

PARTICIPATION IN AFTERSCHOOL SPORT: RELATIONSHIP TO PERCEIVED NEED SUPPORT, NEED SATISFACTION, AND MOTIVATION IN PHYSICAL EDUCATION

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Abstract:

The purpose of this study was to examine the differences in the perceptions of self-determination theory-based constructs such as the psychological needs support from the teacher and one's peers, perceived satisfaction of the needs for competence, autonomy, relatedness, as well as different types of motivation in physical education among students with different organized afterschool sport experiences. Six hundred and fifty-nine Estonian secondary-school students completed questionnaires assessing the key variables of interest. Results indicated that boys who did afterschool sport scored significantly higher on perceived autonomy and relatedness support from the teacher and relatedness support from their peers, perceived satisfaction of the needs for autonomy, competence, and relatedness and external regulation than boys without afterschool sport experiences. Girls who did afterschool sport scored significantly higher on perceived competence and relatedness support from their peers as well as perceived satisfaction of the needs for autonomy and competence compared to girls without afterschool sport experiences.

Key words: *self-determination theory, adolescents, perceived psychological needs, extrinsic motivation, intrinsic motivation*

Introduction

It is widely recognized that physical education (PE) has a significant impact on public health (Haywood, 1991). Despite holding such promise, motivation to participate in PE declines with age (Biddle, 1995). Therefore, research has focused on identifying the factors that promote children's motivation in PE (see Hagger & Chatzisarantis, 2007, for a review). One important factor related to different psychological aspects of participation in PE is afterschool sport participation (e.g. Anderssen, 1993; Goudas, Dermitzaki, & Bagiatis, 2001, Koka & Hein, 2003b). Goudas, Dermitzaki, and Bagiatis (2001) have argued that students who participate in organized formal afterschool sport are probably more familiar with the content of PE classes compared to students who do not. Thus, as noted by Fox (1992), learning sport skills in a PE class may be quite challenging for students who have limited sport experience in terms of maintaining their self-worth. This may also be one of the reasons why students without afterschool sport experience have demonstrated significantly lower scores on several motivational responses,

such as intrinsic motivation, as well as perceived physical competence and outcome expectancies in PE than students with afterschool sport experiences (Goudas, et al., 2001; Koka & Hein, 2003b).

Interestingly, however, there is limited evidence regarding afterschool sport participation and its relationship to important motivational constructs introduced by the self-determination theory (SDT; Deci & Ryan, 1985, 2000) such as perceived satisfaction of the basic psychological needs for autonomy, competence, and relatedness, different types of motivation, and perceptions of the basic psychological needs support from social agents like teacher and one's peers in physical education. This study is, therefore, aimed at answering the following question: is participation in afterschool organized sport related with the previously mentioned SDT-based variables in physical education?

Self-determination theory (Deci & Ryan, 1985, 2000) as a theoretical framework has been used to study motivational processes in physical education. It distinguishes between different motives in contexts that reflect the reasons why individuals choose to participate in an activity. In line with SDT, a

student who takes part in PE because s/he enjoys the fun derived from the PE (i.e. intrinsic motivation) or because s/he realizes the importance of the activities performed in PE (i.e. identified regulation) holds a self-determined motivational orientation. However, a student who participates in PE just in order to avoid the negative feelings of guilt and gain the positive feelings of a sense of self (i.e. introjected regulation) or because s/he just must do so (i.e. external regulation) holds a non-self-determined motivational orientation. Finally, there is amotivation reflecting a lack of intention and willingness to engage in physical education.

The self-determination theory postulates that the type of regulation guiding the behavior in an activity is dependent on the extent to which the social factors (e.g. teacher's or peers' behavior in PE) facilitate individuals' basic psychological needs for competence (i.e. a desire to be effective in his or her environment), autonomy (i.e. a desire to be the origin of his or her behavior), and relatedness (i.e. a desire to be socially connected to others) (Deci & Ryan, 2000). That is, fulfilling students' basic psychological needs is proposed as central to the promotion of the self-determined forms of motivation (i.e. intrinsic motivation and identified regulation), whereas failing to satisfy students' basic psychological needs in PE should result in the non-self-determined forms of motivational regulation (i.e. introjected and external regulation) or even amotivation.

