

PERCEIVED AUTONOMY SUPPORT, BASIC NEEDS SATISFACTION,
MOTIVATION REGULATION AND WELL-BEING:
VERIFICATION OF SELF-DETERMINATION THEORY IN DANCERS IN
FINLAND

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ABSTRACT

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Based on self-determination theory (Deci & Ryan, 2000), the main aim of the present study was to examine the relationships between perceptions of autonomy support, perceived basic need satisfaction, motivation regulation, and several indicators of physical and psychological well-being among Finnish dancers. Participants to the study were 101 Finnish professional ballet dancers ($m = 35$) and dance students ($m = 66$). All participants were asked to fill in a questionnaire assessing perceived autonomy support (Williams et al., 1996), perceived basic need satisfaction (McAuley et al., 1989; Deci et al., 2001; Scheldon et al., 2001; Richer & Vallerand, 1998), motivation regulation (Lonsdale et al., 2008) and several indicators of physical (Emmons, 1992) and psychological well-being (Marsh et al., 1985; Watson et al., 1988; Raedeke & Smith, 1992). Data was analyzed using Spearman's bi-variate and Pearson's product moment correlations, and Structural equation modeling (SEM) using Mplus.

Structural equation modeling showed weak support for the assumed relationships between the measured constructs specified in self-determination theory. Specifically, the findings indicated that the degree to which dancers perceived their dance teachers to be autonomy-supportive significantly predicted the dancers' perceived sense of autonomy and relatedness. Additionally, perceived satisfaction of the need for autonomy significantly predicted the least autonomous form of autonomous motivation (identified motivation) and one of the indicators of well-being (burnout of reduced accomplishment). However, the findings did not support the hypothesized mediating effects of the basic needs and motivation regulations.

In conclusion it is argued that the findings provided some preliminary evidence of the applicability of self-determination theory to the dance context in Finland, although it is suggested that different dance styles (e.g. ballet and hip hop) and levels of professionalism (e.g. students and professionals) should be more accurately distinguished in the study setup of future studies on self-determination theory in the field of dance.

Keywords: Dancer, self-determination theory, autonomy support, basic needs, motivation, well-being.

1. INTRODUCTION

There is contradicting evidence in scientific research publications regarding the beneficial effect of regular involvement in sports and physical activity on an individual's physical and psychological wellbeing. On one hand, an overwhelming amount of the results from scientific research supports the proposition that regular involvement in sports and physical activity is beneficial to an individual's physical and psychological health (Fox, Boutcher, Faulkner, & Biddle, 2000; Reinboth & Duda, 2006; World Health Organization, 1995). This proposition is also shared by a majority of the general public. It is generally accepted that regular participation in sports or physical activity is "good for you."

On the other hand, more recent studies support the proposition that regular participation in sports and physical activity can also have a negative effect on the physical and psychological well-being of an individual (Duda, 2001; Reinboth & Duda, 2006). This proposition is mainly stated in regard to participation in sports and physical activities due to pressures from the social environment to participate in a specific manner (controlling) and due to high external expectations from the social environment about the participation in sports or physical activity. Participation in physical activities due to external pressures or under high external expectations might undermine the motivation of an individual to participate in sports or a physical activity and can subsequently lead to maladaptive effects on the physical and psychological well-being of an individual. For example, young children can experience external pressure and control from significant others in their social environment, such as parents and coaches, regarding their participation in sports or physical activity.

Although support and encouragement from significant others in the social environment can lead a youngster to enjoy participation in sports and physical activity, to experience a sense of challenge and to enhance his or her self-esteem, the experience of strong external pressures and unrealistic expectations of significant others regarding a child's participation in sports and physical activity can lead a child to experience stress, mood

disturbances and pain and to develop a damaged self-esteem (Goudas, Biddle, Fox & Underwood, 1995; Krane, Greenleaf, & Snow, 1997; Reeve & Deci, 1996). Conclusively, it can be argued that the effect of participation in sports and physical activity on physical and psychological well-being is not always positive. Further, the effect of participation in sports and physical activity on physical and psychological well-being is determined by the characteristics of the social environment related to participation in sport and physical activity of an individual.

Self-Determination Theory (SDT, Deci and Ryan, 2000), an extended theory on motivation, has been successfully applied many times to explain the effect of the different social-contextual environmental factors on an individual's motivation, his or her behavior and psychological well-being. The theory emphasizes that the satisfaction of three innate needs, including the need of autonomy, the need for competence and the need for relatedness, is positively related to the quality of motivation and psychological well-being of the individual (Ryan & Deci, 2000). Additionally, the theory assumes that social-contextual conditions that provide support for the fulfillment of the three innate needs are subsequently related to an increased need satisfaction of the individual, quality of motivation, and psychosocial well-being of the individual. Especially, autonomy and socially supportive facilitating conditions in the social-contextual environment are perceived by SDT to play a significant role in fulfilling the basic needs, in increasing autonomous motivation for participation and in well-being realization (Reinboth, Duda, & Ntoumanis, 2004). Alternatively, the theory proposes that social-contextual conditions that frustrate the three innate needs are related to a lower quality of motivation and a decreased psychological well-being of an individual. Results of several studies on SDT confirm the proposed role of social-contextual conditions in the relationship between participation in sports and physical activity, motivation, behavior and the psychosocial well-being of an athlete or/and student. Social-contextual conditions that provide support for the fulfillment of the three innate needs, such as for example autonomy supportive coaches and parents, are reported to positively influence an athlete's need satisfaction, an athlete's quality of motivation, an athlete's behavior, and an athlete's psychological well-being (Duda, 2001; Reinboth et al., 2004, Reinboth & Duda, 2006).

Although the tenets of SDT have been frequently studied and applied in physical education (e.g., Standage, Duda, & Ntoumanis, 2003) and sport settings (e.g., Reinboth & Duda, 2006), in order to study and identify the characteristics of physical education and sport environments supporting the optimal motivation, performance and well-being of individuals, only Quested and Duda (2007) have investigated the applicability of the SDT framework to the (vocational) dance context. Dance and ballet are a form of physical activity or sport (vocational) that is barely studied in sport and exercise literature. In dance and ballet, the learning environment of a dancer is often characterized by the presence of, and strivings for high achievement standards that require dancers to attend physical work-outs, rehearsals and performance sessions for often more than 30 hours per week (Quested & Duda). Coaches, family members and friends often promote these standards and strivings, stating that this hard work is the traditional sacrifice needed to become a successful dancer. As a result, dance is often thought to bring more pain than pleasure in terms of overtraining to reach the peak performance, overused injuries and burnout (Patterson, Smith, Everett, and Ptacek, 1998). Therefore, Quested and Duda have characterized vocational dance as physical activity where the dancers tend to overdo their own recourses and boundaries, as they have been encouraged to meet the demands and expectations of the traditions of the aesthetic art form. Particularly, the perceived social-contextual environment of participation in dance can fundamentally determine or influence the motivation, the behavior and the physical and psycho-social well-being of the dancer. Therefore it is important to investigate the effect of specific characteristics of the social-contextual environment on the motivation, the behavior and the physical and psycho-social well-being of dancers. Only by recognizing the factors in the social-contextual environment that have a beneficial and maladaptive influence on the motivation, the performance, the physical and psychological well-being of a dancer, adaptations can be made to the social-contextual environment to benefit the dancer.

As part of a cross-cultural study headed by researchers Quested and Duda from the University of Birmingham in the United Kingdom, this study will examine the relations between the perceived social-contextual environment of dancers and the need satisfaction, motivation and psychological well-being of dancers in Finland within the SDT

framework. First of all, self-determination theory (SDT) will be discussed in more detail in order to provide a clear insight in the propositions and assumptions of the theory. Second, based on the assumptions of the SDT specific hypotheses will be formed on the relationships between the perceived social-contextual environment of dancers and the need satisfaction, motivation and psychological well-being of dancers in Finland. Thirdly, the setup and method of the study will be discussed in detail. Finally, the results of the study will be reported and subsequently discussed. In conclusion, the implications of the results of the study for future research will be included.

2. SELF-DETERMINATION THEORY

Self-determination theory (SDT; Deci & Ryan, 1985; Deci & Ryan, 2000) is a social cognitive theory of human motivation and is concerned with the choices people make with their own free will, with the available choices to them and without any external influence and interference. More specifically, the SDT focuses on the degree to which an individual's behavior is self-endorsed and self-determined in a certain social environment (Deci & Ryan, 2002; 2008). The characteristics of the social environment are determinant for the extent to which an individual's behavior is self-determined or self-endorsed. Therefore research on SDT defines the characteristics of the social environment that facilitate versus thwart the processes of self-regulated motivation and healthy psychological development (Ryan & Deci, 2000). This will be discussed in more detail in the subsequent paragraphs.

2.1. Degrees of self-determination

SDT centers on the concept of motivation. In other words, it tries to explain why people choose to participate and to persist in engaging in an activity. There are various reasons for an individual to participate in a specific activity and these reasons differ in the extent to which they are located/found within the individual. For example, engaging in a physical activity, such as a dance session, can be due to enjoyment, which is a reason for participation internal to the individual, or due to monetary rewards for participation, which is a reason for participation external to the individual. Depending on the extent to which the reason for participation is internal to the individual, the individual will feel to a lower or greater extent to engage in the behavior due to his or her own volition. In other words, depending on the extent to which the reason for the behavior is internal to the individual, the individual will feel more or less autonomous in determining or self-regulating his or her own behavior. Decisions and behaviors that are not self-regulated force people to feel restrained to engage in a specific type of behavior and therefore individuals can lose the intention and enjoyment for engaging in that activity. For example, high expectations from parents can lead a dancer to participate in the dance activity only because she or he feels obliged to the parents to participate in the dance

activity. On the other hand, for the professional dancer dance participation can be maintained because of a monetary reward related to maintained long-term participation. The motives directing the behaviors of both dancers are external to the dancers and are the reasons driving the behavior. The behavior of the dancers is controlled or regulated by external factors and the dancers do not engage in the dance activity out of own volition. As the behavior is controlled and not engaged in out of free volition, the dancer will experience sub-optimal motivation to participate, resulting in negative effects on behavioral performance, behavioral persistence and psychological well-being. SDT has proposed that there are various forms of motivation differing in the extent to which they are autonomous, self-regulated or self-determined and which can be placed on an autonomy or self-determination continuum (Ryan & Deci, 2000).

The most autonomous or self-determined form of regulation is *intrinsic motivation* giving the most self-determined reasons for engaging into different activities. It represents that behavior is chosen and performed for the enjoyment, interest, and pleasure, and the satisfaction is acquired from activity itself (Ryan & Deci, 2000; Peletier, Fortier, Vallerand, & Briere, 2002). On the other end of continuum, is the least self-determined form of motivation: *amotivation*. Amotivation reflects no intention or interest in participating in the activity. In between intrinsic motivation and amotivation there is *extrinsic motivation*. Extrinsic motivation represents engaging in a specific type of activity because of reasons that exist external to the individual, such as monetary rewards and punishments. Even though in extrinsically motivated activities the activity is not self-regulated and not intrinsically interesting, according to the SDT, everybody tries to integrate the regulation of extrinsically motivated activities found to be personally important into themselves in order to have meaning for that behavior and, most importantly, to have an effective and healthy functioning during the activity. Therefore, the process of internalization gives a possibility to transform the extrinsically motivated activities into more personal values and self-regulations (Deci & Ryan, 2000).

SDT differentiates four different forms of extrinsic motivation differing in the extent to which the external reason for participation is internalized and integrated to the self:

external regulation, introjected regulation, identified regulation and integrated regulation. In external regulation and introjected regulation the extrinsic reason for participating in the activity is weakly integrated into the self. In other words, the individual does not experience the extrinsic reason to be part of the self and the behavior is therefore weakly self-determined and is mainly controlled by the environment. Both forms of motivation therefore are controlled forms of motivation. In identified and integrated regulation the individual identifies the extrinsic reason to be corresponding and consistent with the self. In integrated regulation the individual integrates or associates the extrinsic reason into and with the self. In these forms of motivation, the individual perceives the reason to engage in the behavior to be congruent with the self and to be self-determined to an extensive degree. Therefore, these forms of motivation are considered autonomous or self-determined forms of motivation (Deci et al., 2000). This distinction can explain, for example, why so many professional dancers and even professional athletes who perform the activity due to more extrinsic reasons would still try to internalize and integrate the regulation of externally motivated activity in order to have some choice and freedom in the decisions and actions taken into the daily practices and performances.

2.1.1. Perceived Locus Of Control - Controlled forms of motivation

Ryan and Deci (2002) also have discussed these four types of behavioral regulations in terms of the perceived locus of control or causality (PLOC), ranging from highly autonomous to highly controlling perceived locus of control. The *externally regulated* behaviors are controlled by external conditions such as rewards and punishment. As behavior is controlled by external factors, it is more dependent on somebody else than self, predicting fairly short maintenance of behavior and a quick withdraw from the behavior once the reward for external goal is received. External regulated behaviors have an external perceived locus of control, meaning that a person performs a behavior because he or she perceives it as externally regulated (deCharms, 1968; Ryan & Deci, 2000). The next form of regulation in the continuum is *introjected regulation*, characterizing a partial internalization of behavior regulations and values. The distinction between the external and introjected forms of regulation is that the reason for the action

in external regulation is external and controlled by somebody else, while a person with introjected regulation has somewhat internalized the external reason for the activity without really accepting it as personal reason. For example, the activity could be done because the person would want to avoid guilt towards the parents and the teacher for not participating. In introjected regulation, the motivation for the activity often is determined by ego involvement. The individual tries to prove his or her ability or tries to avoid personal failure in order to maintain the feelings of worth (Ryan & Deci, 2000). The introjected form of regulation is still quite external to self and the behaviors are still more controlled than self-determined. In other words, the individual has an external perceived locus of control and thus does not give certainty that behavior could be maintained over a long time. With regard to the continuum of self-determination, it has been found that both types combined external and introjected regulation represent a *controlled form of motivation* (e.g., Williams, Grow, Freedmn, Ryan, & Deci, 1996). In the controlled form of motivation the person thus perceives the behavior as controlled by external factors.

