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The relationship between basic psychological needs and achievement goals with physical activity and quality of life in a sample of Greek students.

by

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Trikala, Greece [2019]

Abstract

The main aim of the present study was to examine the relationships between basic psychological needs and achievement goals with physical activity and quality of life of Greek pupils. The sample was convenient and included 323 students (M_{age} = 14.81±.60 years old) that were selected from Greek elementary schools (n=86) and high-schools (n=237). Participants completed a questionnaire that included measures of out-of-school physical activity (frequency and quantity of PA), basic psychological needs, motivation for participation, achievement goals, intention for participation and subjective vitality. Results showed that PA variables (frequency and quantity of PA) and subjective vitality were positively related with autonomy, competence, relatedness, intention for participation in PA, mastery approach, performance approach and task orientation. Hierarchical regression showed that competence and mastery were the most significant predictors in all the examined variables (frequency of PA, quantity of PA, intention for PA, subjective vitality). Findings suggest that the motivational climate created by PE teacher plays an important role in pupils' PA levels, intention to participate in PA and quality of life.

Key words: **self- determination, achievement goals, subjective vitality, physical education, intention, students, hierarchical multiple regression analysis**

Declaration by Author

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No jointly-authored works.

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The author of this thesis had a great amount of help from Dr. Athanasios Papaioannou.

Statement of Parts of the Thesis Submitted to Qualify for the Award of Another Degree:

None.

Acknowledgments

It would not have been possible to write this thesis without the help and support of the extraordinary people around me, to only some of whom it is possible to give particular mention here. This thesis would not have been possible without the help, support, and patience of my principal supervisor, Professor Athanasios Papaioannou, not to mention his advice and unsurpassed knowledge in the area. The good advice and support of my other supervisors, Professor Nikos Zourbanos and Nikolaos Digelidis, has been invaluable on both academic and a personal level while I was writing thesis. I would like to acknowledge the academic support of the University of Thessaly and its staff, the library facilities and the computer facilities, have been indispensable. I would like to thank the Department of Physical Education, the team of IMPACT project and especially Postdoctoral Research fellow Charalampos Krommidas for their support and assistance.

I would also like to thank my EMSEP fellows for their support and express my gratitude for being able to participate and complete the European Master in Sport and Exercise Psychology program. Last, but not least, I thank my family and friends for unequivocal support throughout this process.

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Introduction

The role of physical activity (PA) in everyday life is particularly important for enhancing and improving somebody's health. Regular PA leads to physical and psychological benefits for children and adolescents (Sallis & Owen, 1999; Sallis & Patrick, 1994; Watson, Connole, & Kadushin, 2011). Also, PA is considered as one of the strongest contributors of improving children's quality of life, predicting maintenance in organized exercise programs and promoting active lifestyles (Eime, Harvey, Charity, Casey, van Uffelen, & Payne, 2015).

Many studies imply the importance of physical education (PE) in the promotion of PA both inside and outside of school. Based on the fact that students spend nearly half of their waking day in school (Lounsbery, McKenzie, Morrow, Monnat, & Holt, 2013), PE programs have the potential to inspire children and adolescents to find enjoyment of a more physically active lifestyle (Spengler & Woll, 2013). Furthermore, they can provide a safe and salient environment for PA and improve the students' well-being (Woods & Mutrie, 2012).

Many theories until today have attempted to examine the relationship between the social and environmental factors and the levels of PA of children and adolescents, in order to develop an intervention of promoting a more active way of living through PE (Brauman, Reis, Sallis, Wells et al., 2012). According to previous studies, the participation in PA through PE plays an important role not only in public health, but also in the development of children's personality and social life (Morris, 1991; Nelson, 1991; Pate, 1995; Van der Horst, Paw, Twisk, & Van Mechelen, 2007).

Although the impact of PA in children's life is widely acknowledged, a great number of children and adolescents spend less than 60 minutes of PA daily. This means that this number doesn't meet the recommendations of World Health Organization (WHO) about engaging in moderate to vigorous PA for at least 60-minutes per day. In addition, great concern has been

expressed nowadays about the sedentary lifestyle adopted by a significant number of adolescents (Basterfield, Adamson, Frary, Parkinson et al., 2011; Brodersen, Steptoe, Boniface & Wardle, 2007; Pate, Trost, Felton, Ward et al., 1997; Sallis, Prochaska,, & Taylor, 2000). This decrease in PA has negative consequences for the health of young people and leads them to adopt sedentary behaviors later as grown-ups (Sund, Larsson, & Wichstrom, 2011).

Until today, research attempts to examine the "*causes*" why children and adolescents are led to low levels of PA. For instance, results from a research by Carlson (1995) showed that a great number of students don't enjoy themselves or feel discouraged and amotivated when participating in PA. This may be a result of the way PE teachers treat their students or the competitive environment they "*create*" inside the class (Portman, 1995). In addition, Sallis, Prochaska and Taylor (2000), found that gender, prior involvement in PA, parents, access to sport facilities, intention to participate in PA, healthy eating and spending time in outdoor activities were also significantly related to the levels of PA among children and adolescents aged 3 to 12 years old.

When it comes to social factors, parents, teachers and support from friends play an important role in the participation of young people in PA, especially those who are coming from lowsocio-economic stages (Richter, Vereecken, Zambon, Boyce, & Gabhain, 2009; Stalsberg & Pedersen, 2010). Children from higher socio-economic backgrounds tend to report higher level of PA compare to those from lower socio-economic status. Eyre, Duncan, Birch and Cox (2015) state that environmental and social factors, such as poor access, safety and school environment can influence the children's participation in PA. Based on that, schools and PE teachers have the opportunity to provide a supportive environment for children's PA behavior and reduce their sedentary behavior.

Based on the previous review of literature, which is mostly based on self-reported

questionnaires, it seems that the levels of PA among children and adolescents, especially from low socio-economic status, have been decreased dramatically. For this reason, we should focus on the "*causes*" why children and adolescents are led to low level of PA. Intervention programs at school need to be organized in order to increase the levels of PA, reduce the obesity and improve the health and the quality of life of children and adolescents.

Two of the key motivational theories which are used in the PE field in order to examine ***why*** someone is participating in a sport or in PA are the **Achievement Goal Theory** (Duda & Nichols, 1992; Nichols, 1989) and the **Self Determination Theory** (Deci & Ryan, 1985; 2000).

Literature Review

Achievement Goal Theory

Achievement goal theory is a social psychological model that aims to understand the role of motivational orientations regarding competence on behavioral and psychological outcomes (Fox & Cordin, 1989). The core of this theory is the individual's view of competence and the effect of social environment on individual's motivational orientations and actions (Ntoumanis & Biddle, 1999).

Research on student's achievement motivation has mainly focused on two different goal orientations, the task oriented goal and the ego oriented goal (Nicholls, 1989; Duda, 1995). Depending on what is understood as competence, individuals may be oriented to achieve a better performance than others and "*gain*" social approval (ego oriented individuals) or they may be oriented towards mastering a task (task oriented individuals). For task oriented individuals the "*key for the evaluation*" of competence is self- mastery, whereas in the case of ego orientation is based on outperforming others. Both orientations can lead to high perceptions of competence, however, the problem is that under conditions of failure,

individuals with high ego orientation and low task orientation tend to feel incompetent (Vello & Hagger, 2007).

Several authors (e.g., Duda, 2001; Escarti, Cervello, & Guzman, 1996) have also found that individuals who are ego oriented have difficulties in maintaining the feeling of competence and adapting positive behaviors and attitudes. This may result in the abandonment of PA later in their life. Quite often, ego orientation leads students to choose easier tasks and learning strategies, experience social anxiety and negative emotions and distance themselves from the task when difficulties are encountered (e.g., Biddle, Wang & Kavussaru, 2003; Bortoli, Bertollo, Comari, & Robazza, 2011; Dweck & Leggett, 1988; Kaplan & Maehr, 2007). On the other hand, task orientation can lead students to select more challenging tasks and study strategies while having a positive feeling and attitude towards learning (e.g., Fox, Goudas, Biddle, Duda, & Armstrong, 1994; Standage & Treasure, 2002; Xiang, McBride, Bruene, & Liu, 2007).

Most of the achievement goal research in PE has been guided by the dichotomous achievement goal framework (Ames, 1992; Nicholls, 1989; Solmon & Boone, 1993; Spray & Biddle, 1997; Walling & Duda, 1995; Xiang & Lee, 2002; Elliott, McKinley, Alison et al., 2011). It was Elliot and his colleagues (1996) the ones who divided the two goals into performance (ego) and mastery (task). Soon, they also proposed a trichotomous approach-avoidance achievement framework in order to clarify better the role of performance goals in students' outcomes (e.g., Elliot & Harackiewicz, 1996; Elliot & Church, 1997). In this framework, mastery goals remained the same as the dichotomous framework, but the performance goal construct was divided into performance approach and performance avoidance goals. The performance approach goal concentrated on achievement and competence relative to others, while the performance avoidance goal focused on avoidance of incompetence relative to others.

