation during the last five weeks was measured with two questions where participants rated their answer on a 6-point scale (Appendix 1, page 61): “In the course of the past five weeks, how often on average, have you participated in vigorous physical activities during your leisure time for at least 20 minutes at a time?” (1=not at all, 6=most days per week) and “How frequently have you participated in vigorous physical activities during your leisure time in the course of the past five weeks for at least 20 minutes at a time?” (1=never, 6=all of the time). The correlation between the items of PA was .88 ($P < .001$).

4.4 STATISTICAL METHODS

IBM SPSS Software was used for data analysis. Only data from participants with both questionnaires were included. Missing data were imputed by linear interpolation, which could be done because relatively few values were missing (0,648%). Data from negative scales were inverted. Means of variables measuring the same constructs were calculated and a new variable was created for each. Reliability for all the scales was examined using the Cronbach's alpha. The alpha values were calculated from the answers to the first questionnaire. Descriptive statistics were calculated to assess means and standard deviations, and all variables were checked for normal distribution using the Kolmogorov-Smirnov test. One way ANOVA was used to check for differences between groups within participants. Pearson's product moment correlation was used to check for linear correlations between all change variables before they were assessed with regression analyses. Change score variables were calculated for each variable by subtracting the sum of each variable from time 1 from the sum of each variable measured at time 2, and these change scores were used for final analysis. Both linear and multiple regression analyses were used to assess the relationships between the TCM change score variables.

4.5 ETHICAL NOTATIONS

Approval from the Ethical committee was achieved before the data collection. To ensure enough participants in time for the scheduled data collection, students whose parents did not yet sign the consent form were also included and then later excluded from data if the parents did not eventually give consent. This could be done because the activity of participating was considered normal school procedures. It should further be mentioned that, because the parents were asked to mark the consent form with either a no or a yes to participate, the ones who had no mark at all were included. 61 explicitly refused to participate and were excluded from the study.

5 RESULTS

5.1 DESCRIPTIVE STATISTICS

Descriptive statistics were calculated first to check means for different groups within the data (Tables 1 for time 1 score, 2 for time 2 scores and 3 for change scores). One way ANOVA showed a statistically significant difference in PAS between the two schools at both time points (Time 1: $F(1,275) = 9,272$, $P < .005$ and time 2: $F(1,275) = 4.033$, $P < .05$). Looking at the means, it is evident that this difference is caused by a difference among the boys in the two schools, whereas the answers from the girls were more similar. In line with this, a statistically significant difference were found between genders in PAS (Time 1: $F(1,274) = 6,085$, $P < .05$ and time 2: $F(1,274) = 9,814$, $P < .005$) and further, in controlled motivation in PE (Time 1: $F(1,274) = 4,415$, $P < .05$ and time 2: $F(1,274) = 8,907$, $P < .005$). No differences were found between the different grades at the two time points. For the change scores however, a statistically significant difference in attitude were found between grades ($F(2,274) = 3,090$, $P < .05$).

Table 1. Means (\bar{x}) and Standard Deviations (SD) for time 1 scores (n=277)

Variable	School 1				School 2			
	Boys		Girls		Boys		Girls	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
1 PAS PE	4,82	,72	4,91	,74	5,41	,63	4,85	,71
2 Aut.mot. PE	5,88	1,26	5,61	1,48	5,73	1,40	5,78	1,16
3 Con.mot. PE	2,77	1,01	2,98	1,13	2,78	1,12	3,13	1,11
4 Aut.mot. LT	5,58	1,39	5,66	1,38	5,52	1,38	5,77	1,26
5 Attitude	5,99	1,11	5,86	1,21	5,94	1,21	5,90	1,21
6 Intention	5,21	1,62	5,41	1,49	5,14	1,69	5,61	1,28
7 PBC	6,23	,97	5,88	,98	5,92	1,10	5,99	,94
8 SN	4,87	1,58	4,54	1,07	4,90	1,42	4,85	1,39
9 PA	4,47	1,23	4,51	1,29	4,41	1,27	4,59	1,15

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

Table 2. Means (\bar{x}) and Standard Deviations (SD) for time 2 scores (n=277)

Variable	School 1				School 2			
	Boys		Girls		Boys		Girls	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
1 PAS PE	4,76	,84	4,73	,76	5,22	,67	4,65	,70
2 Aut.mot. PE	5,72	1,30	5,59	1,49	5,64	1,54	5,69	1,37
3 Con.mot. PE	2,90	1,00	3,29	1,20	3,08	1,31	3,53	1,17
4 Aut.mot. LT	5,54	1,37	5,69	1,43	5,66	1,49	5,67	1,40
5 Attitude	6,05	1,07	5,90	1,10	5,76	1,26	5,97	1,07
6 Intention	5,36	1,52	5,54	1,47	5,20	1,69	5,57	1,56
7 PBC	6,05	1,24	5,93	1,07	6,03	1,02	5,90	1,11
8 SN	4,67	1,47	4,54	1,30	4,99	1,42	4,83	1,54
9 PA	4,39	1,33	4,57	1,21	4,50	1,26	4,60	1,36

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

Table 3. Means (\bar{x}) and Standard Deviations (SD) for change scores (n=277)

Variable	School 1				School 2			
	Boys		Girls		Boys		Girls	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
1 PAS PE	-,05	,68	-,17	,52	-,18	,52	-,20	,57
2 Aut.mot. PE	-,16	,82	-,01	,78	-,08	,91	-,08	,69
3 Con.mot. PE	,13	,90	,31	,90	,29	1,14	,40	,78
4 Aut.mot. LT	-,04	,80	,02	,55	,14	,99	-,09	,73
5 Attitude	,05	,81	,04	,75	-,18	1,52	,06	1,19
6 Intention	,15	,91	,13	,77	,05	,93	-,04	,99
7 PBC	-,18	1,06	,04	,78	,11	1,12	-,08	,76
8 SN	-,20	1,45	,00	1,14	,08	1,65	-,01	1,02
9 PA	-,07	,91	,05	,61	,09	1,04	,00	,98

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

In both schools, only minor changes between variable means of time one scores and time two scores were found. According to exploratory analysis and the Kolmogorov-Smirnov test, all scales were not normally distributed, especially highly kurtotic. However, based on the histograms, deviation from normality was not vast in visual inspection. Therefore, the non-parametric Spearman correlation was calculated and compared with results from Pearson correlations and results were similar. Based on this, it was decided to perform regression analyses despite slight deviation from normality. This decision was further supported by the large sample size and the fact that regression analysis is a statistical

method that bares deviations from normality quite well. Table 4 shows descriptive statistics for all variables including skewness and kurtosis.