2.1.2. Autonomous forms of motivation

Identified regulated behaviors are more autonomous and represent a more self-determined form of extrinsic motivation. The involvement in the behavior is identified with a personal value, indicating that the meaning and regulation of the behavior is more internalized and accepted. The most autonomous form in the continuum of extrinsic motivation is *integrated regulation*. The externally motivated behavior is integrated within the self and within the other individual values and needs, thereby transforming into self-regulated behavior. Even though many characteristics of integrated regulation already resemble the characteristics of intrinsic motivation, still, the integrated regulation is considered to be extrinsic form of motivation because the reason and motivation for the activity or behavior is more instrumental (e.g., health) than with the process and activity itself. Together with intrinsic motivation, representing participation in an activity solely due to intrinsic reasons, they make up autonomous motivation. As in autonomous motivation the reason for participating in a specific activity is either intrinsic (intrinsic motivation) or well-internalized to the self (integrated and identified regulation),

individuals perceive the reason for participation in the activity to come from within the self. All forms of autonomous motivation therefore can be considered to have an internal perceived locus of control.

2.2. Innate basic psychological needs

The concept of basic psychological needs is discussed in terms of a sub-theory of the SDT, termed Basic Needs Theory (BNT; Ryan & Deci, 2000). According to BNT human beings have three innate basic psychological needs: The need for autonomy, the need for competence and the need for relatedness (Deci & Ryan, 1985). The need for autonomy represents one's need to feel (or perceive) that one's activities are self-chosen and self-endorsed. The need is met when the individual feels he or she is the initiator of his or her own behavior and is not fulfilled when or he or she acts upon somebody or something else (Deci & Ryan, 2000; deCharms, 1968; McDonough & Crocker, 2007). The need for competence has been described by one's need to feel (or perceive) that one is comfortable is effective in one's activities (Deci & Ryan, 1985). This need is met when the individual feels effective at achieving desired outcomes (McDonough & Crocker, 2007). The need for relatedness characterizes the need to feel (or perceive) that one is connected to others and cared for by others (Baumeister and Leary, 1995; McDonough & Crocker, 2007). BNT suggests that individuals strive to fulfill the three needs. The drive to satisfy these needs represents the energy for the behavior and leads the behavior of the individual.

2.3. Innate basic psychological needs and self-determined behavior

According to SDT, the degree to which the three basic needs are perceived or experienced to be fulfilled by an activity determines the type of motivation and the type of behavioral regulation for the activity. Individuals are intrinsically motivated by activities that are perceived or experienced to fulfill the three basic needs. Activities that fulfill the three basic needs are perceived and experienced to be enjoyable, interesting and challenging. The individual engages in the activity due to intrinsic reasons and the behavior is thus maximally self-determined. Similarly, extrinsic autonomously motivated activities are considered to fulfill the three basic needs, but to a lower degree as intrinsic

motivation. Controlled motivated activities are considered by SDT to frustrate the three basic needs, for example, thwarting the need for autonomy by controlling the behavior of the individual by external rewards (Deci & Ryan, 2000). Research conducted on SDT extensively included studies on the relationship between basic needs satisfaction and an individual's motives for the participation in different activities (Gagné et al., 2003; Ryan & Deci, 2002; McDonough & Crocker, 2007). However, the role of the basic psychological needs' satisfaction in the internalization of behavior regulation has revealed contradicting evidence on the significance of different needs regarding the internalization of behavioral regulation. The importance of both the need for competence and the need for autonomy for self-determined behavior and motivation has been studied more frequent. Various studies in the domains of physical activity and sport have presented strong support for the relationship between self-determined motivation (or behavior) and the needs for competence and autonomy (Gagné et al., 2003; Ryan & Deci, 2000; Sarazin, Vallerand, Guillet, Pelletier, & Cury, 2002; McDonough & Crocker, 2007). Fewer studies in the physical activity domain have been reported that supported a link between relatedness and self-determined motivation (McDonough & Crocker, 2007). Studies in the sport domain have been fairly inconsistent and contradicting with regard to this issue (Sarazin et al., 2002). However, still, for example studies with master age swimmers (Kowal & Fortier, 2000) and the physical education (PE) students (Standage, Duda, & Ntoumanis, 2006) reported that both the need for competence and the need for relatedness were stronger predictors of self-determined motivation than the need for autonomy (McDonough & Crocker, 2007). The inconsistent results with regard to the link between relatedness and self-determined motivation in different types and structures of activities and sports are according to McDonough and Crocker (2007) and Vallerand (2000) due to the different social nature of the studies activities. This might explain why there are activities where people engage for the enjoyment of being alone, e.g. rock-climbing, and why there are activities where people engage for the enjoyment to connect with others, e.g. social dance.

2.4. The social environment, needs and self-determined motivation

In the sport, exercise and physical activity contexts, the research within SDT has shown support for the importance of the basic psychological needs' satisfaction and mainly autonomous forms of motivation in the uptake and adherence to the sport, exercise and physical activity behaviors for health advantages (Hagger, Chatzisarantis, Hein, Pihu, Soos, & Karsai, 2007; Vallerand & Losier, 1999). In this regard, the research within the SDT has focused on the social conditions that facilitate an individual's autonomy and consequently foster more autonomous forms of motivation, and on the other hand, the SDT has also identified the conditions and contexts that hinder autonomy and consequently undermine self-determined and autonomous forms of motivation (Pelletier et al., 2002; Sarrazin et al., 2002; Hagger et al., 2007).

2.4.1. Perceived autonomy support

One aspect of social context in the SDT framework assumed to facilitate the fundamental needs' satisfaction, especially the need for autonomy, and also supporting autonomous motivation is autonomy support (Amorose & Anderson-Butcher, 2007; Gagné et al., 2003; Mageau & Vallerand, 2003; Vallerand & Losier, 1999; Pelletier et al., 2002). The following few paragraphs will discuss in detail the autonomy supportive conditions and behaviors that facilitate and undermine the individual's feelings for competence, autonomy and relatedness and the individual's motivation for doing an activity.

The social context that is perceived as autonomy supportive has been discussed within the Cognitive Evaluation Theory (CET; Deci & Ryan, 1985; Ryan & Deci, 2000), a sub-theory of SDT. The CET has predominantly determined the importance of social contexts that are autonomy supportive versus controlled for the individual's autonomous forms of motivation. Based on CET the importance of the social context on the individual's autonomous and controlled forms of motivation has been analyzed with regard to the perceived basic psychological needs (competence, autonomy and relatedness) and perceived cause (PLOC) of the individual's motivated behavior in a certain context. Thus, additional to what has been discussed earlier with regard to the PLOC and autonomous

versus controlled forms of motivation, this construct determines and shows an individual's attribution of the initiated behavior. The social conditions that are *autonomy supportive* are hypothesized to facilitate the experience of an internal perceived locus of causality (IPLOC), attributing their actions as self-determined and volitional. However, the conditions that are *controlled* such as deadlines promote an individual to perceive his or her behavior as being induced by the external agent, in other words, having an external perceived locus of causality (EPLOC). Pelletier and colleagues (2002) in their study noted that the change from internal to external locus of causality undermines an individual's feelings of autonomy for the activity and consequently, decreases autonomous forms of motivation (intrinsic motivation, integrated regulation, and identified regulation) while increasing controlled forms of motivation (introjected, external regulation and amotivation). On the other hand, social-contextual events that facilitate an IPLOC or internal reasons for doing the activity have hypothesized to enhance the feelings of autonomy and, correspondingly, also the autonomous forms of motivation.

Most of the research on the effects of the autonomy supportive contexts and conditions on the individual's fundamental needs and autonomous forms of motivation has revealed that specifically the condition that "offers" the individual choice and freedom in his or her actions, acknowledgment of his or her feelings and providing opportunity for self direction have shown to facilitate more autonomous and self-determined forms of motivation, allowing the individual experience a greater feeling of autonomy. In contrast, the controlling conditions that involve the threats, deadlines, directives, pressured evaluations, and imposed goals have been perceived as external by the individual, having ELOC, and thus, undermining autonomous forms of motivation and also intrinsic motivation (Deci & Ryan, 1985; Pelletier et al., 2002; Ryan & Deci, 2000).

2.4.2. Perceived autonomy supportive behaviors/interpersonal styles

Further, the studies have frequently examined another essential aspect of the social context that is also hypothesized to effect motivation and the psychological needs in

physical activity and sport contexts. It relates to the behavior of key people or significant others and to interpersonal styles exhibited by leadership figures such as for example coaches in sport and dance teachers in the dance activity context. The research has shown that when significant others such as the teachers or coaches (an individual in a position of authority, for example in the case of dance it would be a dance teacher) show behaviors that support the individual's autonomy, by for example taking his or her perspective and providing him or her with relevant information and giving opportunities for choice, then this dancer or athlete would report higher levels of autonomy toward the tasks in that certain environments and also exhibit greater enjoyment, persistence and well-being (e.g., Gagné et al., 2003; Hagger et al., 2007; Mageau & Vallerand, 2003; Pelletier et al., 2002).

2.4.3. Definition of perceived autonomy support

The definition of autonomy support has been discussed in various studies with regard to the individual's interpretation of the behaviors of the significant others' as autonomy supportive (e.g., Hagger et al., 2007), thereby emphasizing the significance of perception and interpretation of a student, athlete or an 'exerciser' of their teachers, coaches or instructors behaviors, such as for example the perception and interpretation of given instructions during a lesson or practice. Mageau and Vallerand (2003) have studied the autonomy supportive behaviors with regard to the SDT and other motivational theories more explicit in the sport domain. They have defined perceived autonomy support as beliefs of a student or an athlete that significant others such as the teachers, coaches, parents, and friends support self-initiation, opportunities for choice, independent problem solving, and involvement in decision making, besides that, they also acknowledge feelings and avoid making pressuring demands. Research studies examine and identify specific autonomy-supportive behaviors exhibited by significant others that facilitate more autonomous forms of motivation (self-determined forms of regulation) (Hagger et al., 2007; Mageau & Vallerand, 2003; Pelletier et al., 2002). The autonomy supportive behaviors in the social context are those that support learning and interests such as listening, encouraging choice and opportunity, providing informational feedback and

answering to the questions (Hagger et al., 2007; Mageau & Vallerand, 2003; Pelletier et al., 2002).

As discussed earlier, the research within the SDT has more frequently supported the proposition that an autonomy supportive interpersonal style is an effective motivational technique in different settings (e.g., Mageau & Vallerand, 2003; Reeve, 2002). Besides that, researchers have revealed that perceived autonomy support facilitates autonomous forms of motivation, which have been positively linked to the well-being outcomes (e.g., Gagné et al., 2003). Gagné and colleagues (2003) have studied young gymnasts and they suggested that the training contexts and the overall process of training process have an effect on the athletes' well-being and also on their participation. Specifically, they suggested that the context where a coach supported the autonomy of the athletes by listening their concerns and problems and giving some freedom in the process, and where they had good relationships with their teammates and received a positive competence feedback, allowed them to experience positive self-worth and self-esteem and long term positive emotions.

2.5. SDT and individual well-being

The importance of the concept of well-being in the contexts of sport and physical activity has increased and it only recently has become a significant topic. Researchers started to emphasize the quality of life of students, athletes and exercisers in terms of satisfaction, enjoyment, and positive experiences while performing a certain activity (Caspersen, Powell, & Merritt, 1994, cited in Reinboth & Duda, 2006). In terms of SDT, the importance of an individual's well-being has been shortly discussed already earlier in this paper in the context of the need supportive social environment (perceived autonomy support), basic psychological needs' satisfaction and motivation. This topic will be addressed in detail in subsequent paragraphs.

According to SDT, the concept of well-being includes indicators of health such as subjective internal states of the individual or the physical and mental feelings of an

individual (Reinboth et al., 2004; Reinboth & Duda, 2006). However, the indicators of well-being within its definition have varied depending on the purpose of the studies performed. Although, well-being has been conceptualized in different ways, most definitions emphasize positive psychological states as opposed to the absence of negative cognitions and feelings (Reinboth & Duda, 2006). In terms of SDT, well-being has been defined as psychological functioning characterized by positive experiences and an integrated sense of self within the domain of action (Ryan & Deci, 2000; Gagné et al., 2003). Consistent of three primary components such as life satisfaction, positive affect, and low levels of negative affect, well-being is considered to be important for optimal functioning (Diener & Lucas, 2000).

The most frequently studied indicators of physical and psychological well-being within the SDT have been the self-concept, specifically the self-perceptions and the self-esteem of the individual (e.g., Gagné et al., 2003), subjective vitality (e.g., Reinboth & Duda, 2006), individual's physical symptoms (e.g., Reinboth et al., 2004), being proactive and approach-oriented (e.g., McDonough & Crocker, 2007), and other indices.

One of the most important aspects and indicators of well-being is how a person feels about him or herself. Self-esteem reflects a person's overall evaluation or appraisal of his or her own worth, characterized by beliefs (for example, "I am competent/incompetent") and emotions (for example, despair, pride, or shame) (Rosenberg, 1965). In the mid 1960s, Rosenberg and social-learning theorists defined self-esteem in terms of a stable sense of personal worth or worthiness. According to Marsh and colleagues (1985), the concept of self-esteem has been analyzed in terms of multidimensionality. Self-esteem can be applied specifically to a certain area, for example, "I believe I am a good dancer, and feel proud of that in particular" or to a global or general extent, for example, "I believe I am a good person, and feel proud of myself in general". An instrument, developed by Marsh and colleagues (1985), designed to measure global or general self-esteem was used in the present study.

Two reported measures of mood, *positive* and *negative affect*, have often been used as indicators of psychological well- and ill-being (e.g., Gagné et al., 2003). Positive affect (PA) reflects the extent to which a person feels enthusiastic, alert, and active (Watson, Clark, and Tellegen, 1998). From other side, negative affect (NA) has been characterized as subjective distress and unpleasurable engagement that consequently involves variety of aversive mood states such as anger, disgust, guilt, fear, and nervousness (Watson et al., 1998). The low NA has been associated with calmness and serenity. Watson and colleagues (1998) suggest that the PA is related to social activity, whereas the NA is significantly related to perceived stress.

The concept of *burnout* is another indicator of physical well-being often studied in sport contexts. The recent research has proposed the definitions and the measure relevant to the sport context and subsequently allowing to attribute the definition and the measure of burnout also to the studied dance context. The most appealing and the most relevant burnout definition for this research has been adapted from Raedeke's (1997) multidimensional conceptualization of burnout. He defined burnout as psychological syndrome when a person experiences such symptoms as emotional and physical exhaustion, reduced sense of accomplishment, and devaluation of the activity or in other words, lack of meaning of the sport (Raedeke & Smith, 2001). The first symptom known as emotional and physical exhaustion has been associated with the intense demands of training and competing. The experience of reduced sense of accomplishment is the second symptom and has been emphasized in terms of the person's physical activity, such as, dance skills and abilities. The third symptom of burnout dimension which is the devaluation of sport/physical activity has been attributed to a person's, most often the athlete's loss of interest and meaning for certain physical activities, thus sports or a physical activity as dance for that person becomes less important (Raedeke & Smith, 2001).