Elliot and McGregor (2001) then proposed a structure of 2x2 model of achievement goals, which is an approach that emphasizes two types of goals: mastery and performance goals. Mastery goals are associated with task mastery and positively connected with internal motivational factors, while performance goals are associated with demonstration of competence and positively connected with worrying about performance (Walling, Duda, & Chi, 1993; White & Zallner, 1996). In addition, researchers such as Elliot (1999) and Pintrich (2000) go further to dichotomize mastery goals into mastery approach goals and mastery avoidance goals. Students with mastery- approach goals focus on the development of competence for their own sake (Elliot & McGregor, 2001) and strive to master the task they are working on in order to feel "complete" as characters. Their motivation is on learning in order to improve their knowledge and their abilities. The emphasis therefore is on the self-improvement. On the contrary, students with mastery- avoidance goals are motivated to avoid situations in which they are unable to learn, and they tend to worry about their inability to master the task. That leads a learner with a high mastery- avoidance orientation to choose easier learning materials or solve easier problems.

Achievement Goals in the Physical Education

Achievement goal theory is very important to understand students' achievement motivation and behavior in PE (Agbuga & Xiang, 2008; Guan, Xiang, McBride, & Bruene, 2006). It is well known that PE teachers need to design school PE programs in order to foster the physical literacy and the student learning. Until now, through the existing literature and studies, it is clear that each achievement goal theoretical model (i.e. dichotomous, trichotomous, 2x2) have different consequences for pupils.

In the dichotomous model, task goals can demonstrate a positive association with pupils' affective, cognitive and behavioral outcomes (Theodosiou, Mantis, & Papaioannou,

2008), self- reported enjoyment (Vlachopoulos, Bibble, Symeon, & Stuart, 1996), intrinsic motivation (Papaioannou, Tsigilis, Kosmidou, & Milosis, 2007), positive emotions (Ntoumanis & Biddle, 1999) and high levels of PA participation (Tzetzis, Goudas, Kourtesis, & Zisi, 2002).

Walling and Duda (1995) found that students who are high in ego orientation, were more likely than low ego oriented students to express the belief that success in PE is achieved when they possess high ability. Furthermore, high task oriented students were significantly likely to believe that success is achieved through intrinsic interest in the activity and cooperation. White and Zellner (1996) also stated that pupils with high ego orientation showed higher level of cognitive anxiety than those with high task orientation. Papaioannou and Duda (1993) have reported a positive relationship between a task orientation and intrinsic motives for participation with a sample of Greek PE students.

Vlachopoulos and his colleagues (1996) examined the influence of different goal orientation in children following PA in a PE class. Task orientation predicted positive engagement, tranquility and revitalization for pupils. On the contrary, ego orientation predicted positively physical exhaustion. Furthermore, limited research in the domain of PE with French students (Cury, 2000; Cury, Da Fonseca, Rufo, Peres, & Sarrazin, 2003) found that performance approach goals are linked to positive results such as low state anxiety and higher participation in PE.

It is widely known that high task oriented students experience more positive emotions in PE than the low task oriented students (Christodoulidis & Papaioannou, 2001), especially considering that an ego goal climate can foster antisocial tendencies, like cheating during PE. (Duda, Olson, & Templin, 1991). Also, an ego oriented or "*disempowering*" climate controls students and can cause false social behaviors like competition and negative interactions (Duda, 2013; Roberts & Papaioannou, 2014).

Mastery orientation in PE is a positive predictor of exercise and promotes physically active lifestyles, exercise involvement and pleasant affect for pupils (Papaioannou & Simou, 2009). Papaioannou and Milosis (2009) with the application of "*an interdisciplinary curriculum*" in PE enhanced the personal improvement goal in life, had positive affect on satisfaction in PE and promoted life-skills in out-of-school situations.

Based on Nicholl's model and focusing more on the effects of achievement goals on others, Papaioannou, Simou, Kosmidou, Milosis and Tsigilis (2009) found that mastery approach goals led to beliefs that life is about contributing to society and PE serves as a way to promote active lifestyles among young people.

Elliot (1999) stated that performance approach goals come from the need for achievement and performance avoidance approach from the fear of failure. Later, new findings go beyond previous Elliot's concussion, by revealing that the difference between performance approach and performance avoidance goals is the different beliefs about the purposes of PE and life in general.

A number of researchers (e.g., Kaplan & Maehr, 2007; Roberts et al., 2007) stated that achievement goals reflect beliefs and values. Papaioannou and Karakanta's (2010) study supports Nicholl's theory that mastery goals are connected with the individual's concern for society and well-being of others. In contrast to that, performance approach goals are associated with making one's interest a priority and achieving the feeling of success. For example, in a study by Papaioannou, Doxakis, Van Stam and Bakker (2009) athletes with performance oriented goals were more focus on outperforming others and adopt aggressive styles and tactics.

A late study by Rudisill (2014) stated that a mastery motivational climate in a PE class has positive effect on PA behaviors (intentions to be PA in the future, positive affect and belief that effort leads to success). On the contrary, when students adopt performance

oriented goals, they are led to maladaptive behaviors and maybe even to amotivation to be physically active (Maehr, 1984; Ntoumanis & Biddle, 1999, Dunn, 2000; Parish & Treasure, 2003).

Achievement Goals Measurements

For over three decades now, the research focused on the achievement motivation is mainly based on the achievement goals construct by Nicholls (1984). In this model as was mentioned before, there are two goal types: task or ego oriented (Duda, 1993; Nicholls, 1989). Although this task-ego goal orientations tried to understand the "*why*" someone is feeling motivated to participate in PA (Digelidis & Papaioannou, 1999), goals can also differ considering that every individual is different, and every environment has other situational demands. Initially, theorists used a performance- mastery goal dichotomy to explain this, but later Elliot and Church (1999) extended this model comprising performance approach, performance avoidance, mastery approach goals. These new goals tried to examine the tendency to avoid the feeling of incompetence relative to others. This trichotomous model was applied by Cury et al. (2002) in PE settings and provided more understanding on how achievement goals function in sport and educational contexts. At the same time, Elliot and Thrash (2001) proposed a 2x2 goal orientation model, adding the mastery avoidance goal. Based on this model, Papaioannou et al. (2002) took also into consideration that social acceptance has important consequences in students' motivation both in PE and life in general. He proposed that goal orientations operate at the global higher order level, global lower-order level, contextual level and situational level of generality and supported the existence of 4 goal orientations (personal development, ego-protection, ego-strengthening and social acceptance).

The main difference between Nicholls' and Elliot's model, is the meaning of the aim

and the reason in achievement goals. For Elliot, the reason (the why someone has this behavior) and the aim (what of behavior) should be investigated separately. Duda's measure does not separate aim from reason and in her questionnaires, participants are asked to answer when they feel successful and give the reason why. On the contrary, Elliot's measures are more focused on aims and start with "*My aim is….*". Papaioannou et al. (2012) stated that Elliot's instrument can be used as a more situation- specific measurement, compared to Nicholls' and Duda's model which is more appropriate to be used for assessing students' dispositional goal orientations.

Basic Psychological Needs

According to the theory of Self-Determination, there are three basic psychological needs for all people, which must be satisfied in order to improve their personal development and reach their maximum level of functioning in every social context of their life (Deci & Ryan, 2000; Deci & Ryan, 2012; Standage & Ryan, 2012). These three basic psychological needs are autonomy, competence and relatedness (Deci & Ryan, 2000; Ryan et al., 2009).

More specifically in PE setting, *autonomy* relates to students' ability to make choices in their learning environment. They can make decisions during the lesson and have the freedom to choose the difficulty of the task based on the skill they need to work on (Deci & Ryan, 1985; Ryan & La Guardia, 2000). *Competence* can be described as the ability of a student to perform the required behavior, in order to accomplish a given task. For example, in PE, by giving students opportunities to practice more and providing feedback, can reinforce their feelings of competence (Deci & Ryan, 1985, 2000). Finally, *relatedness* refers to the feeling that somebody has when the others respect him/ her, care for him /her, show interest in him/ her and understand him/ her (Ng., Ntoumanis, Thøgersen-Ntoumani, Deci, & et al., 2012; Ryan et al., 2009; Standage & Ryan, 2012). This can only be accomplished in a PE class by

working in a collaborative environment or using team- building activities (Baumeister & Leary, 1995; Deci & Ryan, 2000).