As noted earlier, previous studies have demonstrated that differences in students' intrinsic motivation, as well as perceived physical competence were associated with participation in afterschool organized sport (Goudas, et al., 2001; Koka & Hein, 2003b). However, there is no study that has examined whether the differences in students' afterschool organized sport experience are related to other types of behavioral regulations, such as identified, introjected, and external regulation, and perceived satisfaction of other basic psychological needs, such as perceived autonomy and relatedness, introduced by SDT.

Several studies in PE have shown that the perceived autonomy support from teachers (i.e. allowing the initiation of students' own behavior and acknowledging their feelings, providing choice and positive feedback while minimizing the use of pressure to control students' behavior) has a positive influence on the self-determined forms of motivation via the satisfaction of basic psychological needs (e.g. Standage, Duda, & Ntoumanis, 2005, 2006). There are no studies, however, that have examined whether the students with different afterschool organized sport experience differ in their perceptions of the autonomy support, perceptions of the competence support (i.e. making students feel like they are good at PE) and relatedness support (i.e. encouraging students to work together in PE) from the teacher,

introduced by Standage, et al. (2005). Nevertheless, a study conducted by Koka and Hein (2003b) demonstrated that female students with afterschool organized sport experience perceived that their teacher provided them with a more positive general feedback (i.e. one of the components of autonomy-supportive behavior from the teachers) than was feedback perceived by their schoolmates without any sport experience. There were no differences in perceived positive general feedback among male students with different afterschool sport experience.

Perceived autonomy, competence, and relatedness support from the teacher cannot be considered as a sole source of basic psychological needs support for students in physical education. Interaction with peers should be considered as another relevant source of basic psychological needs support for students in physical education. Sage and Kindermann (1999) have argued that interaction between students in the classroom may have an even greater influence on children's school motivation compared to those of the teachers because teachers' influence is considered to be more distal. One may argue that if the student is acquainted with different sport activities and is physically more competent, s/he may perceive a higher need support from peers that, in turn, enhance his/her motivation to participate in physical education.

With regard to the uniqueness of the present study, to date, no study has examined whether the participation in afterschool organized sport is related with perceived psychological needs support from both teacher and one's peers, perceived satisfaction of the all three psychological needs for autonomy, competence, and relatedness, as well as with different types of motivation or behavioral regulation, introduced by SDT, in physical education. The aim of this study, therefore, was to compare students' perceptions of the previously mentioned SDT-based variables among students with a different experience in afterschool organized sport participation. The following hypotheses were proposed.

First, according to the results of a previous study (Koka & Hein, 2003b), it was hypothesized that girls with afterschool sport experience would perceive significantly higher psychological needs support from the teacher than girls with limited afterschool sport experience. For boys, no differences were expected in perceived psychological needs support from the teacher among students with different afterschool sport experience.

Second, according to Goudas et al. (2001), it was hypothesized that both boys and girls with afterschool sport experience would report significantly higher scores on perceived competence compared to students without afterschool sport experience. As stated by SDT (Deci & Ryan, 2000) that psychological needs for competence, autonomy, and relatedness are complementary, a similar trend

among students with different afterschool sport experience was expected for perceived autonomy and relatedness.

Third, according to previous studies (Goudas, et al., 2001; Koka & Hein, 2003b), it was hypothesized that both boys and girls with afterschool sport experience would report significantly higher scores on intrinsic motivation compared to students without afterschool sport experience. In line with SDT, we hypothesized that students with afterschool sport experience would score significantly higher on identified regulation as another self-determined type of motivation compared to those without afterschool sport experience. As introjected and external regulation are considered to be non-self-determined types of motivation (Deci & Ryan, 2000), it was expected that students with afterschool sport experience would exhibit lower scores on these types of motivation than students without sport experience. A similar trend was expected for amotivation.

Finally, regarding the differences in perceived psychological needs support from peers among students with different afterschool sport experience, no *a priori* hypothesis was proposed because of no previous findings in this area.

Methods

Participants and procedures

Participants were 659 secondary-school students from six schools located in the southeast of Estonia. The schools were selected based on similar curricular offerings and numbers of students. Due to missing data in any of the study variables, ten cases were eliminated from the data analyses. Therefore, the final sample size comprised 649 subjects (306 boys and 343 girls; M age=13.57 years, SD=.62) and consisted completely of Caucasians. Prior to data collection, permission for the study was obtained from the head teachers of all schools. Informed consent was obtained from the participants and their parents by sending home a letter with each child. Parents' permission was considered approved if they did not send the letter back to the school. No letters were returned. The procedures and protocol for the present study were approved by the Ethical Committee of the University of Tartu, Estonia.