In order to determine another indicator of a subjective physical well-being, the physical symptoms can be measured and analyzed. The self-reported physical symptoms are important because they indicate the physical health in terms of the experienced physical

symptoms a person has had during a certain time period, for example, headaches, stomach-ache/pain, runny/congested nose, faintness and dizziness, and stiff/sore muscles.

2.6. Social environment, basic needs, motivation regulation, and well-being in SDT

SDT proposes that perceived satisfaction of the three basic needs for autonomy, competence, and relatedness is necessary for well-being to be attained and maintained. However, when the three basic needs are not satisfied and are frustrated, individual ill-being can appear as a result. Research has also emphasized the mediating role of the three basic needs in the relationship between perceived autonomy support and well-being outcomes (e.g., Reinboth & Duda, 2006). As proposed by SDT, the perceived autonomous environment determines need satisfaction. The degree to which needs are perceived or experienced to be satisfied by an activity determines the type of self-determined motivation for the activity. The type of self-regulated motivation in its turn directly determines individual well-being. The satisfaction of the three needs and the type of self-regulated motivation thus are mediating factors in the relationship between perceived autonomy support and individual well-being.

There have been several studies that examined the mediating role of basic needs and motivation regulation of the social environment and well-being relationship in the sport and physical activity contexts. For example, the study by Reinboth and colleagues (2004) revealed that the athletes' perceptions of autonomy support, mastery focus, and social support from the coach predicted satisfaction of the three needs, which in turn, appeared to predict physical and psychological well-being of the athletes. However, in this study the satisfaction of perceived need for competence appeared to be among the most important predictors of psychological and physical well-being in cricket and soccer players. The already discussed study by Gagné and colleagues (2003) similarly examined the mediating role of the gymnasts' basic needs' satisfaction and autonomous motivation in the relationship between perceived coach and parent autonomy support and gymnasts' well-being. Their study supported the mediating role of basic needs and (more stable self-esteem).

Consistent within SDT and also Vallerand's and Losier's (1999) hierarchical model of motivation also the type of behavioral regulation should mediate the relationship between perceived autonomy support and individual well-being. The degree to which the autonomy supportive environment is perceived to satisfy the three needs should determine the motivational regulation of the behavior, subsequently influencing dancer's well-being. There are few studies in sport and physical education settings known that have focused and supported the role of basic needs as mediators in the relationship between the perceived autonomy supportive environment and motivation (e.g., Amorose & Anderson-Butcher, 2007; Sarazin et al., 2002; Standage et al., 2006). For example, the recent study by Standage and colleagues (2006) in the physical education (PE) setting also revealed that the students' perceptions of autonomy support from their teachers positively predicted the students' perceived autonomy, competence, and relatedness, which in turn, each positively was related to the students' motivation regulation for PE, suggesting the role of basic needs as mediators of the perceived autonomy support and self-determined motivation relationship. Another study by Amorose and Anderson-Butcher (2007) revealed that the degree to which the athletes perceived their coaches as autonomy-supportive in their interactions positively predicted each of the three needs, which in turn were related to the athletes' self-determined motivation. The study demonstrated the mediating effect of the three needs on the relationship between perceived autonomy support and the degree to which the athletes' motivation is more or less self-determined. Based on studies on the mediating role of basic needs and motivation regulation in the relationship between perceived autonomy support and athlete's well-being, it can be assumed that the motivation sequence consists of SDT is valid. However, there are few studies on the motivational sequence in the field of professional and amateur dance.

2.7. SDT and Dance

As noted earlier, until now there have been few studies in the dance domain that would examine the applicability of the SDT to the dance setting. Quested and Duda (2007) have studied the role of perceived autonomy support (AS) and social support (SS) in dancers'

self-determined motivation and how these two environmental dimensions (perceptions of autonomy supportive and socially supportive dance environments) predicted well-being (self-esteem (SE), reported body dissatisfaction (BD), and reported social physique anxiety (SPA)). The study also examined the mediating role of the motivation regulations for dance by using a composite index of self-determined motivation regulation (SDI) in the relationship between environmental characteristics, AS and SS, and self-perceptions: SE, BD, and SPA. The results of the study suggested that the level of perceived autonomy and social support provided from the dance teachers has been associated with self-determined (autonomous) regulations for dance participation and healthy self-perceptions of the young elite dancers in the U.K. Further, the study showed the proposed mediational effect of motivation regulations for dance in terms of the relationship between autonomy support and social support to self-esteem (self-perceptions), reported body dissatisfaction and social physique anxiety. In fact, the study showed that perceived social support compared the perceived autonomy support in the dance environment was stronger predictor for self-determined regulations and well-being within the dancers.

However the role of perceived social support is still insufficiently studied and unclear. The focus of the current study is to examine the role of perceived autonomy support with other tenets of the SDT. SDT suggests that more people can experience and satisfy their needs for competence, autonomy, and relatedness in supportive environmental conditions such as autonomy support, the more they would be willing to engage and maintain the activities, thus facilitating the more self-determined, self-chosen and autonomous motivation and psychological and physical well-being in physical activity contexts (Ryan & Deci, 2000, 2002). Therefore, the purpose of this research was to examine how the variations in perceived autonomy support from the teachers in the dance environment would relate to the dancers' perceived need satisfaction of autonomy, competence, and relatedness. The satisfaction of these needs would in turn lead to increased self-determined reasons for engagement in dance (intrinsic motivation, integrated and identified regulation). Finally, it will be investigated whether all these variables (perceived autonomy support, need satisfaction and behavioral regulation) are related to the changes in the physical and psychological well-being variables (e.g., self-esteem,

positive and negative affect, self-reported physical symptoms, and three dimensions of burnout). In other words, the purpose of the study was to examine the motivational sequence in the dancers in Finland. Focusing on the perceptions of the dance teachers' autonomy support - basic need satisfaction (perceived competence, perceived autonomy, and perceived relatedness) - motivation regulations - outcomes/indicators of well- and ill-being: burnout, self-esteem, positive and negative affect, physical symptoms assumed by the SDT.

3. AIMS OF THE STUDY

The aims of the present study were to examine the applicability of the SDT framework in terms of relationships between perceived autonomy support provided by the dance teacher to perceived need satisfaction and motivational forms of regulation for dance and indicators of psychological and physical well-being in dancers in Finland. Specifically, the aims of the study were to examine whether:

- a) dancers' perceptions of autonomy support in dance environment predict the perceptions of basic psychological needs satisfaction and autonomous forms of motivation regulations.
- b) dancers' perceptions of basic psychological needs satisfaction (autonomy, competence, and relatedness) predict autonomous forms of motivation regulations
- c) dancers' perceptions of basic psychological needs satisfaction (autonomy, competence, and relatedness) positively predict indicators of psychological and physical well-being
- d) autonomous forms of regulation for dance engagement positively predict psychological and physical well-being

The study also examined the mediating roles of perceived needs satisfaction and motivation regulations between perceived autonomy support and physical and psychological well-being (i.e., three burnout dimensions, self-esteem, positive and negative affect, reported physical symptoms) relationship. More specifically it was studied whether dancers' perceptions of basic psychological needs satisfaction has a mediating role of the perceived autonomy support and psychological and physical well-being relationship and whether motivation regulations mediate the relationship between perceived autonomy support and well-being relationship. In other words, the study examined the motivational sequence proposed by the SDT framework with dancers in Finland. The degree to which perceived autonomy support provided by dance teachers' determines basic need satisfaction (perceived competence, perceived autonomy, and perceived relatedness) in dancers was assessed. Subsequently the degree to which basic need satisfaction determined motivation regulations was assessed. Finally, the degree to

which motivation regulations are determinant of outcomes of psychological and physical well-being, measured in terms of burnout, self-esteem, positive and negative affect, physical symptoms), was assessed.

In line with these aims of the study, specific hypotheses were developed. Based on the assumptions of SDT the general hypothesis of this study was that the degree of autonomy support perceived by dancers to be present in the dance environment determines the physical and psychological well-being/health of these dancers (in terms of three dimensions of burnout: emotional and physical exhaustion (EPE), reduced accomplishment (RA), and devaluation (DEV), also self-esteem, positive and negative affect (PA and NA) and reported physical symptoms) through the degree of perceived satisfaction of the three basic needs of the self-determination theory (autonomy, competence and relatedness) and the degree of self-determined regulation. This general hypothesis is specified in three more detailed hypotheses.

First of all it was hypothesized that perceived autonomy support would significantly predicts the perception of basic psychological needs satisfaction of the needs for autonomy, competence, and relatedness. Secondly, perceived autonomy support and the perception of basic psychological needs satisfaction of the needs for autonomy, competence, and relatedness are significantly related with more self-determined forms of regulation/more autonomous forms of motivation (intrinsic motivation, integrated and identified regulation) and negatively with non-self-determined forms of regulation/controlled forms of motivation (introjected and external regulation) and amotivation. Finally, perceived autonomy support, the perception of basic psychological needs satisfaction of the needs for autonomy, competence, and relatedness, and more self-determined forms of regulation are hypothesized to predict physical and psychological well-being (less burnout, higher self-esteem, more positive than negative affect/mood, and fewer self-reported physical symptoms).

4. METHOD

4.1. Participants

In total 108 dancers (82 female dancers and 26 male dancers) attending different ballet and dancing schools in Finland participated in the study. The participating dancers were between the ages of 14 and 43 ($M = 23.51$; $SD = 7.88$). In terms of ethnic background, the sample was primarily White and Finnish (95 %).

However, due to an extensive amount of missing data two participants were excluded from the sample. Additionally five participants filled in the English version of the questionnaire instead of the Finnish version of the questionnaire. Consequently, they were excluded from the sample. As a result, the final sample included 101 participants (78 females and 23 males). Their ages varied between the ages of 14 and 43 ($M = 23.17$; $SD = 7.89$). There were 35 of the participants in the final sample who were professional dancers, while 66 of the participants in the final sample were dance students.

Originally the participants group was supposed to be between the ages of 15 and 20 year old students of the School of the Finnish National Ballet. However, there were too few students in the school, and for the purpose of the study we recruited more participants from one dance school in Jyväskylä. The students were from ages of 14 and 31 of student ballet, contemporary dance, jazz dance or Hip hop. These students were included in a special training group. In addition, we collected data from the second year students, ages of 24 and 30 from Theater Academy Helsinki, providing the highest academic education in dance in Finland. There were 9 participants from the Theater Academy Helsinki. Professional dancers were from ages of 19 and 44 from National Finnish Opera.

Table 1. The descriptive statistics of both mean values and standard deviations by age and gender of different groups for the whole sample

Group	n	gender		age (years)	
		male	female	mean	s.d.
National ballet students	26	2	24	17.4	1.2
JKL students	31	2	29	18.4	4.7
TeaK:n students	9	0	9	26.8	1.8
Professionals	35	19	16	30.7	7.3
Total	101	23	78	23.2	7.9

4.2. Procedure

The data was gathered by means of a questionnaire in Finnish language aimed to explore the relation between the perceived autonomy support of the dance environment by the dancers and the perception of satisfaction for their three basic needs (competence, relatedness and autonomy), their quality and quantity of motivation and their well-being in terms of the proposed framework of self-determination theory.

The researchers were present when the dancers filled out the forms; however, with the Jyväskylä students it was not possible to get them to fill out the forms on the right time and space. We gave them the forms to fill out at home. They returned the forms to a mail/letter box in the dance hall. This questionnaire was assessed by two students of the University of Jyväskylä. The questionnaire was assessed over a time period of 10 months (from the 13th of May 2008 until the 8th of March 2009).

The procedure followed the one Duda and Quested developed for their study.

First of all, each participant was given an information letter explaining the nature of the study (Appendix A) and was asked to sign an informed consent form prior to completing the questionnaire (Appendix B). For the purpose of this study, the participants were asked

to complete the presented questionnaire, which required approximately 30 minutes to complete. Finally, after completion of the questionnaire the participants were thanked for their participation.

4.3. Measures

As the study/project, as described above, is part of a cross-cultural comparative research project coordinated by the researchers J. Duda and E. Quested from the University of Birmingham in the United Kingdom, the used questionnaires were developed by them especially for this cross-cultural study. As this study is directed at Finnish dancers, the questionnaire was translated from the original English to Finnish language according to the required procedures for back-translation: The questionnaire was translated from English to Finnish by two students of our research group of the University of Jyväskylä (Ervola and Ridanpää, 2009) and translated back to English also from a student of our group of the University of Jyväskylä (Haapanen, 2009).

The questionnaire consists of five distinguishable parts (see Appendix C). In the first part of the questionnaire participants had to indicate their age, gender, ethnicity, dance specialty, and other demographic information. In the second part of the questionnaire the dance experience of the dancers was assessed by asking to indicate the years of dance experience, the amount of time (years) of involvement/participation in the certain dance school, the number of hours of training, the amount of performances, and the hours invested in not-dance related activities. The third part assessed the dancers' injury status. The fourth part contained the instructions for the subsequent questionnaires and scales presented in part five. These instructions were added in order to enable the participants to fill the questionnaires out accurately and correctly. The fifth part of the questionnaire included a variety of questionnaires and scales: the degree of self-determined behavior regulations (1), perceived autonomy support provided by dance teachers (2), the level of the need of perceived competence (3), the level of the need of perceived autonomy (4) and perceived autonomy in making own choices and decisions (5), the level of the need of perceived relatedness (6), the degree of dancers' burnout (7), the level of self-esteem (8), the degree of physical symptoms (9) and the level of positive affect and negative

affect (10). The precise content of the questionnaires and scales of the fifth part of the questionnaire will be discussed below in the sequence that they were presented in the questionnaire. The title above the description of the questionnaire or scale describes the variable measured by the respective questionnaire.