Grounded in Self-Determination Theory (Deci & Ryan, 2000), many studies provided a conceptual framework for understanding the influence instructors have in facilitating student learning. For example, a teacher-centered learning environment focuses more on the needs and perspective of the instructor. In contrast, a student-centered learning environment is about the high level of student engagement in the learning process. This environment allows students to achieve the three basic psychological needs (Deci & Ryan, 2000). Basic needs theory (BNT) is a particularly applicable framework for examining the predictors of children's physical activity, for psychological functioning and goal pursuit. BNT suggests that the extent to which a person is intrinsically motivated depends on satisfaction on his or her basic psychological needs.

Experiences of competence and autonomy are both theoretically proposed to be necessary conditions for the maintenance of intrinsic motivation (Deci & Ryan, 1985, 2000). Based on this, several past studies have been conducted to examine the relationship between motivation, perceived goal orientation and experience. For example, Graef, Csikszentmihalyi, & McManama (1983) found that intrinsically motivated activities are more positively experienced than extrinsically motivated activities. Ryan & Deci (2007) further suggest that intrinsic motivation is more likely to exist where need for relatedness is supported. That is, when people feel relationally insecure, they are more defensive and afraid to experience interest, enjoyment and intrinsic motivation in their activities.

The satisfaction of the basic psychological needs will also determine a series of consequences on a cognitive, affective and behavioral level (Braithwaite, Spray, &Warburton, 2011). This relationship has been verified with increase in self-esteem and satisfaction with life (Balaguer, Castillo, &Duda, 2008), enjoinment (Calvo, Mighuel,

Marcos, Oliva, & Alonso, 2012), improving decision-making, or the perception of effort (Moreno, Cervello, Montero, Vera, &Garcia, 2012).

Basic Psychological Needs in Physical Activity

The physical domain context (e.g., exercise, sport or physical activity) is relevant to the predictive nature of which specific basic psychological need is related to self-determined motivation. Individual's levels of self-determination in that context differences can exist based on the demographic aspects (e.g., age, weight, socioeconomic status) or the level of PA of the sample examined (Edmunds, Ntoumanis, & Duda, 2006; Vierling, Standage, & Treasure, 2007).

It is well known that basic psychological needs theory (Deci & Ryan, 2000) provides a well- supportive framework that explains how social relationships support participation in PA and well- being. This framework also states that three characteristics of positive social interactions, autonomy support, relatedness and competence encourage psychological need satisfaction (Deci & Vansteenkiste, 2004). PE teachers tend to use the framework of task orientation in order to promote student autonomy, relatedness and competence: a) Autonomy support comes from the ability and freedom of individuals to voice their opinion and make their own decisions (Deci & Ryan, 1991; Standage, Duda, & Ntoumanis, 2005), b) Relatedness can be achieved with emotional and instrumental resources that are caring and respectful for the ones participating (Mageau & Vallerand, 2003); and c) Competence can be provided by setting clear guidelines and supplying feedback (Mageau & Vallerand, 2003; Standage et al., 2005).

During the last few years, the existence of basic psychological needs' theory inside SDT research is much needed, especially in the exercise and PE domain (Hagger & Chatzisarantis, 2007). The needs are considered to be innate in their positive influence on vitality, well-

being and exercise participation. That is, gymnasts who had higher perceptions of support for relatedness, autonomy and competence, had accomplished more positive affect, high self-esteem, more vitality and less negative affect. In a study of Adie, Duda and Ntoumanis (2008), it was found that coach autonomy support predicted satisfaction of all 3 basic needs and this basic need satisfaction predicted greater subjective vitality among exercisers. The needs have also been shown to contribute to reduced experiences of psychological distress and negative affect during exercise participation (Wilson, Mack, Blanchard, & Gray, 2009) and enhanced subjective vitality (Wilson & Rogers, 2008).

Vansteenkiste, Simon, Lens, Sheldon and Deci (2004) analyzed the effect of need satisfaction on secondary school students' exercise engagement and participation in PE. The exercises were exhibited in a need supportive or controlling way for the students and the results demonstrated that, in the need supportive setting, participants showed greater effort and get higher participation and performance scores.

Sanchez-Oliva et al. (2014) stated that in order to encourage the out of school PA, it is important PE teachers to promote enjoyment and free choice towards PA through PE activities. In this way, they can foster the basic psychological needs and promote the extracurricular sport or PA participation. (Barkoukis, Hagger, Lambropoulos & Tsorbatzoudis, 2010)

A study by Quaresma, Palmeira, Martins, Minderico & Sardinha (2015) with a sample of youngsters between 10 to 16 years old in Portugal, showed that perceived social support-relatedness, especially perceived parental and peer support led to positive changes in PA. These positive changes later, were associated with increased autonomous motivation. Also, competence was the main predictor of positive changes in quality of life but increased perceived parental- peer support and relatedness cause positive changes too.

PE programs in school can inspire adolescents to adopt a more physically active

behavior in all aspects of their life by increasing student's intrinsic motivation to stay active and defining clearly the meaning of intrinsic life goals (Sigvartsen, Gabrielsen, Abildsnes, Stea, & Rohde, 2016). This is something important considering that obese youth have a reduced quality of life during the last decades, especially in their perceptions regarding physical appearance, competence and social functioning (Griffiths, Parsons, & Hill, 2010).

Purpose of the study

This thesis is part of the implementation and evaluation of an innovative educational intervention program called "*IMPACT: Identifying and Motivating Youth who mostly need Physical ACTivity*". The aim of this project is to train PE teachers to promote physical activity (PA) through Physical Education (PE). This thesis is based on the theories of Self-Determination (SDT; Deci & Ryan, 1985, 2000) and Achievement Goals (AGT; Duda & Nicholls 1992; Nicholls, 1989) and tries to identify the relationship between basic psychological needs (autonomy, competence and relatedness) and achievement goals (task and ego orientation, mastery and performance approach goals) with PA variables (frequency and quantity of PA, intention to participate in PA), quality of life (subjective vitality).

Aims and hypotheses

In line with the existing literature and suggestions about the important role of basic needs and achievement goals on pupils' PA and subjective vitality, the purpose of the present studywas to explore the relationships between the three psychological needs and goal orientations with (a) PA variables (frequency,quantity, intention) and (b) quality of life in a sample of Greek students. We expected, that goal orientations (i.e., task and ego orientation, mastery/performance approach) and basic psychological needs (autonomy, competence and

relatedness) would be significantly related to the PA variables (frequency, quantity and intention for PA) and pupils' subjective vitality. More specifically, it was hypothesized that:

Basic psychological needs would be positively related to PA variables (frequency, quantity and intention to be PA) and subjective vitality.

Mastery approach and task orientation would positively predict PA variables (frequency, quantity and intention) and subjective vitality.

Ego orientation and performance approach would negatively or not predict significantly PA variables (frequency, quantity and intention to be PA) and subjective vitality.

There would be gender and age differences on students' PA levels (frequency and quantity of PA) and intention for participation in PA.

Methodology

Participants

The sample consisted of 323 pupils, aged 14 to 16 years old (M_{age} = 14.81 ± .60 years old) from nine secondary and high schools in Greece. One hundred thirty-seven (n=137) were boys and 183 were girls, while three pupils did not report their gender. Moreover, 86 of them were secondary school pupils, while 237 of them were high school/ Lyceum pupils.

Instruments

For the data collection, an online questionnaire was used, which was distrusted electronically via a PC. This electronic questionnaire consisted of questions that measured pupils' levels of physical activity, their intention to be physically active, their motivation for participation in physical education (achievement goal orientation and basic psychological needs) and their quality of life. All participants answered the questions using a PC and their answers were given through 5-level and 7-level Likert Scale.

Procedure

This study was part of a European Erasmus+ Program called IMPACT Project (Identifying and Motivating youth who mostly need Physical ACTivity). The study was carried out after a license issued by the Institute for Educational Policy (Ι.Ε.Π.) for primary and secondary schools. Furthermore, the ethics committee of the department of Physical Education and Sports Science of the University of Thessaly (T.E.F.A.A.) approved the study during the 2018-2019 school year. Following university approval, a consensus document, in which parents and students consent to their participation in this survey, was sent, detailing the purpose and protocol of the study. If the parents did not agree with the pupil's participation in the study or the student himself/herself denied it, then the student didn't participate in the research.

Participants were selected by random sampling and were asked to respond to various anonymous self- referencing questions during the course of physical education. In addition, each student had been given a code that was his/her identity in the study. The process of completing the electronic questionnaire took about 35 minutes. The choice of school units was done in a way to ensure that participants came from urban and semi- urban areas of Greece in order to have different social, economic background and lifestyle.

Measurement – Questionnaires

Demographics: Gender issues (boy, girl), age, number of siblings, country of birth, place of residence (city, town, village), educational grade and nationality.