Table 4. Descriptive statistics of all change score variables

Variable	Range	Mean		SD	Variance	Skewness		Kurtosis	
		Statistics	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistics	Std. Error
1 PAS PE	4,17	-,1552	,03493	,58137	,338	-,037	,146	1,463	,292
2 Aut.mot. PE	5,50	-,0781	,04888	,81354	,662	-,575	,146	2,183	,292
3 Con.mot. PE	7,00	,2897	,05663	,94253	,888	,341	,146	1,553	,292
4 Aut.mot. LT	7,00	,0081	,04704	,78283	,613	-,329	,146	3,852	,292
5 Attitude	12,00	,0000	,06601	1,09860	1,207	,490	,146	9,772	,292
6 Intention	6,00	,0749	,05416	,90140	,813	-,553	,146	1,687	,292
7 PBC	9,00	-,0352	,05702	,94905	,901	-,951	,146	6,353	,292
8 SN	10,50	-,0379	,08008	1,33274	1,776	-,339	,146	2,974	,292
9 PA	6,00	,0190	,05381	,89552	,802	,153	,146	2,079	,292

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

5.2 CORRELATIONS

Correlations between all variables are shown in tables 5 (time 1), 6 (time 2) and 7 (change). Correlations between variables for time 1 scores were all statistically significant at 0.01 or 0.05 level except between attitude and controlled motivation in PE ($P=.245$) and between SN and controlled motivation in PE ($P=.630$). Focusing only on relationships proposed by the model, correlations were mainly moderate to high. Weak correlations were seen between SN and autonomous motivation in LT and between SN and intention. Negative relationships were seen between controlled motivation in PE and PAS in PE and autonomous motivation in LT respectively.

Table 5. Correlations for time 1 scores

Variable	1	2	3	4	5	6	7	8	9
1 PAS PE	1								
2 Aut.mot. PE	,427	1							
3 Con.mot. PE	-,226	-,214	1						
4 Aut.mot. LT	,440	,670	-,160	1					
5 Attitude	,235	,452	-,070	,601	1				
6 Intention	,295	,487	-,126	,744	,542	1			
7 PBC	,327	,462	-,201	,596	,493	,600	1		
8 SN	,325	,230	,029	,389	,312	,396	,305	1	
9 PA	,322	,458	-,127	,669	,599	,507	,507	,379	1

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

Correlations between variables for time 2 scores were generally higher than for time 1 scores. Likewise time 1, only the correlations between controlled motivation in PE and PAS in PE and autonomous motivation in LT respectively were weak and negative. The rest of the correlations were moderate to high and all correlations proposed by the model were statistically significant at 0.01 or 0.05 level.

Table 6. Correlations for time 2 scores

Variable	1	2	3	4	5	6	7	8	9
1 PAS PE	1								
2 Aut.mot. PE	,516	1							
3 Con.mot. PE	-,134	-,255	1						
4 Aut.mot. LT	,487	,758	-,165	1					
5 Attitude	,406	,648	-,252	,723	1				
6 Intention	,384	,593	-,134	,788	,722	1			
7 PBC	,395	,537	-,130	,639	,593	,618	1		
8 SN	,304	,325	-,036	,445	,384	,490	,381	1	
9 PA	,362	,533	-,143	,701	,626	,800	,485	,471	1

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

Variables for the change scores showed little or no correlation. There was no correlation between change in controlled motivation in PE and change in PAS in PE and change in autonomous motivation in LT respectively. All correlations within the model were statistically significant at 0.01 level except between SN and autonomous motivation in LT (P=,029).

Table 7. Correlations for change scores

Variable	1	2	3	4	5	6	7	8	9
1 PAS PE	1								
2 Aut.mot. PE	,298	1							
3 Con.mot. PE	-,016	,010	1						
4 Aut.mot. LT	,216	,366	,023	1					
5 Attitude	,014	,188	-,065	,194	1				
6 Intention	,177	,178	-,024	,396	,261	1			
7 PBC	,190	,166	-,011	,335	,161	,243	1		
8 SN	,045	,110	,056	,132	,087	,164	,275	1	
9 PA	,088	,098	-,013	,212	,190	,275	,106	,096	1

PAS PE = Perceived autonomy support in physical education, Aut.mot. PE = Autonomous motivation in physical education, Con.mot. PE = Controlled motivation in physical education, Aut.mot. LT = Autonomous motivation in leisure time, Attitude = Attitude, Intention = Intention, PBC = Perceived behavioral control, SN = Subjective norms, PA = Self-reported physical activity.

5.3 REGRESSION ANALYSES

A simple linear regression was calculated to predict change in autonomous motivation in PE based on change in PAS in PE (H1). A statistically significant regression equation was found ($F(1, 275) = 26,813, P < .001$), with an R^2 of .089. The same was done to predict change in controlled motivation in PE with change in PAS in PE (H9). Results showed no statistically significant effect ($F(1, 275) = .074, P = .786$).

A three-stage hierarchical multiple regression was calculated to predict change in autonomous motivation in LT with change in autonomous motivation in PE as the independent variable, controlling for change in controlled motivation in PE and in PAS in PE (H2). A statistically significant effect of change in autonomous motivation in PE on change in autonomous motivation in LT was found at stage one ($F(1,275) = 42,629, P < .001$), with an R^2 of .134. Introducing the change in controlled motivation in PE variable did not explain any additional percentage of variance and adding change in PAS in PE only explained another 1,3% ($F(3,273) = 15,692, P < .001$).

Simple linear regressions were calculated to predict change in SN, PBC and attitude respectively based on change in autonomous motivation in LT (H3). A small but significant effect of change in autonomous motivation in LT on change in SN was found ($F(1,275) = 4,847, P < .05$), with an R^2 of .017, while the effects on changes in PBC ($F(1,275) = 34,812, P < .001, R^2 = .112$) and attitude ($F(1,275) = 10,751, P < .001, R^2 = .038$) were higher.