Motivation Regulation (1)

The Behavior Regulation in Sport Questionnaire (BRSQ; Lonsdale, Rose, & Hodge, 2008) was used to measure the degree of self-determined forms of (motivation) regulation. The questionnaire consists of 24 items and five subscales of behavior regulation, 4 items per subscale. The stem for each question was “I participate in dance...” The items measured the constructs of amotivation (e.g., “But I question why I continue”), extrinsic motivation by external regulation (e.g., “Because if I don’t other people will not be pleased with me”); by introjected regulation (e.g., “Because I would feel ashamed if I quit”); by identified regulation (e.g., “Because the benefits of dance are important to me”); by integrated regulation (e.g., “Because dancing is an expression of who I am”), and by intrinsic motivation items (e.g., “Because it’s fun”). Dancers indicated the extent to which each item corresponds to the reason why they participate in dance on a 7-point Likert scale ranging from *not at all* true (1) to *very true* (7). The alpha coefficients for amotivation was .84 (four items); for external it was .60 (one item was removed after the factor analysis (Ervola & Ridanpää, 2009), so afterwards the external regulation subscale had three items); for introjected regulation alpha coefficient was .79 (four items); for identified regulation it was .79 (four items); for integrated regulation it was .80 (one item was removed after the factor analysis (Ervola & Ridanpää, 2009), so afterwards the integrated regulation subscale had three items); and for intrinsic motivation the alpha coefficient was .85 (four items).

Perceived Autonomy Support (2)

The Health-Care Climate Questionnaire (HCCQ; Williams, Grow, Freedman, Ryan, & Deci, 1996, adapted by Reinboth, Duda, & Ntoumanis (2004) to measure autonomy support provided by coaches) was used to measure the degree of autonomy support perceived by the dancers (more specifically, the perceived autonomy support provided by

the dance teachers to the dancer) in the dance school over the past few weeks. The chosen items mainly focused on the teachers' support for dancers' self-determined behavior (e.g., providing choice, involving dancers in decision making). An example of an item is "I feel that my teachers provide me with choices and options". All responses were indicated on a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7), with higher scores indicating a more autonomy-supportive teaching style perceived by dancers. The alpha coefficient for this scale was .93.

Perceived satisfaction of the need for competence (3)

The perception of basic psychological need satisfaction for competence (perceived competence) was measured by using the five-item perceived ability subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989). It assessed the experiences of the dancer in the dance school over the past few weeks (e.g., "I am pretty skilled at dance"), the alpha coefficient for this subscale was .87.

Perceived satisfaction of the need for autonomy (4-5)

The perception of basic psychological need satisfaction for autonomy (perceived autonomy satisfaction) was measured by two different scales. First of all the Internal Perceived Locus of Control aspect of autonomy (IPLOC; Sheldon, Elliot, Kim, & Kasser, 2001) was used to measure the dancer's perception of basic psychological needs satisfaction of autonomy (e.g., "I feel free to do things my own way"). Three items of this scale were used in this study and alpha coefficient for this scale was .89.

A second measure with six items was used to assess the degree to which the dancer feels she/he has volition/autonomy in making free choices and decisions in terms of her/his dance engagement, by assessing the Need Satisfaction at Work Scale that was modified for the dance setting (Deci, Ryan, Gagne, Leone, Usunov, & Kornazheva, 2001; AChD). An example of an item is "I feel I have a lot of inputs in deciding how rehearsals and class are to be carried out", reported alpha coefficient for this scale was .90 which was similar as for described above scale of IPLOC, measuring perceived need for autonomy ($\alpha = .89$).

Perceived satisfaction of the need for relatedness (6)

Perception of basic psychological needs satisfaction of relatedness was determined by using the five-item Acceptance subscale of the Need for Relatedness scale (Richer & Vallerand, 1998). The items used to assess perceived relatedness were: supported, understood, listened to, safe, and valued. It was asked to describe the feelings she/he has experienced with respect to the others in dance school (e.g., teachers, dance mates) over the past two weeks. An example of the item is “In this dance school I feel valued”. All responses were indicated on a 5-point scale ranging from *strongly disagree* (1) to *strongly agree* (5) with higher scores reflecting a greater sense of need satisfaction relatedness, except perceived competence satisfaction subscale and the autonomy aspect of 6 items measuring the degree of dancers’ choice/decision making which were scored on a 7-point scale ranging from strongly disagree (1) to strongly agree (7). In the present study, an average alpha coefficient for this scale measuring perceived relatedness was 0.89.

Indicator of well-being: Burnout (7)

The 15 item Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2002) was used to measure the degree to which dancers experienced burnout in the dance setting. The ABQ involves three subscales measuring (a) reduced sense of accomplishment (RA) (e.g. “I’m accomplishing many worthwhile things in dance”), (b) devaluation/depreciation (DEV) (e.g. “I have negative feelings towards dance/sport”) and (c) emotional/physical exhaustion (EPE) (e.g. “It seems that no matter what I do, I don’t perform as well as I should”). The stem for each question for the dancers was “How are you feeling at this present moment in time.... in relation to your participation in dance”. However, according to the factor analysis of each of the subscales done by Ervola and Ridanpää (2009), two items of Devaluation (DEV) subscale appeared to be problematic because they were not loading on the same factor of the DEV subscale, and therefore these two items of this subscale were removed, leaving three items for the DEV subscale, and the alpha coefficient for DEV was .78. The other two burnout subscales, reduced accomplishment (RA) consisted of five items with the alpha coefficient .73 and emotional /physical exhaustion (EPE) also consisted of five items, with the alpha

coefficient .89. The answers were given on a 5-point Likert scale ranging from *almost never* (1) to *most of the time* (5). Ervola and Ridanpää reported in their master thesis (2009) acceptable reliability for all subscales (Cronbach's alpha coefficients ranging from 0.66 to 0.88) as well as test – retest reliability and consistent construct validity.

Indicator of well-being: Self-esteem (8)

The 10 item General Self-subscale of the SDQ-II (Marsh, Parker, & Barnes, 1985) was used to assess the level of dancers' self-esteem. The self-subscale assessed the dancers' attitudes and perceptions toward themselves. It was asked to the dancer to indicate how true (or false) each item was describing her/him at that certain moment. Half of the items were worded negatively and participants were asked to use a response scale on a 6-point scale ranging from *False* (1) to *True* (6). Examples of the items are "Overall, I am no good", "Overall, I have a lot to be proud of," and "Overall, most things I do turn out well." Research has supported the scale's construct validity and internal consistency (Marsh et al., 1985). The alpha coefficient for the self-esteem scale was .89.

Indicator of well-being: Positive and negative affect / mood (9)

The 20 item Brief Measure of Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) was used to measure dancers' positive and negative affect. The scale measures two primary dimensions of mood – *positive and negative affect*. The scale contained 10 items measuring positive affect - PA (e.g., excited; the alpha coefficient for this subscale was .87) and 10 items measuring negative affect –NA (e.g., distressed; the alpha coefficient for this subscale was .77). The scale assessed the dancer's feelings and emotions, asking to indicate the extent a certain feeling or emotion was felt over the past few weeks. Positive and negative affect scores were computed by averaging the appropriate ratings and were treated as outcome variables. The answers were indicated on a 5-point Likert scale ranging from *not at all* (1) to *extremely* (5). Subscale items were averaged to form daily PA and NA scores.

Indicator of well-being: Physical symptoms (10)

To measure the degree of physical symptoms, dancers completed the Physical Symptom Checklist (Emmons, 1992) by indicating the degree to which they had experienced the listed symptoms in the past two weeks. The list of symptoms included headaches, stomach-ache/pain, chest pain, runny nose, coughing/sore throat, stiff/sore muscles, or other. Responses were indicated on a 7-point Likert scale ranging from *not at all* (1) to *very much* (7). The seven categories were combined into the overall (composite) symptom measure.

4.4. Statistical methods

4.4.1. Preliminary analysis

Initially, descriptive statistics were computed to assess the means and standard deviations for all variables. Subsequently, the correlations between the variables that were expected to be related according to SDT were computed. In order to determine which measure for correlation to apply for determining the basic relationships between the variables according to the proposed framework of self-determination theory (Figure 1), the normal distribution of all variables was assessed by means of measures for Kurtosis, skewness and the Kolmogorov-Smirnov test. According to the results of the Kurtosis, skewness, and mainly the Kolmogorov-Smirnov test, the relevant measures were selected. Pearson's product moment correlation was used for determining the relationships between those variables that had a normal distribution in the sample; however, Spearman's product moment correlation was used for those variables that were not normally distributed. An independent sample t-test was performed to determine whether dance students and professional dancers differ in mean for the studied variables. SPSS 15 for Windows was used to conduct these analyses.

4.4.2. Regression analysis

The use of linear and hierarchical regression analysis was investigated, but these types of analyses were eventually discarded/left out as valid methods to explore the relationships between the measured constructs. Based on the propositions of SDT, the measured constructs function on four different levels: perceived autonomy support (first level),

need satisfaction (second level), behavioural/motivation regulations (third level) and well-being (fourth level). Both linear and hierarchical regression analyses fail to take into account the four level structure of the model. Linear regression analysis treats/takes into account all measured (dependent) constructs on the same level. As a result, direct relationships between measured constructs that differ one level can be assessed correctly, but relationships between measured constructs that differ more than one level cannot be assessed without correctly correcting for the mediating effect of measured constructs that are on an in-between level in the model. For example, with linear regression analysis the effect of perceived autonomy support (first level) on types of behavioural regulations (third level) cannot be correctly assessed because the (eventual) mediating effect of need satisfaction (level two) is not taken into account. In order to assess mediating effects with linear regression analysis correctly, two linear regression analyses need to be performed for each level of the model. Consequently, the error of the identified relationships increases, resulting in incorrect results for the relationships between the various constructs. Similarly, although hierarchical regression analysis allows distinguishing different levels of variables, hierarchical regression analysis does not allow assessing mediating effects between different variables on different levels.

4.4.3. Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) is suggested to be a more appropriate analysis for testing the entire four-level model proposed by SDT. SEM allows exploring and confirming specified relationships between measured constructs, including in multiple-level models with mediating constructs and levels. Therefore it is expected that SEM analysis will lead to a more accurate appreciation of the relationships between the constructs of the SDT model in this study. Thus, perceived autonomy support, basic need satisfaction, motivation regulation and well-being were verified by using Structural Equation Modeling (SEM). SEM was conducted using Mplus version 5.1 (Muthén & Muthén, 2007).

5. RESULTS

5.1. Preliminary analyses

According to the exploratory data analysis (e.g., the measures of Kurtosis, skewness, histogram) and the Komogorov-Smirnov (K-S) test one of the scales that measured perceived need for autonomy (IPLOC) appeared significantly not normally distributed (negatively skewed), and even after trying to produce a normal distribution in the dataset by using different mathematical transformations and testing for the normal distributions by exploratory data analysis (measures of Kurtosis, skewness, and histograms) and K-S test, still the data were skewed and did not have a normal distribution in the sample. This scale, which emerged not to have normal distribution in the dataset, is a 3-items measure of perceived need for autonomy satisfaction, in which the items are worded in terms of ones' feeling that he or she is a cause of own actions with regard to an internal perceived locus of causality (IPLOC). A second scale measuring the perceived need for autonomy, the 6-item Need Satisfaction at Work Scale modified for dancers measuring the perceived need for autonomy satisfaction in terms of choice and decision-making, was according to the exploratory data analysis and K-S test normally distributed in the sample. As both scales were similar scales measuring the exact same construct, perceived need for autonomy, and the first scale of IPLOC appeared to be not normally distributed even after applying mathematical transformations to the dataset, it was decided not to include the IPLOC scale in the data analysis and to use the Need Satisfaction at Work Scale to assess perceived need for autonomy (in terms of choice and decision making).

As previously reported the dancers participating in this study differed in regard to their level of professionalism in dance and therefore could be classified into two distinct groups of dancers: Professional dancers and student dancers. The context of participation in dance differs for both groups of dancers, being a vocation for the first and a hobby for the latter. Due to this difference in context of participation in dance the studied variables such as perceived autonomy support and well-being variables was assumed to be different between groups. Therefore, in preliminary analysis it was first of all assessed whether the reported values on the studied variables is normally distributed for all

participants combined, including both professional and student dancers. This was analysed based on a histogram and the Kolmogorov-Smirnov test.

Paired sample t-tests showed that there were significant differences for profession on several study variables (see Tables 2 and 3). Results in detail were presented in Ervola and Ridanpää (2009).

In order to determine normal distribution in the studied variables, the normality test of the Kolmogorov-Smirnov (K-S) test was performed for both groups: professional and student dancers. The K-S test indicates a deviation from normality in the sample if the significant value is less than .05. The K-S test showed that for amateurs the distribution of the variables was significantly not normal (skewed) for such variables as perceived need for autonomy in terms of IPLOC (negatively skewed) for amateur dancers group ($p < .05$); intrinsic motivation (negatively skewed), $p < .05$; external regulation for amateurs (positively skewed), $p < .001$; amotivation (positively skewed), $p < .01$; emotional/physical exhaustion dimension of burnout (positively skewed), $p < .05$; devaluation dimension of burnout (positively skewed), $p < .01$. The K-S test showed that for professional dancers group the distribution was significantly not normal for such variables as introjected regulation (positively skewed), $p < .01$; and external regulation (positively skewed), $p < .001$.

5.2. Main analyses

The descriptive statistics (means and standard deviations) were performed for the study variables using subscale scores. Means and standard deviations for the study variables for amateur dancers are shown in Table 2, and for professional dancers are shown in Table 3. Paired sample t-tests showed that there were significant differences for profession on several study variables (see Tables 2 and 3). Results in detail were presented in Ervola and Ridanpää (2009).

Results revealed that dance students compared to professional dancers reported significantly higher levels of perceived autonomy support, $t(100) = 8.74$, $p < .001$ ($M_s = 5.05$ and 2.98 , respectively); perceived need for autonomy in terms of choice and

decision, $t(100) = 9.07$, $p < .001$ ($M_s = 3.99$ and 2.03 , respectively); perceived need for relatedness, $t(100) = 6.18$, $p < .001$ ($M_s = 3.84$ and 2.85 , respectively), intrinsic motivation, $t(100) = 2.54$, $p < .05$ ($M_s = 6.36$ and 5.93 , respectively); integrated regulation, $t(100) = 2.70$, $p < .01$ ($M_s = 5.60$ and 4.91 , respectively); identified regulation, $t(100) = 3.40$, $p < .001$ ($M_s = 4.83$ and 3.93 , respectively); and emotional/physical exhaustion dimension of burnout, $t(100) = -4.01$, $p < .01$ ($M_s = 2.13$ and 2.91 , respectively). As the dance students and professional dancers reported values significantly differed in various variables, the data was split based on level of professionalism (professional and amateur/hobby) and the normal distribution of the studied variables for both professional and amateur dancers was assessed.