Physical activity**:** Two items from Prochaska, Sallis and Long (2001) which assess the **frequency** of PA and an item from Booth, Okely, Chey and Bauman (2001) which assesses the **total amount of participation in moderate-to-vigorous PA. .** Students had to respond to

two questions that evaluate the frequency of participation in moderate-to-vigorous PA (for example "*During the last 7 days, how often have you been physically active for at least 60 minutes each day?*"). The answer has to be on a 7-level Likert scale from 0 (never) to 7 (every day). Also, students should answer the following question: "I*n your free time, how many hours do you usually exercise physically until you sweat or gasp?*" Possible answers from the participants will be: "*Not at all*", "*About half an hour per week*", "*About one hour per week*", "*About 2-3 hours per week*", "*About 4-6 hours per week*" or "*Approximately 7 hours per week*" (Booth et al., 2001). These questions have already been used in the Health-behavior in School-aged Children (HBSC) of the World Health Organization- WHO and other researchers as well in Greece (Krommidas, Galanis, Papaioannou, Tsimoukis, Keramidas and Diggelidis, 2016).

Basic Psychological Needs: We used a questionnaire measuring the satisfaction of the three basic psychological needs of Dee & Ryan, 1985, 2000 (autonomy, competence and relatedness). All questions were headlined by the following sentence: "During the previous month, in the course of Physical Education…"

Autonomy was examined with 5 questions based on previous work by Standage, Duda & Ntoumanis (2005). Questions were like: "I decided what exercises I wanted to practice" or "It was my choice to play".

Competence was examined based on the Intrinsic Motivation Inventory (IMI) Questionnaire by McAuley, Duncan and Tammen (1989). In this questionnaire, competence was addressed with 6 questions like: "*I thought I was good enough in physical education class" or "I felt very capable*".

Finally, the factor of relatedness was evaluated with four questions based on previous work of Richer and Vallerand (1998) with the form: "*I felt that my classmates to*

argue" and "*I felt that classmates they gave me value.*" All participants' answers are given on a 5-level Likert scale from 1 (Totally Disagree) to 5 (Totally Agree). Previous studies in the field of physics have mainly supported the credibility and validity of the above questionnaires (e.g., Ntoumanis, 2001; Standage, Duda & Ntoumanis, 2003). This questionnaire has been used in studies in Greece, mainly in the field of children's football (Krommidas, Papaioannou, Galanis, Zourbanos, Tzioumakis & Hatzigeorgiadis, 2015) and in Physical Education (Papaioannou, Zourbanos, Dikarou, Krommydas & Digelidis, 2015).

Achievement Goals: We used the Task & Ego Orientation in Sport Questionnaire, (TEOSQ; Duda & Nicholls, 1992), adapted to the course of PE, in order to evaluate students' personal orientations. This questionnaire, consisting 13 questions in total, is designed in order to assess whether a student defines success in PE as "*task orientated*" or "*ego oriented*". The first factor, task orientation had 7 questions of the following type: "*I feel totally successful in Physical Education when… I'm learning a new exercise, and this makes me want to practice more*" and the second factor, ego orientation had 6 questions like: "I *feel totally successful in Physical Education when… I can do better than my classmates*". The answers were given in a Likert five-step scale from 1 (totally disagree) to 5 (totally agree). A large number of researchers have been using this questionnaire in Greek, mainly for research in the Physical Education domain (e.g., Digelidis & Papaioannou, 1999; Digelidis, Papaioannou, Laparidis & Christodoulidis, 2003; Papaioannou, Bebetsos, Theodorakis, Christodoulidis & Kouli, 2006).

A modified form of the Cury, Elliot, Da Fonseca and Moller's (2006) questionnaire was used to evaluate students' personal orientations (mastery and performance approach goals). Three items assessed each goal. For instance, a question for assessing the performance approach orientation is the following: "*In games and sports in Physical Education lesson, my*

goal is…to perform better than my classmates" and a question for assessing the mastery approach orientation: "I*n games and sports in Physical Education lesson, my goal is…to do better than I usually do.*". The answers were given in a Likert seven-step scale from 1 (totally disagree) to 7 (totally agree).

Intention to be physically active: A questionnaire evaluating the "*Intention"*, was develop based on Ajzen's theory and guidelines (1991; 2006). This questionnaire includes three questions about Intetion to be physically active the next … (a total of 3 questions).

Questions about "*Intention*" like "*During next month… I plan to be physically active at least 3 times a week, 60 minutes at a time*" and the answers were given in a 7-Likert scale from 1 (very unlikely) to 7 (very possible).

The above scales have been used in a large number of studies in the field of sport and Physical Education (e.g., Chatzisarantis, Hagger, & Smith, 2007; Hagger, Chatzisarantis, Hein, Soós, Karsai, Lintunen, & Leemans, 2009; Standage et al., 2003; Theodorakis, 1994).

Subjective Vitality: The scale of subjective vitality (Ryan & Frederick, 1997) was used to measure the energy and vitality of students. 5 questions were included in the questionnaire, such as ("*I felt that I had a lot of energy..."*) and the participants' answers had to be given on a 5-level Likert scale from 1 (Totally Disagree) to 5 (Totally Agree).

Statistical analysis

All statistical analyses were conducted by using the Statistical Package for Social Science software (SPSS; version 15.0). Descriptive statistics (mean, standard deviation), Cronbach's α and correlation analysis of the examined variables (frequency of PA - days/

week, quantity of PA - hours/ week, intention to be physically active, subjective vitality, autonomy, competence, relatedness, mastery approach, performance approach, task and ego orientations) were calculated. Separate hierarchical regression analyses were conducted having as dependent variables the PA (frequency and quantity of PA), the intention to be physically active, the subjective vitality and as independent variables the three basic needs (autonomy, competence, relatedness) and the achievement goals (mastery approach, performance approach, task, ego). Finally, in order to test possible gender and age differences on pupils' PA levels, intentions to be physically active and subjective vitality, separate two-way analyses of variance (Two-Way Anova) were used. The level of significance was set at $p < .05$.

Results

Descriptive statistics, reliability and correlation analyses

Means, standard deviations, reliabilities and correlation analyses of the examined variables are presented below in Table 1. In general, pupils had high scores in intention to be physically active, moderate scores in PA variables, subjective vitality, autonomy, competence, relatedness and task orientation, and low scores in ego orientation. Cronbach's α ranged from .74 to .92. Moreover, correlation analysis showed that PA (frequency and quantity of PA) and subjective vitality was positively related with intention to be physically active, autonomy, competence, relatedness and task orientation goal. Similarly, PA was positively related to subjective vitality.

Table 1. Means, standard deviations, Cronbach's α and correlation analysis of the examined variables

Variables	*M*	*SD*	*α*	1	2	3	4	5	6	7	8	9	10	11
1. Frequency of PA (days/ week)	3.70	1.79	.91	-										
2. Quantity of PA (hours/ week)	3.21	1.38	-	.68**	-									
3. Intention to participate in PA	4.75	1.89	.92	.43**	.52**	-								
4. Subjective Vitality	3.63	.82	.88	.34**	.29**	.33**	-							
5. Autonomy	3.56	.76	.74	.15*	.19**	.21**	.28**	-						
6. Competence	3.77	.81	.91	.35**	.34**	.33**	.28**	.50**	-					
7. Relatedness	3.39	.77	.83	.21**	.19**	.20**	.29**	.63**	.57**	-				
8. Mastery Approach	5.56	1.21	.88	.31**	.29**	.36**	.36**	.34**	.34**	.32**	-			
9. Performance Approach	3.83	1.44	.76	.15**	.16**	.17**	.17**	.08	.22**	.22**	.25**	-		
10. Task orientation	3.77	.72	.85	.28**	.24**	.28**	.30**	.44**	.54**	.46**	.58**	.20**	-	
11. Ego orientation	2.48	.90	.87	.09	.11	.11	-.00	.02	.19**	-.06	-.05	.44**	.15**	-

* $p < .05$, ** $p < .001$

Regression analyses

A hierarchical regression analysis was used to predict frequency of PA (days/ week) from the three basic needs (autonomy, competence, relatedness) at Step 1, the mastery approach and performance approach goals at Step 2 and the task and ego orientations at Step 3 (Table 2). The results of the first regression analysis revealed that in Step 1 only competence had unique contributions in the explanation of the total variance of PA frequency (days/ week). The entry of mastery approach and performance approach goals in the next step increased significantly the explanation of the total variance. At the second step, competence and mastery goals had unique positive contributions in the explanation of the variance of PA frequency (days/ week). Similarly, the entry of task and ego goals in the third step did not contribute significantly in the explanation of the total variance of PA frequency (days/ week).