Results from hierarchical regression showed statistically significant effects of change in SN, PBC and attitude combined on change in intention (H4), controlling for autonomous motivation in LT ($F(4, 272) = 17,881, P < .001$), with an R^2 of .118. By adding change in autonomous motivation in LT, the model explained an additional statistically significant 9% of the variance in change in intention ($P = .001$), which made this variable a stronger predictor of change in intention than the three constructs of the TPB. Computing the same four independent variables in four different models revealed that, thereafter, change in attitude was the strongest predictor explaining 4,9% ($P < .001$), followed by change in PBC explaining 4,3% ($P < .001$), and lastly, change in SN was the weakest predictor explaining 2,7% ($P < .01$). In addition, a hierarchical regression with change in autonomous motivation in LT in model 1 and added SN, PBC and attitude in model 2, revealed that change in autonomous motivation in LT statistically significantly predicted change in intention (H7, $F(3,273) = 12,197, P < .001$), with an R^2 of .157. Model 2 increased the R^2 by 0.51.

Change in intention was a statistically significant predictor of change in PA behavior (H5), controlling for autonomous motivation in LT ($F(1,275) = 22,569, P < .001$) with an R^2 of .076. Adding change in autonomous motivation in LT to the model, explained an additional 1,2% of the variance in change in intention ($P < .001$).

The effect of change in PAS in PE on changes in autonomous motivation in LT, controlling for change in autonomous motivation in PE and in controlled motivation in PE was statistically significant (H6, $F(1,275) = 13,397, P < .001$) with an R^2 of .046. Adding change in autonomous motivation in PE to the model explained an additionally statistically significant 10% of the variance in change in autonomous motivation in LT ($P < .001$). Change in controlled motivation in PE was not a predictor of change in autonomous motivation in LT (H10, $F(2,274) = 6,777, P = .658$).

Lastly, change in autonomous motivation in LT was found to be a statistically significant predictor of change in PA behavior (H8, $F(1,275) = 12,880, P < .001$), with an R^2 of .045. Adding change in intention to the model explained an additional 4,4% of the variance in change in PA ($P < .001$).

6 DISCUSSIN

The purpose of this study was to examine school children's PAS provided by the PE teacher and the motivational sequence proposed by TCM. Additionally, the present study contributes to the body of previous literature by testing the effect of time on variable relationships using the difference between the variable means from the two time point for final analyses. The main statistical analyses of the thesis were the regression analyses of the change scores. In the following, the results from these will be presented and discussed. Hereafter, important strengths and limitations will be highlighted and lastly, the applicability of results and challenges for future research will be stated.

6.1 EXAMINATION OF RESULTS

Regression equations were in general statistically significant but with relatively low R squared values. This means that a change in the model variables only explained a small amount of the variance in change in another variable. Results from correlation analysis of the time 1 and time 2 scores showed significant relations between variables of the model. Most correlations were moderate to high. Variables for the change scores showed little or no correlation.

The means of the variables did not change significantly between time 1 and time 2. However, this minor change in PAS PE explained 8,9% of the variance in change in autonomous motivation in PE (H1), but it did not significantly predict change in controlled motivation in PE (H9). These results are in line with the SDT which suggests that satisfaction of the three basic psychological needs affects motivational regulation towards more autonomous forms. The fact that PAS did not predict controlled motivation gives further support to this tenant of the theory. Previous studies have found the satisfaction of the psychological needs to be associated with intrinsic motivation in school context (e.g. Liu & Chung, 2016; Meng & Keng, 2016) and further, thwarting of the psychological needs undermine intrinsic motivation (Deci & Ryan, 2000). Thus, it would have provided stronger support if a decrease in PAS PE predicted an increase in controlled motivation in PE or opposite. The correlations of the time 1 and time 2 scores are in accordance with the

previous literature as the correlations with controlled motivation are negative, meaning that the more autonomy support the students perceive in PE, the less controlled motivation they experience. Thus, these results further support the SDT.

Supporting the hypothesis, change in autonomous motivation in PE explained 13% of the variance in change in autonomous motivation in LT (H2). This was the second strongest R squared value in the model and is especially of interest because it follows the important assumption that motivation can transfer across contexts supporting the TCM and Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation.

Change in autonomous motivation in LT explained 11% of the variance in change in PBC, 3,8% of variance in change in attitude and only 1,7% of variance in change in SN (H3). The relation between autonomous motivation in LT and the three constructs of TPB is an important relation of the integration of the theories in the TCM. It is worth noticing how autonomous motivation in LT is a much stronger predictor of PBC than of the other two constructs. This means that if a student is autonomously motivated towards PA, he/she will also perceive that they are able to do the activity. Moreno-Murcia, Gimeno, Hernández, Belan-do Pedreño and Marín (2003) identified two groups of motivational profiles for doing PA: a self-determined profile and a "none self-determined" profile. They compared the two groups on TPB and found a positive relationship between self-determined (or autonomous) motivation and attitude, SN, PBC and intention.

Change in SN, PBC and attitude combined explained 11% of variance in change in intention (H4). This finding is in line with the tenants of TPB (Ajzen, 1985). Change in attitude was the strongest predictor of change in intention explaining 4,9% followed by change in PBC explaining 4,3%, and lastly, change in SN was the weakest predictor explaining 2,7%. These results are in line with previous studies on the TPB concluding that SN is the weakest predictor of intention (Chatzisarantis et al., 2008; Armitage & Conner, 2001; Ajzen & Driver, 1991; Neipp, Quiles & Rodríguez-Martín, 2013; Hagger et al. 2001). Armitage and Conner (2001) highlighted the effect of PBC alone in predicting intentions and behavior, but as Ajzen (1991) suggests, the importance of the three determinants in predicting intention depends on the situation and the behavior. The fact that attitude in this case was the strongest predictor of intention is in line with results from

Hagger et al. (2003) and could be due to a list of factors such as the climate in the classroom, the presence, or rather non-presence, of pressure of performing well, the teacher's attitude, etc. It can be speculated that the Finnish culture also plays a role. The children in school might not experience the need of being good at a given activity as important for their future participation in that activity as children in other countries do, but see enjoyment and values as more significant factors, and thereby the attitude is a more important factor.

Change in autonomous motivation in LT explained 15% of the variance in change in intention (H7), being the strongest predictor variable in the model. The result supports a direct effect proposed by the TCM (Hagger et al., 2003). Further, according to the TCM, the effect on intention is also mediated by the three constructs of the TPB. Hierarchical regression analysis supported this indirect effect as autonomous motivation in LT together with change in SN, PBC and attitude, explained 20% of the variance in change in intention.