The means between the variables and groups showed that dance students perceived more autonomy support ($x = 5.05$; $SD = 1.09$) from the dance teachers than professionals ($x = 2.98$; $SD = 1.21$). In general, the means showed that the degree to which the perceived psychological needs were satisfied was higher among dance students than professionals, especially perceived need for relatedness and need for autonomy. As a main analysis the correlations between all variables were reported, thus especially emphasizing the correlations between variables specified by the proposed framework of self-determination theory. The correlations among all the variables for dance students are represented in Table 2 and for professional dancers in Table 3. As already described above in the text, the Spearman's bi-variate correlation test was performed for the variables that were not normally distributed within each group. Pearson's product moment correlations are printed in normal print and Spearman's bi-variate correlations are printed in *italics* in the presented tables (Table 2 and Table 3). In line with the hypothesis, the correlations were examined and reported between perceived autonomy support with perceived need satisfaction and the different forms of motivation regulation, and between perceived need satisfaction and forms of motivation regulation with well-being outcomes for student and professional dancers. The correlations will be discussed for each group separately, starting with dance students and following with professional dancers.

5.2.1. Dance students

5.2.1.1. Correlations with Perceived Autonomy Support (PAS)

The first determining factor in the motivational sequence is, as earlier stated, perceived autonomy support (PAS). As hypothesized, for students the correlations showed that perceived autonomy support (PAS) correlated positively with the perceived need for autonomy in terms of *choice and decision-making* ($r = .54$) and also related positively to perceived need for relatedness ($r = .64$). Interestingly only a low correlation emerged between PAS and perceived competence ($r = .20$).

Unexpected, the results showed that PAS was significantly related only to one form of motivation regulation for dance students. PAS was positively related only to identified regulation ($r = .35$). PAS emerged to be unrelated to other forms of motivation regulation. The perceived autonomy support (PAS) was not significantly associated with well-being outcomes for dance students.

5.2.1.2. Correlations with perceived basic need satisfaction (PBNS)

According to SDT, perceived need satisfaction should be positively related to autonomous (or self-determined) form of motivational regulation and should be positively related to indices of dancer well-being through the autonomous forms of motivation regulation. Additionally, the three needs were expected to correlate with each other. As expected, perceived satisfaction of all three basic needs correlated with each other (see in Table 2). The perceived need for relatedness correlated highly with other needs: with perceived need for autonomy ($r = .64$) and perceived need for competence satisfaction ($r = .52$). Further, the correlations between perceived basic needs satisfaction and the forms of motivation regulation showed that for dance students all three perceived needs correlated positively with the autonomous forms of motivation. Specifically, the perceived need for relatedness strongly and positively related to all three autonomous forms of motivation: intrinsic motivation ($r = .31$) integrated regulation ($r = .34$), and identified regulation ($r = .39$), whereas perceived need for competence was related to intrinsic motivation ($r = .41$) and integrated regulation ($r = .39$). Unexpectedly, perceived need for autonomy in terms of choice and decision was only related to identified

regulation ($r = .31$). However, perceived basic needs appeared to be unrelated to the controlled forms of motivation, except one need, perceived competence, which was negatively related to amotivation ($r = -.25$).

The correlations between perceived basic needs and well-being outcomes for dance students were in line with the hypothesis. As predicted, all three perceived needs (competence, autonomy, and relatedness) correlated significantly with positive well-being outcomes (self-esteem and positive affect), and perceived needs correlated negatively to negative well-being outcomes (three dimensions of burnout and negative affect (NA)).

In comparison with other two basic needs, perceived need for relatedness was most strongly correlated to positive well-being variables: self-esteem ($r = .49$) and positive affect ($r = .42$), and negatively related to the negative well-being variables: reduced accomplishment (RA) dimension of burnout ($r = -.43$), devaluation (DEV) dimension of burnout ($r = -.24$), and NA ($r = -.25$).

5.2.1.3. Correlations with forms of motivational regulation

Supporting hypothesis and in line with SDT, motivational forms correlated to each other in expected way and direction. For instance, intrinsic motivation correlated to integrated and identified regulation, and moderately and negatively correlated to controlled forms of motivation (introjected and external regulation), and negatively with amotivation for dance students.

Correlations between the forms of motivation regulation and well-being outcomes supported hypothesis. Particularly, autonomous forms of regulation were positively associated with well-being variables: self-esteem and positive affect, while negatively correlated with negative well-being outcomes: three burnout dimensions. As predicted, controlled forms of motivation (introjected and external regulation) and amotivation were negatively related to positive well-being outcomes and positively to the negative well-being outcomes. Specifically, for example, intrinsic motivation was positively linked to

positive well-being variables such as self-esteem ($r = .30$) and positive affect ($r = .53$), and negatively associated with the negative well-being variables such as reduced accomplishment dimension of burnout ($r = -.42$) and devaluation dimension of burnout ($r = -.37$). As expected, the non-self-determined motivation/controlled forms of motivation were negatively associated with the negative well-being variables such as emotional and physical exhaustion dimension of burnout and negative affect; and positively to positive well-being variables such as self-esteem and positive affect. At least, also amotivation was negatively associated with positive well-being and positively with negative well-being outcome variables.

5.2.1.4. Correlations with measures of well-being

Overall, the measures of well-being appeared to correlate between each other in the expected way for dance students. For example, self-esteem for dance students was positively related to PA ($r = .55$) and negatively to NA ($r = -.29$), whereas burnout RA was positively related to other burnout dimensions: emotional/physical exhaustion dimension of burnout ($r = .39$) and devaluation dimension of burnout ($r = .47$), and also positively to NA ($r = .38$). As expected, burnout RA was negatively related to positive well-being variables: self-esteem ($r = -.61$) and PA ($r = -.52$).

Table 2

Estimated Means (X), Standard Deviations (SD), and Correlations between variables for *dance students* (n = 66)

Factors	X	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.PAS	5.05	1.09	1																	
2 COMPETENCE	4.39	1.00	0.20	1																
3 AUTONOMY CHD	3.99	1.13	0.54**	0.20	1															
4 AUTONOMY	3.74	0.8	0.47**	0.25*	0.43**	1														
5 RELATEDNESS	3.84	0.7	0.64**	0.52**	0.64**	0.62**	1													
6 INTRIN MOT	6.36	0.73	<i>0.11</i>	<i>0.41**</i>	<i>0.20</i>	<i>0.30*</i>	<i>0.43**</i>	1												
7 INTEG REG	5.6	1.08	0.16	0.39**	0.08	0.36**	0.34*	0.60**	1											
8 IDENT REG	4.83	1.31	0.35**	0.26	0.31*	0.23	0.39*	0.33**	0.16	1										
9 INTROJ REG	2.04	0.9	0.00	-0.10	-0.03	-0.13	-0.08	-0.12	0.13	0.37**	1									
10 EXTERN REG	1.28	0.46	<i>0.09</i>	<i>-0.15</i>	<i>0.11</i>	<i>-0.16</i>	<i>-0.04</i>	<i>-0.18</i>	<i>0.04</i>	<i>0.16</i>	<i>0.53**</i>	1								
11 AMOTIVATION	1.9	1.12	-0.06	-0.25*	-0.08	-0.28*	-0.04	-0.49**	-0.32**	-0.10	0.24	0.28*	1							
12 BORNOUT RA	2.38	0.67	-0.21	-0.60**	-0.20	-0.39**	-0.43**	-0.42**	-0.32**	-0.25*	0.17	0.29*	0.41**	1						
13 BORNOUT EPEX	2.13	0.88	<i>0.00</i>	<i>-0.13</i>	<i>-0.23</i>	<i>-0.20</i>	<i>-0.13</i>	<i>-0.16</i>	<i>0.10</i>	<i>0.04</i>	<i>0.38**</i>	<i>0.44**</i>	<i>0.25*</i>	<i>0.43**</i>	1					
14 BORNOUT DEV	1.9	0.98	-0.16	-0.14	-0.18	-0.18	-0.24*	-0.37**	-0.32**	-0.13	0.04	0.00	0.39**	0.47**	0.19	1				
15 SELF-ESTEEM	4.81	0.73	0.16	0.72**	0.25*	0.31*	0.49**	0.30*	0.14	0.23	-0.18	-0.30*	-0.16	-0.61**	-0.22	-0.07	1			
16 PHYSICAL SYMP	3.14	0.92	-0.11	0.03	-0.10	-0.19	-0.04	0.15	0.22	0.21	0.27*	0.04	-0.09	0.21	0.27*	0.03	-0.01	1		
17 POSITIVE AFFECT	3.48	0.64	0.20	0.45**	0.19	0.44**	0.42**	0.53**	0.32**	0.31*	-0.01	-0.25*	-0.26*	-0.52**	-0.21	-0.20	0.55**	0.06	1	
18 NEGATIVE AFFECT	3.45	0.61	-0.19	-0.28*	-0.36**	-0.26*	-0.25*	-0.21	-0.16	0.09	0.29*	0.03	0.21*	0.38**	0.31*	0.39**	-0.29*	0.43**	-0.20	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Italics indicate the Spearman's correlations for not normally distributed variables

PAS = Perceived autonomy support from dance teachers, COMPETENCE = Perceived competence, AUTONOMY CHD = Autonomy choice and decision making, AUTONOMY = Perceived need of autonomy, RELATEDNESS = Perceived relatedness, INTRIN MOT = Intrinsic motivation, INTEG REG = Integrated regulation, IDENT REG = Identified regulation, INTROJ REG = Introjected regulation, EXTERN REG = External regulation, AMOTIVATION = Amotivation, BORNOUT RA = Burnout Reduced Accomplishment, BORNOUT EPEX = Burnout Emotional/Physical Exhaustion, BORNOUT DEV = Burnout Devaluation, SELF-ESTEEM = Self-esteem measured by SDQ, PHYSICAL SYMP = Physical symptoms, POSITIVE AFFECT = Positive Affect, NEGATIVE AFFECT = Negative Affect

5.2.2. Professional dancers

5.2.2.1. Correlations with Perceived Autonomy Support (PAS)

As expected, the correlations also for professional dancers showed that perceived autonomy support (PAS) correlated positively with two basic needs: perceived need for autonomy in terms of *choice and decision-making* ($r = .71$) and perceived need for relatedness ($r = .76$). It is worth noting that, unexpectedly the perceived need for competence was not related to PAS for professional dancers ($r = -.09$). Further, with regard to the correlations between PAS and the forms of motivation regulation, the results revealed only low and nonsignificant correlations between PAS and some different forms of motivation.

5.2.2.2. Correlations with perceived basic need satisfaction (PBNS)

Unexpectedly and opposite to the proposed theoretical assumptions of SDT (Deci & Ryan, 2000), for professional dancers the correlations between perceived needs revealed that satisfaction of perceived need for competence was low and negatively related to perceived need for autonomy in terms of *choice and decision making* and unrelated to perceived need for relatedness. In line with the hypothesis, the other two needs, perceived need for autonomy and perceived need for relatedness were intercorrelated ($r = .50$). A similar pattern appeared for professional dancers when examining the relationship between perceived basic needs and the forms of motivation regulation. The feelings of autonomy were only moderately positively related to the self-determined motivation. Perceived autonomy correlated lowly to intrinsic motivation ($r = .29$) and also to identified regulation ($r = .29$). With regard to controlled forms of motivation regulation, perceived autonomy moderately negatively correlated to external regulation ($r = -.31$). Unexpected, the other two needs, perceived competence and perceived relatedness had low to moderate correlations with some of the motivation regulation forms, and both of these two needs even were not related to integrated and introjected regulation, and amotivation. It is worth mentioning that correlations from all three needs appeared significant only between perceived need for competence and amotivation ($r = -.34$).

Correlations between need satisfaction and well-being outcomes for professional dancers revealed an interesting and unexpected pattern where perceived need for competence was the

only need of the three needs that was positively related to positive well-being variables, self-esteem ($r = .80$) and PA ($r = .38$), and negatively related to NA ($r = -.49$) and reduced accomplishment dimension of burnout ($r = -.52$).

In contrary to the research within SDT (Deci & Ryan, 2000; Gagné et al., 2003; Sheldon & Bettencourt, 2002) and hypothesis of this study, the other two psychological needs, satisfaction for the need of perceived autonomy and the need for perceived relatedness had low correlations with some of the well-being variables. There were several well-being variables that were not associated with the perceived need satisfaction at all. For example, perceived need for autonomy was not associated with reduced accomplishment and devaluation dimension of burnout, to physical symptoms, neither to positive or negative affect. Similarly, perceived relatedness was not related neither to devaluation dimension of burnout, physical symptoms or self-esteem. The satisfaction for the perceived need of relatedness related negatively only to reduced accomplishment dimension of burnout ($r = -.44$, $p < .01$). Interesting that physical symptoms was not related to any of the needs.

5.2.2.3. Correlations with the forms of motivation regulation

In line with the previous research (Ryan & Deci, 2000), the motivation forms of regulation were intercorrelated in expected direction also for professional dancers' group. For example, intrinsic motivation correlated positively with autonomous forms of motivation. Intrinsic motivation correlated with integrated regulation ($r = .53$). As predicted by SDT, intrinsic motivation negatively correlated with amotivation ($r = -.44$). However, unexpectedly autonomous forms of motivation (intrinsic motivation and integrated regulation) were unrelated to controlled forms of motivation (introjected and external regulation). Identified regulation was only moderately related to controlled forms of motivation. The controlled forms of motivation were low to moderately intercorrelated for professional dancers.

Partially supporting hypothesis, the relationships between the forms of motivation regulations and positive (self-esteem and positive affect) and negative well-being (three burnout dimensions, physical symptoms) variables for professional dancers revealed that only positive affect (PA) correlated positively with autonomous forms of motivation. Particularly, in line with previous research findings (e.g., Gagné et al., 2003) intrinsic motivation related

positively to PA ($r = .38$). In addition, integrated regulation was negatively related to burnout DEV ($r = -.37$). Contrary to the hypothesis, the other motivation forms of regulation, mostly the controlled forms of motivation (introjected and external regulation) and amotivation were lowly or unrelated to the well-being variables for professional dancers. None of the forms of motivation regulation were associated with dancers' self-esteem and unexpectedly neither to negative affect or physical symptoms, except identified regulation was moderately associated with negative affect, physical symptoms, and the reduced accomplishment, emotional/physical exhaustion, and devaluation dimensions of burnout.