Table 2. Hierarchical regression analysis of the PA frequency (days/ week)

Frequency of PA	**Independent variables**	***R***	***R²***	***Fchange***	***β***	***t***	***p***
Step 1		.33	.11	10.298***			
	Autonomy				-.014	-.176	.860
	Competence				.318	4.314	.000**
	Relatedness				.035	.416	.678
Step 2		.39	.15	6.101**			
	Autonomy				-.052	-.672	.502
	Competence				.276	3.721	.000**

	Relatedness			.018	.225	.822
	Mastery approach			.215	3.309	.001*
	Performance approach			.015	.245	
Step 3		.39	.15	.158		
	Autonomy			-.047	-.608	.544
	Competence			.285	3.569	.000
	Relatedness			.026	.314	.754
	Mastery approach			.235	3.163	.002
	Performance approach			.010	.139	.890
	Task orientation			-.044	-.534	.594
	Ego orientation			.016	.231	.818

* $p < .01$, ** $p < .001$

Similarly, a hierarchical regression analysis was used to predict quantity of PA (hours/ week) from the three basic needs (autonomy, competence, relatedness) at Step 1, the mastery approach and performance approach goals at Step 2 and the task and ego orientations at Step 3 (Table 3). The results of the first regression analysis revealed that in Step 1 only competence had unique contributions in the explanation of the total variance of PA quantity (hours/ week). The entry of mastery approach and performance approach goals in the next step increased significantly the explanation of the total variance. At the second step, competence and mastery goals had unique positive contributions in the explanation of the variance of PA quantity (hours/ week). Finally, the entry of task and ego goals in the next step did not contribute significantly in the explanation of the total variance of PA quantity (hours/ week).

Table 3. Hierarchical regression analysis of the PA quantity (hours/ week)

Quantity of PA	**Independent variables**	***R***	***R²***	***Fchange***	***β***	***t***	***p***
Step 1		.34	.12	10.907**			
	Autonomy				.065	.829	.408
	Competence				.308	4.192	.000**
	Relatedness				-.008	-.099	.921
Step 2		.41	.17	7.577**			
	Autonomy				.024	.310	.757
	Competence				.260	3.529	.000**
	Relatedness				-.024	-.290	.772
	Mastery approach				.230	3.593	.000**
	Performance approach				.033	.545	.586
Step 3		.41	.17	.515			
	Autonomy				.031	.397	.692
	Competence				.272	3.458	.001
	Relatedness				-.009	-.107	.915
	Mastery approach				.266	3.632	.000
	Performance approach				.019	.277	.782
	Task orientation				-.073	-.907	.365
	Ego orientation				.039	.570	.569

* $p < .01$, ** $p < .001$

Subsequently, a hierarchical regression analysis was used to predict intention to be physically active (PA) from the three basic needs (autonomy, competence, relatedness) at Step 1, the mastery approach and performance approach goals at Step 2 and the task and ego orientations at Step 3 (Table 4). The results of the first regression analysis revealed that in Step 1 only competence had unique contributions in the explanation of the total variance of intention to be PA. The entry of mastery approach and performance approach goals in the next step increased significantly the explanation of the total variance. At the second step, competence and mastery goals had unique positive contributions in the explanation of the variance of intention to be PA. Finally, the entry of task and ego goals in the third step did not increase significantly the explanation of the total variance of intention to be PA.

Table 4. Hierarchical regression analysis of the intention to be physically active (PA)

Intention to be PA	**Independent variables**	***R***	***R²***	***Fchange***	***β***	***t***	***p***
Step 1		.36	.13	12.490**			
	Autonomy				.143	1.819	.070
	Competence				.295	3.971	.000**
	Relatedness				-.38	-.451	.652
Step 2		.44	.19	9.532**			
	Autonomy				.094	1.218	.224
	Competence				.235	3.182	.002*
	Relatedness				-.056	-.684	.495

	Mastery approach				.259	4.034	.000**
	Performance approach				.039	.638	.524
Step 3		.46	.21	2.460			
	Autonomy				.094	1.217	.225
	Competence				.208	2.655	.008
	Relatedness				-.025	-.307	.759
	Mastery approach				.304	4.161	.000
	Performance approach				-.028	-.410	.682
	Task orientation				-.043	-.540	.590
	Ego orientation				.149	2.213	.028

* $p < .01$, ** $p < .001$

Finally, a hierarchical regression analysis was used to predict subjective vitality from the three basic needs (autonomy, competence, relatedness) at Step 1, the mastery approach and performance approach goals at Step 2 and the task and ego orientations at Step 3 (Table 5). The results of the first regression analysis revealed that in Step 1 only competence had unique contributions in the explanation of the total variance of subjective vitality. The entry of mastery approach and performance approach goals in the next step increased significantly the explanation of the total variance. At the second step, only mastery goals had unique positive contributions in the explanation of the variance of subjective vitality. Similarly, the entry of task and ego goals in the next step did not increase significantly the explanation of the total variance of subjective vitality.

Table 5. Hierarchical regression analysis of the subjective vitality

Subjective vitality	**Independent variables**	***R***	***R²***	***Fchange***	***β***	***t***	***p***
Step 1		.35	.12	11.956**			
	Autonomy				.099	1.247	.214
	Competence				.170	2.267	.024*
	Relatedness				.144	1.702	.090
Step 2		.44	.19	10.221**			
	Autonomy				.052	.669	.504
	Competence				.100	1.341	.181
	Relatedness				.129	1.559	.120
	Mastery approach				.243	3.777	.000**
	Performance approach				.088	1.464	.145
Step 3		.44	.19	.630			
	Autonomy				.044	.567	.571
	Competence				.090	1.133	.258
	Relatedness				.112	1.337	.183
	Mastery approach				.204	2.779	.006
	Performance approach				.108	1.601	.111
	Task orientation				.077	.956	.340

Ego orientation	-.050	-.738	.461

* $p < .01$, ** $p < .001$

Gender and age differences on pupils' PA levels, intentions to be physically active and subjective vitality

Regarding frequency of PA (days/ week), two way analysis of variance (Two-Way Anova) revealed no significant age effect ($F_{2,303} = .793$, $p = .453$), nor a significant interaction between gender and age ($F_{2,303} = .859$, $p = .425$), but a significant gender effect ($F_{2,303} = 11.087$, $p < .01$). Boys reported higher scores in frequency of PA ($M = 4.10 \pm 1.88$) compared to girls ($M = 3.39 \pm 1.67$).

Regarding quantity of PA (hours/ week), results showed no significant age effect ($F_{2,305} = 1.806$, $p = .166$), nor a significant interaction between gender and age ($F_{2,305} = .090$, $p = .914$), but a significant gender effect ($F_{2,305} = 7.245$, $p < .01$). Boys engaged more hours per week in PA ($M = 3.49 \pm 1.46$) compared to girls ($M = 3.00 \pm 1.30$).

Regarding intention to be physically active, results revealed no significant age effect ($F_{2,294} = 2.617$, $p = .075$), a significant gender effect ($F_{2,294} = 3.846$, $p = .05$), and a significant interaction between gender and age ($F_{2,294} = 4.938$, $p < .01$). Analyzing interaction effect in terms of gender, results showed that there were significant gender differences only for the 14 years old pupils ($F_{1,294} = 9.612$, $p < .01$). More specifically, fourteen years old boys reported higher scores on intention to be physically active ($M = 5.83 \pm 1.41$) compared to girls of the same age ($M = 4.53 \pm 1.93$). On the other hand, there were no significant gender differences between fifteen ($F_{1,294} = .788$, $p = .375$) and sixteen years old pupils ($F_{1,294} = .904$, $p = .342$).

Finally, regarding subjective vitality, two way analysis of variance (Two-Way Anova) revealed no significant age effect ($F_{2,299} = 1.068$, $p = .345$), nor a significant gender effect ($F_{2,299} = 1.905$, $p = .169$), and nor a significant interaction between gender and age ($F_{2,299} = .025$, $p = .976$).

Discussion

The present study, as mentioned in the introduction, had the following aims: 1) To assess pupils' PA levels by using subjective methods (questionnaires), 2) to examine the possible relationship between pupils' self-reported PA (frequency, quantity and intention) with basic psychological needs (autonomy, competence and relatedness) and achievement goal orientations (task, ego, mastery, performance) for participation in out-of-school PA, 3) to examine the relationship between basic psychological needs and achievement goals with the quality-of-life variable (subjective vitality). To answer these research questions, hierarchical regression analysis was employed and obtained results mostly corroborated previous research findings and hypotheses of this study. Briefly, competence and mastery approach goals explained the most variance of all PA indicators used in this study as well as proved to be the best and most reliable predictors of PA variables and subjective vitality. These results added more evidence in the literature examining these relationships and our main hypothesis was confirmed.