Change in intention explained 7,6% of the variance in change in PA behavior (H5). The intention-behavior relationship has received much attention in the literature and studies have found mixed results. For example, Randall and Wolff (1994) found that the intention-behavior coefficient was strong and interestingly did not decline significantly over time. That means that a measure of intention in one point of time can predict behavior later in time. Other studies identified by Ajzen (1991) have found that a combination of intention and PBC significantly predict behavior. On the other hand, the intention-behavior relationship has in a meta-analysis been found to be only moderate in effect size (Hagger, Chatzisarantis & Biddle, 2002). The relatively low R squared value found in this study represents this uncertain relationship.

Change in PAS PE explained 4,6% of the variance in change in autonomous motivation in LT (H6). Since the TCM also suggests an indirect effect through autonomous motivation in PE, change in this variable was added to the model and explained an additionally statistically significant 10% of the variance in change in autonomous motivation in LT. This result gives support to the motivational sequence proposed by the TCM. The satisfaction of the basic needs in PE class has previously been associated with intrinsic motivation towards exercise outside of school (Liu and Chung, 2016). Interestingly, a

contrary effect has been hypothesized as well. Based on SDT and Vallerand's (1997) theory, Hagger et al. (2003) argued that lack of satisfaction of the basic psychological needs in one context leads to external forms of motivation which is then predicts autonomous motivation in another context. Thus, when a person is not experiencing for example autonomy in one context and become externally motivated or not motivated at all, they might seek the satisfaction from participating in alternative physical activities that they chose themselves and thus experience more autonomy. In this way, a decline in PAS PE could also, for some individuals, predict an increase in autonomous motivation in LT through controlled motivation in PE, but only if the needs are thwarted. In this study, the autonomy in PE was expected to be supported to some degree, which is why this opposite relation was not originally hypothesized.

Change in controlled motivation in PE was not a predictor of change in autonomous motivation in LT (H10). To the author knowledge, no previous studies have inquired this effect in itself. Theoretically, it means that if a person is experiencing controlled motivation in PE this will not affect their autonomous motivation in LT and is in contradiction to the hypothesis that an increase in controlled motivation in PE would predict a decrease in autonomous motivation in LT. The relationship might be theoretically interesting for future research and it is possible that such hypothesized association could only be found in an intervention study. In addition, the results from this study could be explained by no intervention and thereby no change between time one and time two.

Change in autonomous motivation in LT explained 4,5% of the variance in change in PA behavior (H8). The TCM suggests that autonomous motivation in LT predicts PA behavior. Nevertheless, the two variables were strongly correlated in both time points, thus the results support previous literature which has linked autonomous motivation to behavior in many contexts (Rahman et al., 2011; Wilson & Brookfield, 2009; Ryan et al., 1997; Hagger & Chatzisarantis, 2008). The correlations were much stronger than the correlations between autonomous motivation in PE and PA behavior, which supports the motivational sequence proposed by the TCM.

In conclusion, that the R squared values were relatively low was as hypothesized and can only be expected in the field of psychology since human behavior is difficult to predict.

Further, the regressions were based on values that were computed as the difference between two already relatively similar numbers because no intervention was done between time points that could have caused a significant difference in answers. When the values compared are not differing much from each other, weaker relationships will be found which was evident in the correlation analysis of the change scores.

6.2 STRENGTHS AND LIMITATIONS

An important strength of this study is that it examined the relationships between variables in a complex theoretical model and the effects of these on one another. These effects are supported by using changes in the variables over the course of 4 weeks, which has never been done in previous research on the TCM. Thus, this study is a unique contribution to the literature. It enables a better understanding of the motivational sequence proposed by the TCM and has important implications for supporting the long-term predictive validity of the model.

Another strength of this study is the large sample size. Even though it was not the goal of the study, it was important for the generalizability of the results that two schools were represented in the sample. This means that not only were more teachers included, which influence the variability in the answers, but also there might be certain conditions at a school that makes the teachers adopt a similar style. Even though it is commonly known that Finnish schools are quite similar in their style and quality of teaching, there were statistically significant mean differences between the two schools in PAS, which would mean that a difference in the teachers' autonomy supportive style exists. This was however only the case for the boys.

The study also has a number of limitations that should be addressed and discussed. The use of change scores for the analyses constitutes one of the main strengths but simultaneously a main limitation. The interpretation of the results has been limited due to the lack of studies adopting the same method. Correlation analyses have been used to assist in exploring and interpreting the data, but these did not answer the hypotheses.

Another limitation is the choice of statistical method of the study. Regression analyses were computed despite the fact that change score variables did not correlate. The pupils' TCM values did not change a lot during 4 weeks, so weak correlations between change score

variables were to be expected. However, it seemed theoretically interesting to examine if change in some variables were related to change in others.

Further, the preliminary data analysis showed that data were not normally distributed. Therefore, Spearman correlation analysis was done to compare results with Persons correlations, and results were similar. In addition, the large sample size made it sound to perform the regression analyses. However, other statistical methods might have been more appropriate for the current data. In addition, one limitation of regression analysis is that it does not show any possible mediating effects of model variables. For a more complete and correct understanding of the model, path analysis should be used.

Another limitation is the use of self-report measures. Self-reported PA behavior has been used extensively in the field of health and has been a discussion in many previous studies because of the limitations in terms of their internal validity. There is always a risk of people answering in a socially desirable way and a risk of people being unable to recall their own behavior. In addition, Randall and Wolff (1994) found that the use of self-report measures of behavior influences the intention-behavior correlation. There are also limitations using self-report measures of motivational and social cognitive constructs. Like any psychological variables, the variables of this study reflect static perceptions at a specific point of time and might change easily depending factors such as mood, time of the day, specific events that recently happened, concentration level and so on. There is a risk that these factors alone could have caused the change in some variables. It should be highlighted here, that based on Cronbach's alpha values, the measures of this study achieved acceptable levels of internal consistency.

6.3 APPLICABILITY OF RESULTS AND CHALLENGES FOR FUTURE RESEARCH

One of the strengths of this study is the practical relevance. The information the described theories and the results provide, is directly applicable to the schools and teachers. Together with previous studies, the results from this study highlights the importance of an autonomy supportive teacher behavior. Based on this, interventions could be developed focusing the style of the PE teachers and through this, targeting the pupils' autonomous motivation not only towards activities in PE but also for PA outside of school and potentially in the future. If this is possible, it might have large advantages for our future society and we might obtain

a less sedentary and obese population. With this being said, it is evident that this kind of intervention might not be able to do the job alone, and might not even affect every child in school, but it can make an important contribution.