5.2.2.4. Correlations with measures of well-being

As expected, the correlations between well-being outcomes for professional dancers revealed a similar pattern as in dance student group. The indicators of positive well-being intercorrelated positively, but correlated negatively to negative well-being variable: negative affect (NA). The opposite pattern was observed for negative well-being variables. High negative correlations were between reduced accomplishment (RA) dimension of burnout and self-esteem ($r = -.52$) and PA ($r = -.56$), whereas positive correlation between burnout RA and negative affect (NA) was observed ($r = .56$).

Table 3

Estimated Means (X), Standard Deviations (SD), and Correlations between variables for *professional dancers* (n = 35)

Factors	X	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.PAS	2.98	1.21	1																	
2 COMPETENCE	4.62	1.32	-0.09	1																
3 AUTONOMY CHD	2.03	0.82	0.71**	-0.25	1															
4 AUTONOMY	2.25	0.98	0.48**	-0.49**	0.55**	1														
5 RELATEDNESS	2.85	0.86	0.76**	0.03	0.50**	0.34*	1													
6 INTRIN MOT	5.93	0.94	0.17	0.18	0.29	0.25	0.07	1												
7 INTEG REG	4.90	1.47	0.05	0.07	0.08	0.32	-0.09	0.53**	1											
8 IDENT REG	3.93	1.17	0.21	0.01	0.29	0.20	0.23	0.02	0.06	1										
9 INTROJ REG	2.13	1.38	<i>0.08</i>	<i>-0.22</i>	<i>0.15</i>	<i>-0.07</i>	<i>0.00</i>	<i>-0.10</i>	<i>0.11</i>	<i>0.26</i>	1									
10 EXTERN REG	1.22	0.59	<i>-0.27</i>	<i>0.02</i>	<i>-0.31</i>	<i>-0.27</i>	<i>-0.21</i>	<i>0.16</i>	<i>0.18</i>	<i>0.29</i>	<i>0.29</i>	1								
11 AMOTIVATION	2.2	1.21	-0.05	-0.37*	0.12	0.22	-0.09	-0.44**	-0.06	0.19	0.58**	0.13	1							
12 BORNOUT RA	2.56	0.90	-0.21	-0.52**	0.13	0.03	-0.44**	0.00	0.08	-0.24	0.30	0.04	0.32	1						
13 BORNOUT EPEX	2.90	1.00	-0.22	-0.07	-0.17	-0.19	-0.28	-0.16	-0.13	-0.28	-0.20	0.11	-0.07	0.20	1					
14 BORNOUT DEV	2.22	0.90	-0.21	0.00	-0.04	-0.14	-0.11	-0.33	-0.37*	-0.20	0.02	0.07	0.28	0.01	0.40*	1				
15 SELF-ESTEEM	4.88	0.79	-0.16	0.80**	-0.21	-0.39*	0.08	0.06	-0.11	0.03	-0.16	-0.02	-0.33	-0.52**	-0.18	-0.01	1			
16 PHYS SYMPTOMS	2.98	1.03	0.25	0.03	0.19	0.03	0.11	0.12	-0.02	-0.24	-0.07	0.12	-0.05	-0.09	0.34*	0.31	-0.17	1		
17 POSITIVE AFFECT	3.45	0.61	0.11	0.38*	0.13	0.13	0.25	0.38*	0.30	0.33	-0.05	0.03	-0.13	-0.56**	-0.22	-0.30	0.31	-0.07	1	
18 NEGATIVE AFFECT	2.41	0.63	-0.10	-0.47**	0.08	0.07	-0.23	0.07	0.07	-0.26	0.11	0.12	0.16	0.56**	0.36*	0.15	-0.48**	0.41*	-0.41*	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Italics indicate the Spearman's correlations for not normally distributed variables

PAS = Perceived autonomy support from dance teachers, COMPETENCE = Perceived competence, AUTONOMY CHD = Autonomy choice and decision making, **AUTONOMY = Perceived need of autonomy**, RELATEDNESS = Perceived relatedness, INTRIN MOT = Intrinsic motivation, INTEG REG = Integrated regulation, IDENT REG = Identified regulation, INTROJ REG = Introjected regulation, EXTERN REG = External regulation, AMOTIVATION = Amotivation, BORNOUT RA = Burnout Reduced Accomplishment, BORNOUT EPEX = Burnout Emotional/Physical Exhaustion, BORNOUT DEV = Burnout Devaluation, SELF-ESTEEM = Self-esteem measured by SDQ, PHY SYMPTOMS = Self-reported Physical symptoms, POSITIVE AFFECT = Positive Affect, NEGATIVE AFFECT = Negative Affect

5.3.1. Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) was performed using Mplus version 5.1 (Muthén & Muthén, 2007). Several fit indices were requested: χ^2 ; Standardized Root Mean Square Residual (SRMR); Root Mean Square Error of Approximation (RMSEA); Comparative Fit Index (CFI); and the Tucker-Lewis Index (TLI). A good fit of the model to the data is indicated by: a non-significant χ^2 ($p > .05$); SRMR value smaller or equal to .08 ($\leq .08$); RMSEA value near to .06 ($\approx .06$); CFI and TLI values over .90 ($> .90$).

The expected and hypothesized relationships between the variables in multiple levels are shown in Figure 1. The hypothesized model predicts that perceived autonomy support would significantly determine perception of basic psychological needs satisfaction (compe- competence; auton – autonomy and relate – relatedness). Accordingly, the perception of basic psychological needs satisfaction would positively predict more self-determined forms of regulation/autonomous forms of motivation (intrinsic motivation – MOT1; integrated regulation – MOT2 and identified regulation – MOT3) and negatively predict controlled forms of regulation (introjected regulation – MOT4 and extrinsic regulation – MOT5). Further, motivational forms of regulation would predict psychological and physical well-being (BURNRA – Burnout of Reduced Accomplishment; BURNEPE – Burnout of Emotional and Physical Exhaustion; BURNDEV – Burnout of Devaluation; PHYSYMP – perceived physical symptoms; POSITIV – Positive Affect; NEGATIV – Negative Affect; SELFEST – self-esteem). The figure does not illustrate the mediating constructs and levels because there were problems with illustrating all direct relationships between the variables that appeared many already for the Figure 1. Consequently, it was decided not to present another figure for hypothesized mediating relationships between the variables.

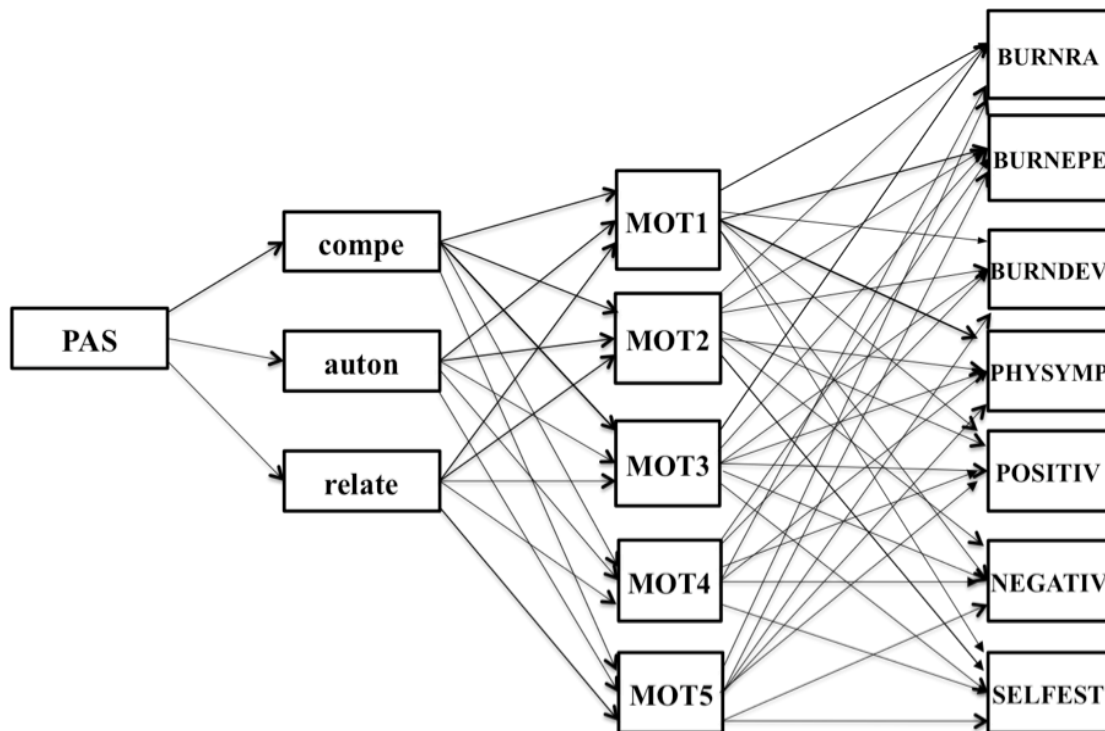


Figure 1. The Hypothesized model for the analysis of the Structural equation model (SEM): possible direct relationships between variables of PAS (Perceived autonomy support), need satisfaction (compe-competence; auton – autonomy, relate – relatedness), motivational forms of regulation (MOT1 – intrinsic; MOT2 – integrated regulation; MO3 – identified regulation; MOT4 – introjected regulation; MOT5 – extrinsic motivation/regulation) and psychological and physical well-being (BURNRA – Burnout of Reduced Accomplishment; BURNEPE – Burnout of Emotional and Physical Exhaustion; BURNDEV – Burnout of Devaluation; PHYSYMP – perceived physical symptoms; POSITIV – Positive Affect; NEGATIV – Negative Affect; SELFEST – self-esteem).

The SEM analysis identified following model to fit the data optimally ($\chi^2(3) = 4.11, p = .25, CFI = 1.0, TLI = .98, RMSEA = .058, SRMR = .028$). All hypothesized paths were significant, except for paths between perceived autonomy support and need for competence; perceived autonomy support and motivational forms of regulation and psychological and physical well-being. The paths were not significant between need for competence and motivational forms of regulation, and neither between competence and indicators of well-being. Further, the need for relatedness did not predict any of motivational forms and none of the psychological indicators of well-being. Finally, there were no significant paths between motivational forms of

regulation and psychological and physical well-being. An illustration of the model is presented in Fig. 2.

As illustrated in Fig. 2, the results indicate that perception of autonomy support (PAS) significantly predicted the need for autonomy ($\beta=.79$, $p<.05$) and need for relatedness ($\beta=.78$, $p<.05$). As predicted, both needs, the need for autonomy and need for relatedness were related to each other ($\beta=.28$, $p<.05$). The model showed that only the need for autonomy significantly predicted one of the forms of motivation regulation: the identified regulation (MOT3), ($\beta = .25$, $p<.05$). In this model, unexpectedly, the need for relatedness did not appear to be a significant predictor of motivational forms of regulation. Further, the direct path between need for autonomy and well-being variable: burnout of reduced accomplishment (BURNRA) was significant in this model ($\beta = .34$, $p<.05$). Finally, the need for relatedness was a strong negative predictor of burnout of reduced accomplishment (BURNRA), ($\beta = -.68$, $p<.05$). This suggests that the relationships between three psychological needs and the outcome variables of well-being were not mediated by motivational forms of regulation (self-determined motivation).

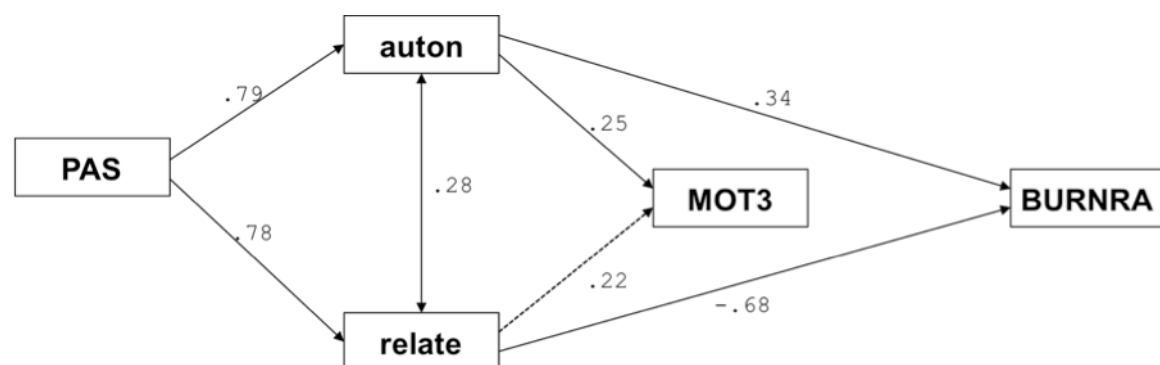


Figure 2. Structural equation model for the relationships between dancers' perceived autonomy support on their perceived basic need satisfaction, their motivational forms of regulation and psychological and physical well-being. CFI = 1.0, TLI = .98, RMSEA = .058, SRMR = .028. All parameters are standardized and significant at $p < .05$. A non-significant path is represented by dashed line.

6. DISCUSSION

Based on SDT, the goal of this study was to examine the associations and inter-relationships between dancers' perceptions of autonomy supportive environment, perceived basic need satisfaction, motivation regulation and outcomes of psychological and physical well-being. Additionally, the hypothesized mediating roles of basic needs and motivation regulations between perceptions of autonomy support and dancers' psychological and physical well-being were planned to be evaluated in this study.

The results of the study provided partial support for our hypothesis and self-determination theory (Deci & Ryan, 1985, 2000). First of all, examining the effects of perceived autonomy support on dancers' need satisfaction, the results of structural equation modeling (SEM) showed that perceptions of dance teachers' autonomy support predicted the perceived satisfaction of two basic needs: the need for autonomy and the need for relatedness. In other words, the more the dancers felt that their dance teacher provided choice and freedom in their decisions and actions, and acknowledged their feelings the more the dancers perceived that their basic needs for autonomy and relatedness were satisfied. Furthermore, in opposition to the hypothesized relationships between the constructs proposed into the model, dancers' perceptions of autonomy support did not predict motivational regulation or any of the psychological and physical well-being variables. This non-significant relationship is in contradiction to the previous researches within the SDT framework. Most of the studies in sport domain have showed that perceived autonomy support facilitated more autonomous motivation toward that specific sport (e.g., Amorose & Anderson-Butcher, 2007; Pelletier et al., 2001; Reinboth et al., 2004), which in turn had a positive effect on athlete's well-being (e.g., Gagné et al., 2003).