More specifically, regarding the relationship between PA variables (frequency and quantity), intention to be physically active and subjective vitality, results showed that both intention and subjective vitality were positively related to the frequency and quantity of PA. Previous studies have reported that intention for participation in PA has consistent and positive association with adolescents' PA behavior (Sallis, Prochaska, & Taylor, 2000). Furthermore,

Truelove et al. (2017) examining the impact of the Supporting Physical Activity in the Childcare Environment (SPACE), have reported that PA contributes to a higher health-related quality of life of preschoolers.

Regarding the relationship of frequency and quantity of PA with basic needs and achievement goals, results showed that all basic needs (autonomy, competence and relatedness), mastery approach, performance approach and task orientation were positively related to these PA variables. Ego orientation was not significantly related to them. Step 1 of the hierarchical regression analysis showed that competence was a significant predictor of the frequency of PA (hours/ week) and a significant predictor for the quantity as well. This complements previous studies showing strong links between adolescents' perceived competence and PA levels (Hands, Rose, Parker, & Larkin, 2010). The contribution of perceived competence in PA levels is also highlighted in studies proposing a well-organized PE curriculum for students, as for example the Sport Education Model (Gutierrez et al., 2013; MacPhail et al., 2008; Spittle & Byrne, 2009). Step 2 of the regression analysis revealed that both competence and mastery approach predicted higher PA levels for students, but the addition of task-ego goals in Step 3 of regression analysis, did not contribute in change of explained variance, i.e., were not significant predictors. Based on these results, the satisfaction of basic psychological needs and the emphasis on mastery during the PE lesson are positively related to the participation of young people in PA (Grasten, Jaakkola, Liukkonen, Watt & Yli-Piipari, 2012; Sargent-Cox, Butterworth, & Anstey, 2015). Children who perceived themselves as competent are more interested in PE contents and participate more in exercise then children who are incompetent (Barić, Vlasic, & Erpic, 2014).

Regarding the relationship between the intention for participation in PA with basic needs and achievement goals, results indicated that all basic needs, mastery and performance approach

and task orientation were positively related with pupils' intention to be physical active. Ego orientation wasn't significantly related to the intention for PA and this is consistent with the results of previous studies (Biddle, 2001; Wang & Biddle, 2003; Hall et al., 2007; Wang, Liu, Sun, Lim, & Chatzisarantis, 2010). Regression analysis showed that competence and mastery approach were the only significant predictors for students' intention to be physically active. Overall, students who perceived their class to be task-oriented are more likely to feel competent, have mastery goals and feel intrinsically motivated in the PE class. Biddle et al. (2003) stated that enhancing students to internalize their motives for participation and move into more "*self-determined*" forms of motivation regulation can predict higher intention to PA.

Regarding the relationship between achievement goals and basic psychological needs, the results showed that task orientation was positively related to all basic needs and mastery-approach goals while ego orientation was only positively related to competence, performance and mastery approach goals. The positive relationship between ego orientation and competence is something that has been observed before in previous studies (Biddle, 1999; Hom et al., 1993; Lintnunen et al.,1999; Wang et al., 2012). Children and adolescents, although they tend to adopt a more ego-oriented goal profile towards PE in the beginning, in a long term, may not feel motivationally positive and competent about participating in PA. This is consequence of the effort reduction, negative affect and the doubt they may start to feel about their ability (Dweck, 1999).

Previous studies in the field of PE, have also found that a mastery motivational climate, that give emphasis on effort, personal improvement, team work and cooperation inside the PE class, can improve the quality of behavioral production (Girard & Lemoyne, 2018) and produce a superiorly increased rate of motivational adaptation (Ntoumanis & Biddle, 1999; Sarazin et al.,

2002; Adie et al., 2012). On the contrary, a performance motivational climate, that emphasizes in overcoming others, is negatively associated with the three basic needs (Sarrazin et al., 2001, Ávarez et al., 2012).

Regarding subjective vitality, results showed that autonomy, competence and relatedness were positively related with the pupils' subjective vitality. This is consistent with a number of studies that have found that the basic psychological needs are positively linked with the pleasure and the quality-of-life variables (Reinboth & Duda, 2006; Wang & Liu, 2007; Adie et al., 2012; Balaguer et al., 2012; Gunnel et al., 2013). Furthermore, mastery approach, performance approach and task orientation were positively related with subjective vitality. Barić et al., (2014), that examined the relation between perceived competence, intrinsic motivation and goal orientation, found that perceived competence plays an important role for promoting healthy lifestyles and mastery motivation climate allows students to enjoy the educational process more than usual. The hierarchical regression analysis of subjective vitality showed that in first step, competence was the only predictor of vitality, but in the second step with the addition of mastery and performance approach goals, mastery approach (was the only variable predicting subjective vitality. Consistent with these findings, Standage and Gillison (2007) found also direct correlations of competence to general self-esteem and of relatedness to health-related quality of life. As anticipated, mastery focused goals had higher positive correlation with quality-of-life variables than competence in the Step 2. Mastery climate promotes pupils' self- esteem and emotional well-being and help them form/maintain a better quality-of-life both inside and outside of school (Treasure, 2001; Lemyere, Treasure & Roberts, 2006; Ahmed, et al., 2016). The addition of task and ego goals in the Step 3 did not predict any change of explained variance.

These results revealed that performance approach and task-ego goals were not significant

predictors of subjective vitality. The explanation might lie in the fact that for mastery approach goals is logical to predict social well-being and subjective vitality, since it is rooted in the achievement goal theory about the beliefs and purpose for education. Based on the fact that students are "*active*" social beings and each achievement setting includes other people, mastery approach goals are the reason for "*taking the first step*" and making some effort to engage in social situations, interact with others, communicate and contribute to society.

Regarding age differences with frequency and quantity of PA, results showed that there was not a significant age effect nor an interaction between those variables. This doesn't agree with the existing literature that mentions that PA decreases with increasing age (Telama & Yang, 2000; Trost et al., 2002; Bertakis et al., 2007; Kolle et al., 2010). Regarding gender differences, there was a significant gender effect on the PA variables, showing that boys had higher scores in PA frequency and quantity than girls. The results are in line with the existing literature that mentions that there is a positive association between gender (male) and PA (Horst, Klazine, Paw, Marijke, Twisk, Jos & Mechelen, Willem, 2007). Regarding intention to be physically active, results revealed no significant age effect, but a significant gender effect, reveling that fourteen years old boys reported higher scores on intention to be PA compared to girls of the same age. A study by Daigle (2003) about the "*gender differences in participation of physical activities*" found that there was a significant effect between gender and PA intention and gender appropriateness and PA intention, leading to the conclusion that when a student feels that the activity is more appropriate for his/ her gender, he/ she is more likely to engage in that activity and will report a greater intention to participate in PA. Finally, regarding subjective vitality, results revealed no significant age effect, neither a significant gender effect nor any relationship between those variables.

Conclusion

Our findings added more value on the importance of teachers' role in promoting a supportive environment where pupils are able to a) feel autonomous to make their own choices, b) feel competent and confident and c) satisfy their need for support and relatedness. Therefore, providing tasks and activities where pupils have the freedom to make their own decisions and choices and where they can relate with other pupils and feel confident-safe with them, can be the key factor for participation in PA. By adopting ego or task orientation and depending on the motivational climate instilled by PE teacher, pupils in a PE setting can adopt different PA behaviors (adoption and maintenance). The existing literature and our results suggest a mastery climate with emphasis on task and autonomy can positively predict **participation in PA** (Digelidis, Della & Papaioannou, 2005; Parish & Treasure, 2003; Theodosiou & Papaioannou, 2006), **pleasure** (Cumming, Smoll, Smith, & Grossband, 2007; Jaakkola, Liukkonen, Watt & Yli-Piipari, 2012; Jaakkola, Ntoumanis & Liukkonen, 2016) **and better levels of subjective vitality** (Adie et al., Balaguer et al., 2012). In order to promote out-of-school PA, PE teachers also need to promote enjoyment, give free choices to students and foster the basic needs (Sanchez-Olivia et al., 2014; Barkoukis, et al., 2011).

Given that levels of PA are getting more and more low in young people during the last two decades, further exploration of the variables that predicts participation in PA is needed. By exploring their perceptions, emotions, goals and by satisfying their basic needs could attribute to the higher growth of participation in PA as well as to the psychological well-being and quality-of-life of pupils. Future researches in the field of PE could examine the relationship between subjective (questionnaire) and objective (motion sensors or accelerometers) pupils' PA with other social variables, such as, anxiety, attitudes towards exercise, positive and negative affect,

etc.

Talking about limitations, given the exploratory nature of the present investigation, there is also another limitation that should be addressed. Our results demonstrated relationships between the four constructs, however no causal links can be inferred from the present findings. We could only speculate that achievement goals and basic psychological needs may influence students' PA levels and quality of life, based on the theoretical background of motivation. Nevertheless, an intervention study design in this regard would provide a deeper understanding on this relationship between those variables.