These kinds of interventions should be in focus in future research manipulating the PAS in PE and is currently being done in the PETALS-project. In addition, an objective measure of PA behavior such as accelerometers could support the results. By adopting the same method as for this study, researchers can investigate the effect of the intervention and create even better links between model variables. The fact that small effects were found in this study even without an intervention and with such relatively short period of time between measurements, tells us that just filling the questionnaire twice will create a difference. This is something to keep in mind in future research adopting the same method.

7 CONCLUSION

Overall, results supported the hypotheses demonstrating the TCM's efficacy in explaining variance in model variables. The study applied the method of using change scores for the examination of the TCM and small R squared values were expected since there was no intervention between the two measurement points that could have caused a significant difference in variables between time points. The study found acceptable reliability for the scales considering the theory and the purpose of the individual scales. Future research implementing an intervention targeting the PE teachers' autonomy supportive style, could use the change score variables for statistical analyses but should use more sophisticated statistical methods to obtain a more complete understanding of the relationships among model variables.

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APPENDICES

1. The questionnaire (English)
2. The questionnaire (Finnish)

1. The Questionnaire (English)

Questionnaire**Personal Information**

Name: _____ Age: _____

Grade: _____ Are you a Boy or Girl (*Please circle*)

Teacher: _____

Date of Birth: Date: _____ Month _____ Year _____

What is your father's
profession? _____What is your mother's
profession? _____What is your home postal
code? _____

Section A: PHYSICAL EDUCATION LESSONS

The following part of questionnaire contains items that are related to your experience with your **physical education (PE) teacher in the class**. Teachers have different styles in dealing with students, and we would like to know more about how you have felt about your encounters with your PE teacher. Your responses are confidential and there are no right or wrong answers, so please be honest with your answers. Circle the number that best describes your opinion.

	Strongly disagree		Neutral			Strongly agree	
	1	2	3	4	5	6	7
1. My PE teacher tries to understand how I see things before suggesting a new way to do things.	1	2	3	4	5	6	7
2. I feel that PE teacher provides me with choices, options, and suggestions about whether to do physical activity	1	2	3	4	5	6	7
3. My PE teacher displays confidence in my ability to do physical activity	1	2	3	4	5	6	7
4. My PE teacher encourages me to do physical activity	1	2	3	4	5	6	7
5. My PE teacher listens to me about my physical activity	1	2	3	4	5	6	7
6. I am able to talk to my PE teacher about physical activity	1	2	3	4	5	6	7
7. My PE teacher cares about the physical activity I do	1	2	3	4	5	6	7
8. My PE teacher tries to control everything I do.	1	2	3	4	5	6	7
9. My PE teacher uses forceful language.	1	2	3	4	5	6	7
10. My PE teacher expects me to obey his/her instructions.	1	2	3	4	5	6	7
11. My PE teacher demands that I do exactly as I am told.	1	2	3	4	5	6	7
12. My PE teacher demands that I listen to instructions.	1	2	3	4	5	6	7
13. I feel that PE teacher provides me with choices, options, and suggestions about whether to do physical activity in my free time	1	2	3	4	5	6	7

14. My PE teacher displays confidence in my ability to do physical activity in my free time	1	2	3	4	5	6	7
15. My PE teacher encourages me to do physical activity in my free time	1	2	3	4	5	6	7
16. My PE teacher listens to me about my physical activity in my free time	1	2	3	4	5	6	7
17. I am able to talk to my PE teacher about physical activity in my free time	1	2	3	4	5	6	7
18. My PE teacher cares about the physical activity I do in my free time	1	2	3	4	5	6	7

Section A: PARENTS AND FRIENDS

Answer all of the questions. Circle the number that best describes your opinion.

	Strongly disagree		Neutral			Strongly agree	
	1	2	3	4	5	6	7
19. I feel that my parents provide me with choices, options, and opportunities to do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
20. My parents encourage me to do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
21. My parents provide me with positive feedback when I do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
22. I feel I am able to share my experiences of active sports and/or vigorous exercise with my parents	1	2	3	4	5	6	7
23. I feel that my friends provide me with choices, options, and opportunities to do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
24. My friends encourage me to do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
25. My friends provide me with positive feedback when I do active sports and/or vigorous exercise in my free time	1	2	3	4	5	6	7
26. I feel I am able to share my experiences of active sports and/or vigorous exercise with my friends	1	2	3	4	5	6	7

Section B: HOW YOU FEEL IN PHYSICAL EDUCATION

This part of the questionnaire asks questions about why you do **physical education** (PE). There are no right or wrong answers so please answer the questions honestly. Tick the box that best describes your opinion.

I do PE...	Not true for me		Sometimes true for me			Very true for me	
	1	2	3	4	5	6	7
1. So that the teacher won't yell at me							
2. Because I must do it, it's the rule							
3. I will feel bad about myself if I don't							
4. Because I would feel bad if the teacher thought that I was not good at PE							
5. Because it is important to me to do well in PE							
6. Because it is important to me to improve in PE							
7. Because I enjoy PE							
8. Because PE is fun							

Section C: YOUR LEISURE-TIME PHYSICAL ACTIVITY AT HOME

In this part of the questionnaire, we would like to know why you do physical activities **AT HOME OUTSIDE OF SCHOOL**. Please read all of the reasons below and CIRCLE A NUMBER for each reason.

I do physical activity during my free time...	Not true for me		Sometimes true for me			Very true for me	
1. ...Because I enjoy doing physical activity	1	2	3	4	5	6	7
2. ...Because I value the benefits of physical activity	1	2	3	4	5	6	7
3. ...Because I feel bad about myself when if don't do physical activity	1	2	3	4	5	6	7
4. ...Because other people I know will not be pleased with me if I do not do physical activity	1	2	3	4	5	6	7
5. ...Because it is fun	1	2	3	4	5	6	7
6. ...Because it's important to me to do physical activities	1	2	3	4	5	6	7
7. Because I will feel guilty if I do not do physical activity	1	2	3	4	5	6	7
8. ...Because I feel under pressure from people I know to do physical activity	1	2	3	4	5	6	7

Participating in active sports and/or vigorous physical activities during my **leisure time in the next 5 weeks** is... (Circle the number that best describes your answer and circle ONE number on EACH line).