Moreover, perceived autonomy support did not predict any of the psychological or physical well-being antecedents. It is interesting that in overall the dancers perceived their dance teachers as autonomy supportive ($m = 4.33$ on the seven point scale), however, standard deviation was high. This shows that there was fairly high variation in the dancers' perceptions of their dance teachers' autonomy support. In other words, the dancers in the whole group had different perceptions on how much teachers

supported their autonomy. This could be due to differences between the dancers in type of dance or level of professionalism. However, due to limitations in the initial study setup, the participating dancers could not be differentiated in these ways for this analysis (SEM). This represents a limitation of the study.

Other studies in dance have showed that the perception of autonomy support from the dance teachers was dependent on the dance schools a dancer would be into (Quested & Duda, 2009). Different types of dance (e.g., jazz, hip-hop, ballet) vary in the extent to which the dancer autonomously determines dance moves or choreography. For example, in jazz dance a dancer may choose his or her moves during the dance. In contrast, in classical ballet the dance moves can more be determined by the dance leader/teacher. In ballet the dancer is very much controlled by dance choreography. Consequently, the dancer would perceive the autonomy support from the dance teacher or dance leader differently. Thus, the study should separate the dancers who have more choice and freedom in the decision on their dance moves from those dancers who are more controlled in their dance style and moves. Unfortunately, in this model the different dancing groups were not possible to analyze separately because of the sample size of participants. One of the requirements for the analysis of SEM is to have one homogenous group with large enough number of participants. However, in this study there were less than 30 dancers that came from one or another dancing school such as jazz and classical ballet, thus being distinct dance groups, but not large enough for SEM analysis. Therefore, for SEM analysis all participants were treated equally, as one group of dancers. This lead to several limitations of the study and these limitations will be discussed further.

The identification of different autonomy-supportive styles and dancers' perceptions of these different styles for different types of dance and different levels of professionalism would give much deeper understanding of which behaviors are helpful for dancers' basic needs satisfaction, autonomous motivation and well-being and which are less helpful or even harmful for dancers' basic needs, motivation and well-being.

Further, not consistent with the hypotheses, the predicted relationships between perceived needs satisfaction and motivation regulations revealed that the perceived

feelings of autonomy was the strongest predictor of all three needs for the dancers' identified regulation. Likewise, other studies in physical education (Standage et al., 2006) and sport (e.g., Amorose & Anderson-Butcher, 2007) have showed inconsistent results with regard to the importance of the needs to the motivational forms of regulation. Perceived competence appeared to be the strongest predictor for students in Standage et al. (2006) study and perceived need for autonomy in Amorose Anderson-Butcher (2007) study in athletes' autonomous motivation. Thus, it implies that in different contexts the importance of the basic needs for once motivation might be perceived differently. Additionally, it is interesting that only identified regulation, which is the last form of self-determined regulation was significantly predicted by perceived need for autonomy in this study. The results indicated that dancing was more perceived and executed by dancers as personally important and meaningful than entirely enjoyable and pleasurable activity. In order to absolutely enjoy the dance activity, a dancer should completely internalize or accept the dance activity as autonomous, which characterizes intrinsic motivation. In contrast, in this study dancers appeared only partly internalize and partly self-regulate their behavior, which characterizes identified regulation. Consequently, even though the dancer's motivation appeared not intrinsic and not completely self-regulated, the dancers still got to identify themselves with the dance on the level of self-importance. In the future it might be interesting to study how these dancers' behaviors would be regulated in the long run and how it would affect their well-being.

Further, the hypothesized relationship between motivation regulations and well-being antecedents were supported only partly. The identified form of regulation predicted only one antecedent of physical well-being: the reduced accomplishment of burnout. This finding showed that dancers who perceived the dance activity as important and the main reason for their dance was identified the personal/individual importance to self, these dancers also experienced less burnout with regard to their own dancing skills and abilities. These dancers saw the importance of them being as dancers and they did not get exhausted; therefore they could keep training and developing their skills for the performance.

Continuing, the absence of positive relationship between self-determined forms of regulation (such as intrinsic and integrated regulation) and other antecedents of well-

being and from other side absence of negative relationship between controlled forms of regulation (introjected regulation and extrinsic motivation) and antecedents of well-being in this study was in contradiction also to the theoretical propositions and other studies within SDT. Specifically, various studies within SDT in sport (Gagné et al., 2003; Pelletier et al., 2001) showed that the self-determined forms of regulation such as intrinsic motivation positively predicted well-being (e.g. self-esteem in gymnasts and persistence in swimming) and negatively predicted ill-being (e.g. negative body image and negative emotions).

Besides direct relationships between the variables, the role of the mediators of three basic needs nor the forms of motivation regulation supported the hypothesized sequential relationship between perceived autonomy support and well-being antecedents. Dancers' psychological needs did not have any effect on the relations between perceived autonomy support, motivation regulations, and well-being. Moreover, the expected motivational regulations did not show any mediating effect on the relationships between perceived autonomy support and well-being, nor between perceived three needs and well-being. Conclusively, the hypothesized model of this study was supported very weakly, explaining only very few relationships in the whole model. It has to be mentioned that there have been a limited number of studies, particularly in dance, sport or physical education, which have simultaneously examined the relationships between perceived autonomy support, all three of the needs, motivational forms of regulation and well-being outcomes.

The non-finding might be due to several reasons. One of the main reasons might be that this dancers' sample already from the beginning was highly heterogeneous. Thus, as discussed already earlier, the preliminary analysis (descriptive statistics) showed fairly high variations in various constructs such as perceived autonomy support, needs, and motivation regulations. One of the main explanations of that was attributed to the differences in the dancing schools or dancing styles; therefore determining the behavior and interpersonal style of the dance teacher or dance leader. As discussed above, in order to test the hypothesized model with the structural equation model analysis (SEM), the main requirement was not to differentiate participants into the distinct groups. However, in this study the dancers (participants) were chosen from

different dancing schools and styles. Subsequently, in order to determine the associations between the interested variables in the model, the statistical analysis of correlation was performed for two distinct groups.

The two distinct groups were classified depending on the dancer's professionalism level in dance: dance students and professional dancers. For the first group the dance was perceived more as a hobby and thus also different requirements for each dancer were set (e.g., amount of hours practicing, performing). In contrast, for professional ballet dancers the dancing activity was perceived as occupation/vocation, thus also the requirements for this dance style were different from the dance students. In addition, professional dancers were older than the student dancers.

In general evaluation, this study was largely supported the applicability of SDT in student dancers. However, for professional dancers the associations between studied variables were just partly supporting or even not supportive the hypothesis and the SDT.

First, the associations between perceptions of autonomy support and perceived need satisfaction for dance students were in line with hypothesis and theoretical assumptions. The associations between dancers' perceptions of autonomy support and satisfaction of the perceived need for autonomy were consistent with similar findings in sport (Wilson & Rogers, 2004) and also in physical education (Standage et al., 2003). Noticeable is that perceived need for relatedness was most strongly related to perceptions of autonomy support and also to the all three autonomous forms of motivation: intrinsic motivation, integrated and identified regulation. Interestingly, in contrast to most of the research studies (e.g., Deci & Ryan, 2000; Reinboth et al., 2004; Standage et al., 2006), in terms of the importance of perceived need for relatedness in comparison to other needs in one's motivation and well-being, in this study the results revealed that for dance students the feeling of relatedness was associated with higher levels of self-determination and higher well-being and these dancers who perceived their basic need for relatedness as satisfied also perceived their dance teachers to be more autonomy supportive. These results might be surprising because most of the studies in sport domain (e.g., Amorose & Anderson-Butcher, 2007; Blanchard & Vallerand, 1996) have shown that perceived autonomy support

was most strongly related to the feelings of autonomy. For instance, a study by Amorose & Anderson-Butcher (2007) found that college athletes' perceived autonomy, not relatedness, had the strongest relationship with athletes' perceived autonomy support and their motivational orientation. The studies in physical education (e.g., Standage et al., 2006) have suggested that perceived competence, not perceived autonomy or relatedness, had the strongest relationship with students' motivational orientation.

Furthermore, with regard to the relationship between perceived autonomy support (PAS) and forms of motivation regulation, only one relationship was significant; and no significant relationships were present between perceived autonomy support and indices of well-being for dance students. This finding is in contrast to hypothesis and with previous research in the sport and physical education and exercise domains. It might be that dancers well-being has been related not only with the social environment that is perceived as autonomy supportive in the context of dance, but also in the context outside of dance such as school or home. However, it does not mean that prevailing social environment in the dance context cannot affect the way a dancer values him or her self (self-esteem) and how a dancer experiences the time in the training or after that. Specifically, for many dancers the dance teachers and leaders play a significant role in their lives being for them even as a "role model". Future studies might consider developing a measure that would examine, for example, self-esteem and affect states much closer related to the dancers' daily psychological and physical experiences with regard to the dance teaching environments.

The relationship between perceived basic needs and well-being outcomes for dance students supported the theoretical proposition of the SDT (Deci & Ryan, 2000) and the hypothesis of this study. Further, also relationship between the forms of motivation regulation and well-being outcomes indicated a predicted pattern where more autonomous forms of motivation were more positively related to positive well-being outcomes (self-esteem and positive affect), whereas negatively correlated with negative well-being outcomes.

For professional ballet dancers an unexpected finding in this study was that, in contrast to hypotheses and previous research findings (Reinboth et al., 2004),

perceived autonomy support did not predict need for competence, motivation forms nor well-being outcomes. Unexpected, perception of autonomy support for professional dancers was even negatively associated with perceived competence. Further, contrary to the hypothesis and the SDT (Ryan & Deci, 2000), low and insignificant correlations appeared between professional dancers' perception of autonomy support from dance teachers/instructors (PAS) and the forms of motivation regulation. Even more, perceived autonomy support appeared not to significantly predict psychological and physical well-being outcomes. This finding may be explained in line with explanations of Quested and Duda (2010). As Quested and Duda have discussed, historically the dance teachers in such dance style, as ballet have been considered as highly authoritarian, providing shortened autonomy support to the dancers. Further, Quested and Duda argued that as this authoritarian teaching style is typical of the dancers' past experiences and present assumptions regarding the nature of dance teaching, it is possible that being thwarted of autonomy would not lead to negative consequences such as negative emotions.

Similarly, in the present study professional ballet dancers have been thought to be exposed to higher and more demanding and authoritarian environmental conditions as compared to dance students. It implies that they have been more oriented to achievement and growth in order to become a professional dancer. Thus, the perceived need for competence might be satisfied only when executing the dance act in a correct way.

With regard to the role of the needs in ballet dancers motivation, the finding showed that only the perceived need for autonomy was moderately positively related to the self-determined motivation (i.e., higher levels of intrinsic motivation and identified regulation) and moderately negatively non-self-determined motivation such as external regulation. Interesting that perceived need for competence was linked only to introjected regulation and amotivation. In comparison, dance students' perceived relatedness had the strongest relationship with the autonomous behaviour regulations for dance. This might be explained by the differences of the prevailing environment within the dance school. As discussed previously, the relative importance of the three needs in predicting the various forms of motivation has been inconsistent in sport (e.g., Amorose & Anderson-Butcher, 2007, 2007; Reinboth et al., 2004; Sarazin et al.,

2002) and also in physical education studies (e.g., Standage et al., 2006). More research is needed to better understand the relevance of the three needs to one's motivation.

Further, the role of the needs for professional ballet dancers' psychological and physical well-being outcomes showed a different picture in comparison to the relationship between the needs' and motivation regulations. Surprisingly, perceived competence, not autonomy, had the strongest relationship with dancers' self-esteem, positive affect, and also significant negative relationship with the burnout of reduced accomplishment and negative affect. Perceived autonomy was not related to any of the indicators of psychological and physical well-being. These results are in contradiction to recent studies of Reinboth and Duda (2006). Reinboth and Duda (2006) suggested that in individual sports the *choice and decision making* aspects of autonomy (need) had been a strong predictor of such indicators of well-being as enjoyment and self-esteem.

Even though the results were in contradiction to the few studies in the realm of sport and physical education, the findings of our study might indicate a specific tendency of this dance style. Hence, especially for such dance style as ballet that requires strict movements and high levels of skills and such dancers as professionals who have their goal of becoming a "professional ballet dancer", their psychological and physical well-being might be more associated to the feelings of improvement and success in what they do as dancers. Thus, the more a dancer feels satisfied with his or her dancing with regard to the particular movements and skills or/and his or her dance in overall, the more the dancer feels good about self, experiences positive emotions such as interest and excitement and less negative emotions such as guilt and nervousness/anxiousness and less burnout in terms of reduced accomplishment. Conclusively, in order to have a better understanding of the role of the needs and motivation in the dancers' well-being, future studies should be conducted.

Finally, the main limitation of the study was that at initial study setup no clear distinction was made between student and professional dancers in SEM analysis. However, as discussed, student and professional dancers differed in their perceived autonomy support, needs and motivation in regard to dancing. As discussed, this

might have caused the data to be skewed on several specific needs and need support variables for the combined group of dance students and professional dancers. This implies that future studies clearly need to differentiate between student and professional dancers at study setup. This would allow studying the needs, required support, motivation and well-being more correctly.

7. CONCLUSION

This study was an evaluation of self-determination theory, examining the relationships between perceptions of autonomy support, perceived basic three needs, motivation regulations, and several indicators of psychological and physical well-being in Finnish dancers. Surprisingly, in contrast to other scientific reports, advanced statistical analytic techniques (structural equation modeling) did not show support for all suggested and assumed relationships between the studied constructs. Some findings provide preliminary evidence of the applicability of self-determination theory to the dance context. These findings indicate that autonomy-supportive contexts in dance settings support psychological needs satisfaction and motivation of dancers. Dance teachers who were perceived as autonomy supportive facilitated dancers' needs for autonomy and relatedness satisfaction. However, few direct relationships between perceived autonomy support, self-regulated forms of motivation and well-being were reported. Additionally the study revealed that the relationships between the different constructs of SDT might differ depending on dance style or level of professionalism of the dancer. Due to study design limitations this distinction is insufficiently investigated in the current study. More research is needed to better understand the relevance of the three needs to the motivation and well-being of dancers depending on their type of dance and level of professionalism.

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APPENDIXES

Appendix A - Information sheet for dancers



UNIVERSITY OF
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Information Sheet for Dancers

Invitation to participate in a research study: Motivational processes and well-being among dancers

What is our study about?

The main aim of this study is to examine the interplay between characteristics of the dance environment, motivational processes, and indices of well-being in young elite dancers. In the long term, we hope that our research will help towards identifying how we can improve the health status of dancers, reduce injury and burnout and promote positive experiences from dance participation.