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ID Number: _____

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 by raising your hand and the researcher will assist you. We are interested in your participation in sports and exercise in your leisure time, in your physical education classes and your feelings and views while participating in sports/exercise and physical education in school.

Section A

1. Enter your birthday here: _____ /_____ /_____

For example, if your birthday is 15th December 2002, please write: 15 / December / 2002

2. How old are you? (Please write your age in years) _____ years

3. Are you a boy or a girl? : Boy ☐ Girl ☐ Other Answer ☐

4. What is your country where you live now? _____

5. What is your town where you live now? _____

6. Which of the following is the country of your birth? (Please √ a box)

Greece ☐
Malaysia ☐
Other ☐

7. Which is your ethnicity?

Greek ☐
Malaysian ☐
Other ☐

9b. If other, what? _____

10. School level (Please √ a box): Primary ☐ Secondary ☐ College ☐

11. Class: _____

12. School Name (Please, name your school): _____

13. How well off do you think your family is?

Not at all well off	Not very well off	Average	Quite well off	Very well off
☐	☐	☐	☐	☐

Section B: Physical activity is any activity that **increases your heart rate** and makes you **get out of breath** some of the time. **Physical activity** can be done in sports, playing with friends, or walking to school. Some examples of **physical activity** are running, brisk walking, rollerblading, biking, dancing, skateboarding, swimming, soccer, basketball, football, & surfing.

Over the **past 7 days**, on how many days were you physically active for a total of at least **60 minutes** per day?

☐	☐	☐	☐	☐	☐	☐	☐
0 days	1	2	3	4	5	6	7 days

Over a **typical or usual week**, on how many days are you physically active for a total of at least **60 minutes** per day?

☐	☐	☐	☐	☐	☐	☐	☐
0 days	1	2	3	4	5	6	7 days

Outside school hours: How many **hours** do you usually exercise in your free time, so much that you get out of breath or sweat?

☐	☐	☐	☐	☐	☐
None	About half an hour per week	About one hour per week	About 2-3 hours per week	About 4-6 hours per week	About 7 hours per week

How many **days** each week do you have **Physical Education**?

☐	☐	☐	☐	☐	☐
0 days (never)	1 day	2 days	3 days	4 days	5 days

Section C: These statements relate to ***your*** **feelings and experiences in *your Physical Education (*PE) class *during the past 3-4 weeks***. Please circle the number that best reflects how *you* felt during this period.

*During the **past 3-4 weeks**, in this Physical Education (PE) class...*	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I decided which activities I practiced in PE.	1	2	3	4	5
2. I thought I was quite good at PE.	1	2	3	4	5
3. I felt supported in PE.	1	2	3	4	5
4. I had a say on what skills I worked on in PE.	1	2	3	4	5
5. I was satisfied with what I did in PE.	1	2	3	4	5
6. I felt understood in PE.	1	2	3	4	5
7. It was my choice to do particular activities in PE.	1	2	3	4	5
8. I was skillful in PE.	1	2	3	4	5
9. I felt my opinions were listened to in PE.	1	2	3	4	5
10. I felt the freedom to do some things my own way in PE.	1	2	3	4	5
11. I felt quite able in PE	1	2	3	4	5
12. I felt valued in PE.	1	2	3	4	5
13. I felt I performed very well in PE.	1	2	3	4	5
14. I had some choice in what I did in PE.	1	2	3	4	5
15. I think I did quite well in PE.	1	2	3	4	5

Section D: We are interested in the reasons underlying students' decisions to actively participate, or not in Physical Education (PE). Using the scale below, please indicate to what extent each of the following items is true for you.

I actively participate in Physical Education (PE)…	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

1. Because I enjoy it.	1	2	3	4	5
2. Because the benefits are important to me (e.g. developing as a person, getting fit, playing with my schoolmates).	1	2	3	4	5
3. Because I would feel guilty if I don't do it.	1	2	3	4	5
4. Because people push me to do it.	1	2	3	4	5
5. But I question why I continue doing it.	1	2	3	4	5
6. Because I like it.	1	2	3	4	5
7. Because I value the benefits (e.g. learning new skills, being healthy, playing with friends etc).	1	2	3	4	5
8. Because I would feel ashamed if I don't do it.	1	2	3	4	5
9. To satisfy people who want me to do it.	1	2	3	4	5
10. But I question why I am participating in PE.	1	2	3	4	5
11. Because it is fun.	1	2	3	4	5
12. Because it teaches me useful things for my health.	1	2	3	4	5
13. Because I would feel bad if I wouldn't actively participate in PE.	1	2	3	4	5
14. Because I feel pressure from other people to participate in PE.	1	2	3	4	5
15. But I really don't know why anymore.	1	2	3	4	5
16. Because I find it exciting.	1	2	3	4	5
17. Because I learn things which are useful in my life.	1	2	3	4	5
18. Because I would feel like a failure if I don't.	1	2	3	4	5
19. Because if I don't other people will not be pleased with me.	1	2	3	4	5
20. But I wonder what's the point.	1	2	3	4	5

Section E: There are different reasons why students **feel like successful** in Physical Education. Please circle the appropriate number to indicate how much you agree or disagree with each statement.

I **feel most successful** in Physical Education when…	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I'm the only one who can do the skill.	1	2	3	4	5
2. I learn a new skill and it makes me practice more.	1	2	3	4	5
3. I can do better than my schoolmates.	1	2	3	4	5
4. The others can't do as well as me.	1	2	3	4	5
5. I learn something that is fun to do.	1	2	3	4	5
6. Others mess up and I don't.	1	2	3	4	5

7. I learn a new skill by trying hard.	1	2	3	4	5
8. I work really hard.	1	2	3	4	5
9. I score the most points/goals etc.	1	2	3	4	5
10. Something I learn makes me want to go and practice more.	1	2	3	4	5
11. I'm the best.	1	2	3	4	5
12. A skill I learn really feels right.	1	2	3	4	5
13. I do my very best.	1	2	3	4	5

Section F: For each of the following statements, please indicate how much you agree or disagree. When answering the questions, bear in mind **how you generally felt over the past 3-4 weeks participating in Physical Education.**

During the **past 3-4 weeks** in PE ...	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I usually enjoyed PE.	1	2	3	4	5
2. I usually found PE interesting.	1	2	3	4	5
3. I usually found that time flew by when I was doing PE.	1	2	3	4	5
4. I usually had fun when doing PE.	1	2	3	4	5

Section G: Please indicate how much you intend to play active sports/exercise during your free time, **for at least 3 times per week 60 minutes each time** in the **next month**. Please answer to each of the three items below.

During the next month...	**Very Unlikely**		**Somewhat likely**				**Very Likely**
1. I am determined to exercise/play active sports at least **3 times a week**, 60 minutes each time.	1	2	3	4	5	6	7
2. I intend to exercise/play active sports at least **3 times a week**, 60 minutes each time.	1	2	3	4	5	6	7
3. I plan to exercise/play active sports at least **3 times a week**, 60 minutes each time.	1	2	3	4	5	6	7

Section H: Please indicate how much control you have over your sports/exercise during your free time, **for at least 3 times per week, 60 minutes each time** in the **next month**.

1. How **much control** do you have over doing **active sports/exercise** in your leisure time **at least 3 times a week,** 60 minutes each time in the **next month?**							
Very Little Control	1	2	3	4	5	6	7 **Complete Control**

2. If I wanted to I **could do active sports/exercise** in my leisure-time **at least 3 times a week,** 60 minutes each time in the **next month?**							
Strongly Disagree	1	2	3	4	5	6	7 **Strongly Agree**

3. **How confident** are you that **over the next month** you could do **active sports/exercise** in your leisure time **at least 3 times a week**, 60 minutes each time, if you want to do so?							
Not confident at all	1	2	3	4	5	6	7	**Absolutely Confident**

Section I: In this next part, we are interested in how do you feel doing active sports/exercise during your free time, **for at least 3 times per week 60 minutes each time** in the next month. Please circle the appropriate answer for you for each of the bi-polar adjectives below.

For me, doing active sports/exercise for at least 3 times per week 60 minutes each time in the next month would be…

Bad	1	2	3	4	5	6	7	Good
Boring	1	2	3	4	5	6	7	Interesting
Not enjoyable	1	2	3	4	5	6	7	Enjoyable
Useless	1	2	3	4	5	6	7	Useful
Insignificant	1	2	3	4	5	6	7	Significant
Unpleasant	1	2	3	4	5	6	7	Pleasant

Section J: Below are a number of **statements relating to your everyday life (i.e. all the things you do)**, not specifically your physical education class. Please indicate the extent to which you agree or disagree with each of the following statement; bear in mind **how you GENERALLY felt over the past month.**

During the last month...	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I felt full of vitality.	1	2	3	4	5
2. I had high spirits.	1	2	3	4	5
3. I looked forward to each day.	1	2	3	4	5
4. I nearly always felt alert and awake.	1	2	3	4	5
5. I felt I had a lot of energy.	1	2	3	4	5

THANK YOU VERY MUCH FOR YOUR PARTICIPATION!