Unenjoyable	1	2	3	4	5	6	7	Enjoyable
Bad	1	2	3	4	5	6	7	Good
Useless	1	2	3	4	5	6	7	Useful

I intend to do active sports and/or vigorous physical activities during my leisure time in the next 5 weeks. (Circle the number that best describes your answer)

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
-------------------	---	---	---	---	---	---	---	----------------

I plan to do active sports and/or vigorous physical activities during my leisure time in the next 5 weeks. (Tick the box that best describes your answer)

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
-------------------	---	---	---	---	---	---	---	----------------

How much control do you have over doing active sports and/or vigorous physical activities in my leisure time in the next 5 weeks? (*Circle the number that best describes your answer*)

Very little control 1 2 3 4 5 6 7 Comple control

I am confident I could do active sports and/or vigorous physical activities during my leisure time in the next 5 weeks. (*Circle the number that best describes your answer*)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Most people who are important to me think I should do active sports and/or vigorous physical activities during my leisure time for the next 5 weeks. (*Circle the number that best describes your answer*)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Most people important to me put pressure on me to do active sports and/or vigorous physical activities during my leisure time for the next 5 weeks. (*Circle the number that best describes your answer*)

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

In the course of the past five weeks, how often on average, have you participated in vigorous physical activities **during your leisure time** for at least 20 minutes at a time?
(Circle the number that best describes your answer)

Not at all	Once or twice	A few times	Several times	Most of the time	Most days per week
1	2	3	4	5	6

How frequently did you have you participated in vigorous physical activities during your leisure time **in the course of the past five weeks** for at least 20 minutes at a time?
(Circle the number that best describes your answer)

Never	Once or twice	A few times	Several times	Most of the time	All of the time
1	2	3	4	5	6

Here we would like to know how much you have **TRIED (put in effort)** to do **leisure time** physical activity at home **over the last 5 weeks**

During the last 5 weeks, how hard did you try to do to do leisure time physical activity at home?

(Circle the number that best describes your answer)

Didn't try at all			In between			Tried very hard
1	2	3	4	5	6	7

During the last 5 weeks, how much effort did you put in doing leisure time physical activity at home? (Circle the number that best describes your answer)

No effort at all			In between			Very high effort
1	2	3	4	5	6	7

Section D: ABOUT YOU AND WHAT YOU ARE LIKE

This section of the survey asks you a little about yourself. Please indicate how you feel about physical activity below by circling a number on each of the scales below:

Physical activity is something I do automatically.

Completely uncertain	1	2	3	4	5	6	7	Completely certain
----------------------	---	---	---	---	---	---	---	--------------------

Physical activity is something I do I do without having to consciously remember.

Completely uncertain	1	2	3	4	5	6	7	Completely certain
----------------------	---	---	---	---	---	---	---	--------------------

Physical activity is something I do without thinking.

Completely uncertain	1	2	3	4	5	6	7	Completely certain
----------------------	---	---	---	---	---	---	---	--------------------

Physical activity is something I start doing before I realize I'm doing it.

Completely uncertain	1	2	3	4	5	6	7	Completely certain
----------------------	---	---	---	---	---	---	---	--------------------

Please indicate (by circling a number) how much each of the following statements reflects **what you are like most of the time**. Everyone feels differently about this so there are no right or wrong answers. Please answer **all the questions**.

	Not like me at all	Not much like me	Mostly like me	Very much like me
I have difficulty starting tasks.	1	2	3	4
I get my chores done right away.	1	2	3	4
I find it difficult to get down to work.	1	2	3	4
I am always prepared.	1	2	3	4
I often waste my time.	1	2	3	4
I start tasks right away.	1	2	3	4
I tend to postpone decisions.	1	2	3	4
I like to get to work at once.	1	2	3	4
I need a push to get started.	1	2	3	4
I tend to carry out my plans.	1	2	3	4
I have overcome setbacks to conquer an important challenge.	1	2	3	4
New ideas and projects sometimes distract me from previous ones.	1	2	3	4
My interests change from year to year.	1	2	3	4

Setbacks don't discourage me.	1	2	3	4
I have been obsessed with a certain idea or project for a short time but later lost interest.	1	2	3	4
I am a hard worker.	1	2	3	4
I often set a goal but later choose to pursue a different one.	1	2	3	4
I have difficulty maintaining my focus on projects that take more than a few months to complete.	1	2	3	4
I finish whatever I begin.	1	2	3	4
I have achieved a goal that took years of work.	1	2	3	4
I become interested in new pursuits every few months.	1	2	3	4
I am diligent.	1	2	3	4

Thank you for your help

2. The Questionnaire (Finnish)

LIIKUNTAKYSELY

III/II

18.-19.10.2017

Henkilötiedot

Nimi_____

Ikä_____

Koulu_____

Luokka_____

Liikunnanopettaja_____

Sukupuoli_____

Syntämäpäivä (pv.kk.vvvv)_____

Isän/ huoltajan ammatti_____

Äidin/ huoltajan ammatti_____

Osio A: LIIKUNTATUNNIT JA VAPAA-AJAN LIIKUNTA

Tämä kyselylomake käsittelee sinun kokemuksiasi liikunnanopettajastasi **koulun liikuntatunneilla**. Opettajilla on eri tyylejä suhtautua oppilaisiin ja nyt me haluaisimme tietää enemmän sinun tuntemuksistasi liikunnanopettajaasi liittyen. Ole rehellinen ja suora vastauksissasi. Kaikki vastaukset ovat luottamuksellisia. Vastaa kaikkiin kysymyksiin. Ympyröi vain yksi vaihtoehto, joka kuvastaa parhaiten mielipidettäsi.