What will your participation involve?

It is international study collaborated with University of Birmingham, U.K. The data will be collected in the U.K. and also in Belarus.

If you agree to volunteer for our study, you will be asked to complete some questionnaires. Completing the questionnaires should take approximately 30 minutes of your time. All of your responses will be kept confidential. You may choose not to participate, refuse to answer any questions, or withdraw from the study at any time with no penalty or effect on your future involvement in dance. By participating in this study, you are also agreeing that your results may be used for scientific purposes, including publication in scientific and dance specific journals, so long as your anonymity is maintained. There are no known risks associated with participation in this research.

If you would like to any more information concerning this study, please do not hesitate to contact us. Thank you.

Jenni Ridanpää
Tel:
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Prof. Taru Lintunen
Tel: 0407532158
E-Mail: Taru.Lintunen@sport.jyu.fi

This letter is yours to keep.

Appendix B - Consent forms for dancers



UNIVERSITY OF
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Consent Form for Dancers

Motivational processes and well-being among dancers

******* ID Number (VERY IMPORTANT):**

Enter your date of birth (e.g., 12/5/1988).

ANSWER HERE: / /
 D M Y

I _____ have read and understood the accompanying information sheet and discussed the investigation with the researcher Taru Lintunen. I agree to take part in the investigation with the knowledge that I can withdraw at any time without giving a reason and doing so will not affect the treatment I receive. All questions have been answered to my satisfaction.

Dancer's signature

Date

Witnessed

Appendix C - Questionnaires

In Appendix C are presented the questionnaires that were distributed to the dancers. Originally, as participants were Finnish speaking, the questionnaires were filled out in Finnish. However, these are in English, translated originally from Finnish to English (Haapanen, 2009). The original letters that were in Finnish can be found in the Master thesis of the students of this project (Ridanpää & Ervola, 2009).

Today's date is: _____

PLEASE COMPLETE THIS BOX

******* ID Number (VERY IMPORTANT):**
 Enter your date of birth and how many brothers and/or sisters you have in total
 (e.g., 12/5/1988-1).
ANSWER HERE: / / -
 D M Y #

Please fill in the blank, tick the box, or circle the appropriate response when responding to the questions below.

PART 1 - QUESTIONS ABOUT YOU:

Which dance genre do you perceive as your speciality?

Ballet Contemporary Both Other (please state)

Gender: Female Male

Current Age: _____ Years

Height: _____ Metres **or** _____ Feet _____ Inches

Weight: _____ Kg **or** _____ Stones

Do you smoke? Yes No Occasionally

Over the last few weeks on average, how many hours have you slept per night? _____ Hours

Ethnicity: (Please tick)

- | | |
|---|---|
| <input type="checkbox"/> White | <input type="checkbox"/> Asian or Asian British-Bangladeshi |
| <input type="checkbox"/> White – British | <input type="checkbox"/> Chinese |
| <input type="checkbox"/> White – Irish | <input type="checkbox"/> Other Asian Background |
| <input type="checkbox"/> Other White Background | <input type="checkbox"/> Mixed - White and Black Caribbean |
| <input type="checkbox"/> Black British-Caribbean | <input type="checkbox"/> Mixed –White and Black African |
| <input type="checkbox"/> Black or Black-British African | <input type="checkbox"/> Mixed – White and Asian |
| <input type="checkbox"/> Other Black Background | <input type="checkbox"/> Other Mixed Background |
| <input type="checkbox"/> Asian or Asian British-Indian | <input type="checkbox"/> Other Ethnic Background |
| <input type="checkbox"/> Asian or Asian British-Pakistani | <input type="checkbox"/> Not Known |

PART 2 - DANCE EXPERIENCE:

What age did you initially started dancing? _____ Years

How long have you been at this school? _____ Years & _____ months

What year of study are you currently in? _____

Thinking back over the **past few weeks**, please indicate the **average number of hours (per week)** you have spent doing the following activities:

Dancing in class: _____ hours per week

Dancing in rehearsals: _____ hours per week

Dancing in performances: _____ hours per week

Dancing in your free time: _____ hours per week

Doing physical activities ***apart from dance***: _____ hours per week

Doing dance work that is **not physically active** (e.g. study, choreography etc).

- **In school** _____ hours

- **In your own time**: _____ hours

Doing work (e.g. part-time job etc) that is **not dance related**:
_____ hours

PART 3 - INJURY STATUS

Previous Injuries: In the past 12 months, how many days in total have you missed classes, rehearsing or performing due to an injury?

_____ Days

Current Injury Status:

Are you currently injured? Yes No

What is the nature of your injury?

What is the severity of your injury (please circle one)?

- Mild (treatment required, but still able to rehearse/perform as normal)
- Moderate (treatment required, not able to rehearse/perform to full capacity)
- Severe (treatment required, unable to rehearse/perform)

PART 4 - INSTRUCTIONS

- Please answer all the questions as honestly and carefully as possible.
- There are no right or wrong answers so please answer as you truly feel.
- If anything is confusing, please ask for help and the questionnaire administrator will assist you.
- Please circle the appropriate answer to indicate how much you agree or disagree with each question or how much what is described is like you or not like you.

Example

If you answer **not much like me** for question 1, you put a circle around number 2.

If you answer **completely like me** for question 2, you put a circle around number 5.

Q	When I get up in the morning...	Not at all like me	Not much like me	Somewhat like me	Like me	Completely like me
1	I am still tired	1	2	3	4	5
2	The first thing I do is brush my teeth	1	2	3	4	5

PART 5 - Questions (measures)**Thoughts about dance** (1)

Below are some reasons why people participate in dance. Using the scale provided, please indicate how true each of the following statements is for you. When deciding if this is one of the reasons why you participate, please think about all the reasons why you participate. There are no right or wrong answers, so do not spend too much time on any one question and please answer as honestly as you can.

Some items may appear similar but please respond to all the statements circling the appropriate number.

<i>I participate in dance...</i>	Not at all true		Some what True			Very True	
1. Because I enjoy it.	1	2	3	4	5	6	7
2. Because it's a part of whom I am.	1	2	3	4	5	6	7
3. Because it's an opportunity to just be who I am.	1	2	3	4	5	6	7
4. Because I would feel ashamed if I quit.	1	2	3	4	5	6	7
5. But the reasons why are not clear to me anymore.	1	2	3	4	5	6	7
6. Because I would feel like a failure if I quit.	1	2	3	4	5	6	7
7. But I wonder what the point is.	1	2	3	4	5	6	7
8. Because dancing is an expression of who I am.	1	2	3	4	5	6	7
9. Because the benefits of dance are important to me.	1	2	3	4	5	6	7
10. Because if I don't other people will not be pleased with me.	1	2	3	4	5	6	7
11. Because I like it.	1	2	3	4	5	6	7
12. Because I feel obligated to continue.	1	2	3	4	5	6	7
13. But I question why I continue.	1	2	3	4	5	6	7
14. Because I feel pressure from other people to dance.	1	2	3	4	5	6	7
15. Because people push me to dance.	1	2	3	4	5	6	7

<i>I participate in dance...</i>	Not at all true		Some what True			Very True	
16. Because it's fun.	1	2	3	4	5	6	7
17. Because it teaches me self-discipline.	1	2	3	4	5	6	7
18. Because I would feel guilty if I quit.	1	2	3	4	5	6	7
19. Because I find it pleasurable.	1	2	3	4	5	6	7
20. Because I value the benefits of dance.	1	2	3	4	5	6	7
21. But I question why I am putting myself through this.	1	2	3	4	5	6	7
22. Because it is a good way to learn things which could be useful to me in my life.	1	2	3	4	5	6	7
23. In order to satisfy people who want me to dance.	1	2	3	4	5	6	7
24. Because it allows me to live in a way that is true to my values.	1	2	3	4	5	6	7

The following statements represent what the environment is has typically been like in your dance school over the past few weeks. Please indicate on the scale the degree to which you agree with the following statements. (2)

Q	In this dance school...	Strongly disagree			Neutral			Strongly agree
1	I feel that my teachers provide me with choices and options.	1	2	3	4	5	6	7
2	I am able to be open with my teachers while engaged in dance.	1	2	3	4	5	6	7
3	My teachers make sure I really understand the goals of my dance involvement and what I need to do.	1	2	3	4	5	6	7
4	My teachers encourage me to ask questions.	1	2	3	4	5	6	7
5	My teachers answer my questions fully and carefully.	1	2	3	4	5	6	7
6	My teachers listen to how I would like to do things.	1	2	3	4	5	6	7
7	My teachers try to understand how I see things before suggesting a new way to do things.	1	2	3	4	5	6	7

Respond to the following statements considering your experiences as a dancer in this school over the past few weeks. (3)

	Strongly disagree			Neutral			Strongly agree
I think I am pretty good at dance.	1	2	3	4	5	6	7
I am satisfied with my dancing.	1	2	3	4	5	6	7
After practicing a particular routine/movement for a while, I feel pretty competent.	1	2	3	4	5	6	7
I am pretty skilled at dance.	1	2	3	4	5	6	7
I can't dance very well.	1	2	3	4	5	6	7

The statements below allow you to think about how much the choices and decisions you make in this dance school or company are your own. Thinking back over the past few weeks, please indicate how much each statement is like you. (4)

Q	In this dance school, I feel...	Not at all		Somewhat		Very much
1	That my choices are based on my true interests and values.	1	2	3	4	5
2	Free to do things my own way.	1	2	3	4	5
3	That my choices express my "true self"/ who I really am.	1	2	3	4	5

Please respond to each of the following statements by rating how you feel when participating in dance in this school over the past few weeks.

(5)

Q	In this dance school ...	Not at all true			Neutral			Very true
1	I feel free to express my ideas and opinions.	1	2	3	4	5	6	7
2	I feel free to do things my own way.	1	2	3	4	5	6	7
3	I feel I can give a lot of inputs to deciding what skills/movements/expressions I want to practice.	1	2	3	4	5	6	7
4	I have the opportunity to take part in deciding what choreography should be used.	1	2	3	4	5	6	7
5	I have a say in what happens in dance classes and rehearsals and I feel free to give my opinion.	1	2	3	4	5	6	7
6	I feel I have a lot of inputs in deciding how rehearsals and class are to be carried out.	1	2	3	4	5	6	7

Please circle the answer that best describes how you feel when participating in this dance school over the past few weeks. (6)

Q	In this dance school I feel...	Strongly disagree		Neutral		Strongly agree
1	Supported.	1	2	3	4	5
2	Listened to.	1	2	3	4	5
3	Understood.	1	2	3	4	5
4	Valued.	1	2	3	4	5
5	Safe.	1	2	3	4	5

How you feel... (7)

Please respond honestly to the following items regarding how you are feeling at this present moment in time in relation to your participation in dance.

Q	At this present moment...	Almost never		Neutral		Almost always
1	I'm accomplishing many worthwhile things in dance.	1	2	3	4	5
2	I feel so tired from my dance training that I have trouble finding energy to do other things.	1	2	3	4	5
3	The effort I spend in dance would be better spent doing other things.	1	2	3	4	5
4	I feel overly tired from my dance participation.	1	2	3	4	5
5	I am not achieving much in dance.	1	2	3	4	5
6	I don't care as much about my dance performance as I used to.	1	2	3	4	5
7	I am not performing up to my ability in dance.	1	2	3	4	5
8	I feel "wiped out" (exhausted) from dance.	1	2	3	4	5
9	I am not into dance like I used to be.	1	2	3	4	5
10	I feel physically worn out from dance.	1	2	3	4	5
11	I feel less concerned about being successful in dance than I used to.	1	2	3	4	5
12	I am exhausted by the mental and physical demands of dance.	1	2	3	4	5
13	It seems that no matter what I do, I don't perform as well as I should.	1	2	3	4	5
14	I feel successful at dance.	1	2	3	4	5
15	I have negative feelings towards dance.	1	2	3	4	5

Please use the following response scale to indicate how true (or false) each item below is as a description of you. Respond to the items as you now feel even if you felt differently at some other time in your life. (8)

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
1. Overall, I have a lot to be proud of.	1	2	3	4	5	6
2. Overall, I am no good.	1	2	3	4	5	6
3. Most things I do, I do well.	1	2	3	4	5	6
4. Nothing I do ever seems to turn out right.	1	2	3	4	5	6
5. Overall, most things I do turn out well.	1	2	3	4	5	6
6. I don't have much to be proud of.	1	2	3	4	5	6
7. I can do things as well as most people.	1	2	3	4	5	6
8. I feel that my life is not very useful.	1	2	3	4	5	6
9. If I really try I can do almost anything I want to do.	1	2	3	4	5	6
10. Overall, I am a failure.	1	2	3	4	5	6

Have you experienced any of the following symptoms during the last few weeks? (10)

	Not at all						Very much
1. Headaches.	1	2	3	4	5	6	7
2. Stomach-ache/pain.	1	2	3	4	5	6	7
3. Chest/heart pain.	1	2	3	4	5	6	7
4. Runny and congested nose.	1	2	3	4	5	6	7
5. Faintness/dizziness.	1	2	3	4	5	6	7
6. Stiff/sore muscles.	1	2	3	4	5	6	7
7. Other, Please specify (Or circle 1 if no other symptoms): _____	1	2	3	4	5	6	7

This scale consists of a number of words that describe different feelings and emotions. Read each item and then indicate to what extent you have felt this way over the past few weeks, using the scale provided. (9)

I have generally felt...	Not at all	A Little	Moderately	Quite a bit	Extremely
1. Interested.	1	2	3	4	5
2. Distressed.	1	2	3	4	5
3. Excited.	1	2	3	4	5
4. Upset.	1	2	3	4	5
5. Strong.	1	2	3	4	5
6. Guilty.	1	2	3	4	5
7. Scared.	1	2	3	4	5
8. Hostile.	1	2	3	4	5
9. Enthusiastic.	1	2	3	4	5
10. Proud.	1	2	3	4	5
11. Irritable.	1	2	3	4	5
12. Alert.	1	2	3	4	5
13. Ashamed.	1	2	3	4	5
14. Inspired.	1	2	3	4	5
15. Nervous.	1	2	3	4	5
16. Determined.	1	2	3	4	5
17. Attentive.	1	2	3	4	5
18. Jittery.	1	2	3	4	5
19. Active.	1	2	3	4	5
20. Afraid.	1	2	3	4	5

END OF QUESTIONNAIRE. THANK YOU FOR YOUR PARTICIPATION!