IMPACT CONSENT FORM

1. Purpose

According to World Health Organization children and adults should do regular physical activity to sustain good health and quality of life. The purpose of this study is to identify the factors that affect students' motivation and participation in Physical Activities (PA) using an online questionnaire. Our data will be used to improve the quality of children's experience during the Physical Education lesson in order to keep them motivated and happy when they are doing Physical Activities.

2. Measurement Procedure

Your child will need to complete an anonymous online questionnaire during a Physical Education class, assessing his / her PA levels, his / her motivation to participate in regular PA and the factors that influence his / her participation in PA.

3. Publication of Data - Results

Your child's participation in this survey implies that you agree with the publication of data and its results, provided the information is anonymous and participants' names or personal details are not disclosed.

4. Ethics. The present survey has been examined and received the approval of the ethics committee of the University of Thessaly and the Greek Ministry of Education.

5. Information

Please, do not hesitate to ask questions about the purpose and / or how to conduct the survey. If you have any doubts or questions, please ask us for further explanations.

6. Freedom of Consensus

Your permission to engage your child in this survey is voluntary. You are free not to consent or interrupt your child's participation whenever you wish.

For the parent / guardian: I read this form, I understand the research processes and I consent to my child's participation in this research. YES ❒ NO ❒

For the young student: I agree to participate in this survey. YES ❒ NO ❒

Date: ___/___/_____

Name and Signature of Parent / Guardian	Name and Signature of Participant	Name and Signature of Researcher

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ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ,
ΕΡΕΥΝΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ

ΓΕΝΙΚΗ ΓΡΑΜΜΑΤΕΙΑ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ

ΓΕΝΙΚΗ ΔΙΕΥΘΥΝΣΗ ΣΠΟΥΔΩΝ Π/ΘΜΙΑΣ & Δ/ΘΜΙΑΣ ΕΚΠ/ΣΗΣ

ΔΙΕΥΘΥΝΣΗ ΦΥΣΙΚΗΣ ΑΓΩΓΗΣ
ΤΜΗΜΑ Α΄

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«Αποστολή με ηλεκτρονικό ταχυδρομείο»

Βαθμός Ασφαλείας :
Να διατηρηθεί μέχρι :

Μαρούσι, 27.09.2018
Αρ. Πρωτ. 160970/Δ5

ΠΡΟΣ: Πανεπιστήμιο Θεσσαλίας
(sakispap@pe.uth.gr)
(athanasios.g.papaioannou@gmail.com)

ΚΟΙΝ: 1. Ινστιτούτο Εκπαιδευτικής Πολιτικής (Ι.Ε.Π.) Αν. Τσόχα 36, 115 21 Αθήνα (info@iep.edu.gr)
2.Περιφερειακές Δ/νσεις Εκπ/σης (έδρες τους)
3. Δ/νσεις Π/θμιας Εκπ/σης (έδρες τους)
4. Δ/νσεις Δ/θμιας Εκπ/σης (έδρες τους)
5. Δημόσιες, Ιδιωτικές και Ε.Α.Ε. σχολικές μονάδες Π.Ε. & Δ.Ε. (μέσω των οικείων Δ/νσεων Π.Ε. & Δ.Ε.)
6. Προϊσταμένους Παιδαγωγικής & Επιστημονικής Καθοδήγησης Π.Ε. & Δ.Ε. (μέσω των οικείων Π. Δ.Ε.)
7. Σχολικούς Συμβούλους κλάδων ΠΕ11-Φυσικής Αγωγής (μέσω των οικείων Π.Δ. Ε.)

ΘΕΜΑ: Έγκριση διεξαγωγής έρευνας

ΣΧΕΤ: 1. το από 24.04.2018 αίτημα του Πανεπιστημίου Θεσσαλίας – Τμήμα Φυσικής Αγωγής και Αθλητισμού,
2. το με αρ.39/06.09.2018 Απόσπασμα Πρακτικού του Ινστιτούτο Εκπαιδευτικής Πολιτικής (Ι.Ε.Π.).

Σε απάντηση του από 24.04.2018 αιτήματός σας, για διεξαγωγή έρευνας με τίτλο: *«Εντοπισμός και Παρακίνηση των υποκινητικών νέων που χρειάζονται περισσότερη συμμετοχή σε Φυσική Δραστηριότητα: Κύρια έρευνα (identification and Motivation of inactive youth who mostly need Physical ACTivity: Main study)»*, σε μαθητές/τριες της Π/θμιας και Δ/θμιας εκπαίδευσης, σε επιλεγμένες σχολικές μονάδες κατά το σχολικό έτος 2018-2019, σας γνωρίζουμε ότι βάσει του ανωτέρω σχετικού (2) (Απόσπασμα Πρακτικού του Ι.Ε.Π.) **εγκρίνεται** η εν λόγω έρευνα, με τις ως κάτω αναφερόμενες προϋποθέσεις:

1) Προηγούμενη συνεργασία με τα σχολεία, ώστε η έρευνα να διεξαχθεί χωρίς να παρεμποδίζεται η ομαλή λειτουργία τους.
2) Η υλοποίηση της παρέμβασης στα σχολεία να πραγματοποιείται παρουσία των εκπαιδευτικών των σχολείων.
3) Ενυπόγραφη δήλωση των γονέων έχοντας υπόψη ότι η συμμετοχή στην έρευνα δεν είναι υποχρεωτική.
4) Δεν επιτρέπεται σε καμιά περίπτωση η βιντεοσκόπηση των μαθητών/τριών.
5) Η υποβολή ηλεκτρονικού αντιτύπου της ερευνητικής εργασίας σε ψηφιακό δίσκο στο πρωτόκολλο του Ινστιτούτου Εκπαιδευτικής Πολιτικής (Αν. Τσόχα 36, Τ.Κ. 115 21, Αθήνα), καθώς επίσης και η ενυπόγραφη, σύμφωνη ή όχι, γνώμη του ερευνητή για το εάν επιτρέπει στο Ι.Ε.Π. να προβεί σε ηλεκτρονική ανάρτηση της ερευνητικής εργασίας. Το αντίτυπο, αφού κατατεθεί στο πρωτόκολλο, θα διαβιβάζεται αρμοδίως στη

Εσωτερική Επιτροπή Δεοντολογίας

Τρίκαλα: / / 2019
Αριθμ. Πρωτ.:

Αίτηση Εξέτασης της πρότασης για διεξαγωγή Έρευνας με τίτλο: Η σχέση της παρακίνησης και των στόχων επίτευξης με τη φυσική δραστηριότητα, τη θεωρία της σχεδιασμένης συμπεριφοράς, την ευχαρίστηση και την ποιότητα ζωής: Συγκριτική μελέτη μεταξύ μαθητών/ τριών δευτεροβάθμιας εκπαίδευσης σε Ελλάδα και Μαλαισία

Επιστημονικώς υπεύθυνος – επιβλέπων: Παπαϊωάννου Αθανάσιος
Ιδιότητα: Καθηγητής
Τμήμα: Τ.Ε.Φ.Α.Α.
Ίδρυμα: Πανεπιστήμιο Θεσσαλίας

Πρώτος ερευνητής: Σεβαστή Σέρελη
Ιδιότητα: Μεταπτυχιακή φοιτήτρια Πανεπιστημίου Θεσσαλίας
Ίδρυμα: Πανεπιστήμιο Θεσσαλίας
Τμήμα: Τ.Ε.Φ.Α.Α.

Δεύτερος ερευνητής: Aruna Santhappan
Ιδιότητα: Μεταπτυχιακή φοιτήτρια Πανεπιστημίου Θεσσαλίας
Ίδρυμα: Πανεπιστήμιο Θεσσαλίας
Τμήμα: Τ.Ε.Φ.Α.Α.

Η προτεινόμενη έρευνα θα είναι: (βάλτε το γράμμα **X** δίπλα από το είδος της έρευνας)

Ερευνητικό πρόγραμμα Διπλωματική εργασία **Μεταπτυχιακή έρευνα** **X** Διδακτορική Έρευνα
Ανεξάρτητη έρευνα

Τηλ. επικοινωνίας: 6981810160
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Η Εσωτερική Επιτροπή Δεοντολογίας του Τ.Ε.Φ.Α.Α., Πανεπιστημίου Θεσσαλίας μετά την υπ. Αριθμ. / συνεδρίαση της εγκρίνει τη διεξαγωγή της προτεινόμενης έρευνας.

Ο Πρόεδρος της
Εσωτερικής Επιτροπής Δεοντολογίας – ΤΕΦΑΑ