	Täysin eri mieltä		Neutraali			Täysin samaa mieltä	
	1	2	3	4	5	6	7
27. Liikunnanopettajani yrittää ymmärtää, miten minä näen asiat, ennen kuin ehdottaa minulle uutta tapaa tehdä asioita	1	2	3	4	5	6	7
28. Minusta tuntuu, että liikunnanopettajani antaa minulle mahdollisuuksia, vaihtoehtoja ja ehdotuksia liikuntatunneilla liikkumiselle	1	2	3	4	5	6	7
29. Liikunnanopettajani luottaa kykyihini liikuntatunneilla	1	2	3	4	5	6	7
30. Liikunnanopettajani rohkaisee minua liikkumaan/harrastamaan liikuntaa liikuntatunneilla	1	2	3	4	5	6	7
31. Liikunnanopettajani kuuntelee minua liikuntatunneilla	1	2	3	4	5	6	7
32. Voin puhua liikunnanopettajalleni liikuntatunneilla	1	2	3	4	5	6	7
33. Liikunnanopettajani välittää aktiivisuudestani liikuntatunneilla	1	2	3	4	5	6	7
34. Liikunnanopettajani yrittää määrätä kaikkea mitä teen	1	2	3	4	5	6	7
35. Liikunnanopettajani käyttää voimakasta kieltä	1	2	3	4	5	6	7
36. Liikunnanopettajani odottaa minun tottelevan hänen määräyksiään	1	2	3	4	5	6	7
37. Liikunnanopettajani vaatii, että teen juuri kuten minulle sanotaan	1	2	3	4	5	6	7
38. Liikunnanopettajani vaatii, että kuuntelen hänen määräyksiään	1	2	3	4	5	6	7

39. Minusta tuntuu, että liikunnanopettajani antaa mahdollisuuksia, vaihtoehtoja ja ehdotuksia liikunnan harrastamiseen vapaa-ajallani	1	2	3	4	5	6	7
40. Liikunnanopettajani luottaa kykyihini harrastaa liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
41. Liikunnanopettajani rohkaisee minua harrastamaan liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
42. Liikunnanopettajani kuuntelee minua, kun kerron vapaa-ajan liikunnastani	1	2	3	4	5	6	7
43. Voin puhua liikunnanopettajalleni vapaa-ajan liikunnastani	1	2	3	4	5	6	7
44. Liikunnanopettajani välittää vapaa-ajan liikunnastani.	1	2	3	4	5	6	7

Osio A: VANHEMMAT JA TOVERIT

Vastaa kaikkiin kysymyksiin. Ympyröi vain yksi vaihtoehto, joka kuvastaa parhaiten mielipidettäsi.

	Täysin eri mieltä		Neutraali			Täysin samaa mieltä	
	1	2	3	4	5	6	7
45. Vanhempani/ huoltajani tarjoavat minulle valintoja, vaihtoehtoja ja mahdollisuuksia harrastaa liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
46. Vanhempani/ huoltajani kannustavat minua liikunnan harrastamiseen vapaa-ajallani	1	2	3	4	5	6	7
47. Vanhempani/ huoltajani antavat minulle positiivista palautetta, kun harrastan liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
48. Pystyn jakamaan kokemuksiani liikunnan harrastamisesta vanhempieni/ huoltajieni kanssa	1	2	3	4	5	6	7
49. Kaverit tarjoavat minulle valintoja, vaihtoehtoja ja mahdollisuuksia harrastaa liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
50. Kaverit kannustavat minua liikunnan harrastamiseen vapaa-ajallani	1	2	3	4	5	6	7
51. Kaverit antavat minulle positiivista palautetta, kun harrastan liikuntaa vapaa-ajallani	1	2	3	4	5	6	7
52. Pystyn jakamaan kokemuksiani liikunnan harrastamisesta kavereideni kanssa	1	2	3	4	5	6	7

Osio B: MITÄ AJATTELET LIIKUNTATUNNEISTA?

Tässä osassa kyselyä haluaisimme tietää, mitä ajattelet **liikuntatunneista** ja miksi osallistut liikuntatunneille. Kysymyksiin ei ole oikeita eikä vääriä vastauksia, joten vastaathan kysymyksiin rehellisesti. Ympyröi vain yksi vaihtoehto, joka kuvastaa parhaiten mielipidettäsi.

Osallistun liikuntatunneille	Ei kuvasta minua ollenkaan		Kuvaa minua joskus			Kuvaa minua erittäin hyvin	
	1	2	3	4	5	6	7
9. Jotta opettaja ei huutaisi minulle							
10. Osallistun vain, koska se on pakollista							
11. Koska minusta on kurjaa, jos en yritä							
12. Koska minusta tuntuisi pahalta, jos opettaja ajattelisi, etten ole hyvä liikuntatunneilla							
13. Koska haluan pärjätä liikunnassa							
14. Koska minulle on tärkeää kehittyä liikuntatunneilla							
15. Koska pidän liikuntatunneista							
16. Koska minusta liikuntatunnit ovat mukavia							

Osio C: SINUN VAPAA-AJAN LIIKUNTASI

Tässä kyselyn osassa haluaisimme tietää liikunnallisuudestasi vapaa-ajalla koulun ulkopuolella. Lue alla olevat väittämät ja ympyröi kultakin riviltä yksi parhaiten sinua kuvaava vaihtoehto.

Liikun vapaa-ajallani...	Ei kuvasta minua ollenkaan hyvin		Kuvaa minua joskus					Kuvaa minua erittäin hyvin
	1	2	3	4	5	6	7	
9. ... Koska nautin liikunnasta	1	2	3	4	5	6	7	
10. ...Koska arvostan liikkumisen hyötyjä	1	2	3	4	5	6	7	
11. ...Koska tunnen itseni huonoksi, jos en liiku	1	2	3	4	5	6	7	
12. ...Koska tuntemani ihmiset olisivat tyytymättömiä minuun, jollen liikkuisi	1	2	3	4	5	6	7	
13. ...Koska se on hauskaa	1	2	3	4	5	6	7	
14. ...Koska minulle on tärkeää harrastaa liikuntaa	1	2	3	4	5	6	7	
15. ...Koska tunnen syyllisyyttä, jos en liiku	1	2	3	4	5	6	7	
16. ...Koska koen tuntemieni ihmisten painostavan minua liikkumaan	1	2	3	4	5	6	7	

Aktiiviseen urheiluun ja/tai vauhdikkaaseen liikunnan harrastamiseen osallistuminen vapaa-ajallani seuraavien 5 viikon aikana on...(ympyröi numero, joka parhaiten kuvaa sinua ja ympyröi jokaiselta riviltä vain yksi numero)

Epämiellyttävää	1	2	3	4	5	6	7	Miellyttävää
Pahaksi	1	2	3	4	5	6	7	Hyväksi
Hyödytöntä	1	2	3	4	5	6	7	Hyödyllistä

Aion urheilla ja/tai liikkua vauhdikkaasti vapaa-ajallani seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Vahvasti eri mieltä	1	2	3	4	5	6	7	Vahvasti samaa mieltä
---------------------	---	---	---	---	---	---	---	-----------------------

Suunnittelen urheilevani ja/tai liikkuvani vauhdikkaasti vapaa-ajallani seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Vahvasti eri mieltä	1	2	3	4	5	6	7	Vahvasti samaa mieltä
---------------------	---	---	---	---	---	---	---	-----------------------

Kuinka paljon pystyt vaikuttamaan siihen, että urheilut ja/tai liikut vauhdikkaasti vapaa-ajallasi seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Pystyn vaikuttamaan hyvin vähän	1	2	3	4	5	6	7	Pystyn vaikuttamaan täysin
---------------------------------	---	---	---	---	---	---	---	----------------------------

Uskon, että pystyisin urheilemaan ja/tai liikkumaan vauhdikkaasti vapaa-ajallani seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Vahvasti eri mieltä	1	2	3	4	5	6	7	Vahvasti samaa mieltä
---------------------	---	---	---	---	---	---	---	-----------------------

Useimmat minulle tärkeät ihmiset haluavat, että urheilisin ja/tai liikkuisin vauhdikkaasti vapaa-ajallani seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Vahvasti eri mieltä	1	2	3	4	5	6	7	Vahvasti samaa mieltä
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Useimmat minulle tärkeät ihmiset odottavat minun urheilevan tai liikkuvan vauhdikkaasti vapaa-ajallani seuraavien 5 viikon aikana (ympyröi numero, joka parhaiten kuvaa)

Vahvasti eri mieltä	1	2	3	4	5	6	7	Vahvasti samaa mieltä
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Viimeisen 5 viikon aikana, kuinka usein keskimäärin olet osallistunut vauhdikkaisiin fyysisiin aktiviteetteihin **vapaa-ajallasi** vähintään 20 minuuttia kerrallaan? (ympyröi numero, joka parhaiten kuvaa)

En ollenkaan	Kerran tai kahdesti	Muutaman kerran	Useita kertoja	Useimmiten	Useimpina päivinä viikossa
1	2	3	4	5	6

Kuinka säännöllisesti olet osallistunut vauhdikkaisiin fyysisiin aktiviteetteihin vapaa-ajallasi **viimeisen 5 viikon aikana** vähintään 20 minuuttia kerrallaan? (ympyröi numero, joka parhaiten kuvaa)

En ollenkaan	Kerran tai kahdesti	Muutaman kerran	Useita kertoja	Useimmiten	Joka kerta
1	2	3	4	5	6

Haluaisimme tietää, kuinka paljon olet pyrkinyt panostamaan vapaa-ajan liikunnan harrastamiseen viimeisen 5 viikon aikana

Kuinka kovasti pyrit harrastamaan vapaa-ajan liikuntaa viimeisen 5 viikon aikana? (ympyröi vaihtoehto, joka kuvastaa parhaiten mielipidettäsi)

En yrittänyt lainkaan	Välivaihtoehto					Yritin erittäin kovasti
1	2	3	4	5	6	7

Kuinka kovasti olet panostanut vapaa-ajan liikunnan harrastamiseen viimeisen 5 viikon aikana? (ympyröi vaihtoehto, joka kuvastaa parhaiten mielipidettäsi)

En panostanut lainkaan	Välivaihtoehto					Panostin erittäin kovasti
1	2	3	4	5	6	7

Osio D: MILLAINEN SINÄ OLET?

Haluaisimme tietää, mitä mieltä olet liikunnan harrastamisesta. Ympyröi paras vaihtoehto kunkin kysymyksen kohdalla.

Liikunta on jotain, jota harrastan automaattisesti

Ei pidä paikkaansa	1	2	3	4	5	6	7	Pitää täysin paikkansa
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Minun ei tarvitse tietoisesti muistaa harrastaa liikuntaa – harrastan sitä joka tapauksessa

Ei pidä paikkaansa	1	2	3	4	5	6	7	Pitää täysin paikkansa
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Harrastan liikuntaa miettimättä asiaa sen tarkemmin

Ei pidä paikkaansa	1	2	3	4	5	6	7	Pitää täysin paikkansa
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Aloitin usein liikunnan harrastamisen ennen kuin edes tajuan, että minähän tässä harrastan liikuntaa

Ei pidä paikkaansa	1	2	3	4	5	6	7	Pitää täysin paikkansa
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Valitse vaihtoehto (ympyröimällä yksi numero), joka kuvastaa sitä, **millainen sinä olet useimmiten**. Jokainen ajattelee itsestään eri tavoin, joten oikeita ja väärä vastauksia ei ole. Vastaathan **kaikkiin kysymyksiin** ja ympyröi vain yksi vaihtoehto.

	Ei kuvaa minua ollenkaan	Ei kuvaa minua kovin hyvin	Kuvaa minua useimmiten	Kuvaa minua todella hyvin
Tehtävien aloittaminen on minulle vaikeaa	1	2	3	4
Saan tehtäväni tehdyksi heti	1	2	3	4
Työhön ryhtyminen on minulle vaikeaa	1	2	3	4
Olen aina valmistautunut	1	2	3	4
Tuhlaan usein aikaani	1	2	3	4
Aloitan tehtäväni välittömästi	1	2	3	4
Minulla on tapana lykätä päätöksiäni tuonnemmaksi	1	2	3	4
Haluan päästä heti käsiksi tehtäviini	1	2	3	4
Minun tarvitsee pinnistellä, jotta saan tehtäväni aloitetuksi	1	2	3	4
Minulla on tapana toteuttaa suunnitelmani	1	2	3	4
Minun täytyy voittaa vastoinkäymiset saavuttaakseni tärkeän tavoitteen	1	2	3	4
Uudet ideat ja tehtävät häiritsevät joskus aikaisempien tehtävieni toteuttamista	1	2	3	4
Kiinnostuksen kohteeni muuttuvat usein	1	2	3	4
Vastoinkäymiset eivät lannista minua	1	2	3	4
Olen ollut erittäin kiinnostunut jostain asiasta hetken, mutta kadottanut kiinnostukseni nopeasti	1	2	3	4
Olen ahkera	1	2	3	4
Asetan usein tavoitteen, mutta myöhemmin päätänkin pyrkiä toista tavoitetta kohden	1	2	3	4
Minun on vaikeaa pysyä keskittyneenä projekteissa, joiden toteuttaminen vaatii enemmän kuin muutaman kuukauden	1	2	3	4
Saan valmiiksi sen minkä aloitan	1	2	3	4
Olen saavuttanut tavoitteen, joka vaatii vuosien työn	1	2	3	4
Kiinnostun uusista tavoitteista muutaman	1	2	3	4

kuukauden välein

Olen kova tekemään töitä

1

2

3

4

KIITOKSET AVUSTASI