To judge afterschool sport experience the students were asked to indicate whether they participated in an organized sport outside normal school hours and for how long they had done so. The voluntary afterschool sport is organized in several ways in Estonia. First, children can attend training sessions as members of different sport clubs. These training sessions are administered by local coaches and sponsored by both local authorities and the children's parents. Second, outside of the curricular school hours, children can practise different sports at their schools under the guidance of their PE

teachers. These hobby groups' activities at schools are sponsored by local authorities.

The students were then divided into three groups. Students who have not participated in any afterschool organized sport at all or have done this only for up to three months were classified as non-participants (Group 1; girls n=152, boys n=96). Students participating in an organized sport for more than three months and up to four years formed Group 2 (girls n=98, boys n=110). Finally, students participating in an organized sport for more than four years were included in Group 3 (girls n=93, boys n=100). The rationale behind forming the three groups was twofold. First, a previous study conducted by Koka and Hein (2003b) showed that students with extensive afterschool sport experience scored higher in several psychological aspects compared to students with less sport experience, who, in turn, scored higher compared to students without any sport experience at all. Second, examination of the distribution of the sample in terms of the length of afterschool sport participation indicated that dividing students into three groups, according to the criteria mentioned previously, resulted in groups with an approximately equal number of students within each group. The boys and girls were observed separately because in Estonia since the 5th grade (i.e. 10-11-year-olds) boys and girls are taught separately in physical education and by different teachers.

Measures

Perceived Psychological Needs Support from the Teacher in PE (PPNST-PE). To assess the students' perceptions of autonomy, competence, and relatedness support from the teacher in PE, the 15-item need support scale, developed by Standage et al. (2005), was used. All items from the scale were preceded by the same stem, "In this PE class ...", and students responded on a 7-point scale anchored by 1 (strongly disagree) to 7 (strongly agree). Example items are: "... I feel that the teacher listens to how I would like to do things" (autonomy support; six items), "... the teacher makes me feel like I am able to do the activities in class" (competence support; four items), and "... I feel that the teacher is friendly towards me" (relatedness support; five items). In this study, the Cronbach's alphas for autonomy support, competence support, and relatedness support subscales were .86, .67, and .87, respectively. Furthermore, the proposed three-factor structure of the scale was supported via confirmatory factor analysis (CFA). The goodness of fit test parameters were: $\chi^2(87)=263.75$, $p=.001$, χ^2/df ratio=3.03, CFI=.94, NNFI=.92, RMSEA=.057, 90% confidence interval (CI₉₀) for RMSEA range=.049 to .065.

Perceived Psychological Needs Support from Peers in PE (PPNSP-PE). Participants' perceptions of autonomy, competence, and relatedness support

from their peers in PE were assessed using items derived from the Standage's et al. (2005) 15-item need support scale that was originally designed to assess perceptions of the psychological needs support from the teacher. The original items were modified by changing the 'teacher' to 'peers' as the salient referent. Items preceded again by the same stem, "In this physical education class ...", and students responded on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Example items are: "... I feel that my peers listen to how I would like to do things" (autonomy support; six items), "... my peers make me feel like I am able to do the activities in class" (competence support; four items), and "... I feel that my peers are friendly towards me" (relatedness support; five items). In this study, the Cronbach's alphas for autonomy support, competence support, and relatedness support subscales were .87, .84, and .88, respectively. Results of the CFA demonstrated acceptable fit indices: $\chi^2(87)=244.91$, $p=.001$, χ^2/df ratio=2.82, CFI=.95, NNFI=.93, RMSEA=.054, CI₉₀ for RMSEA range=.046 to .062.

Perceived Autonomy. Students' perceived satisfaction of the need for autonomy in PE was assessed using a 3-item scale (Koka & Hagger, 2010). An example item included "I feel that I have a say in what I do when participating in physical education". Students responded on a 7-point scale anchored by 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha coefficient for perceived autonomy in this study was .80.

Perceived Competence. Perceived competence subscale from the *Intrinsic Motivation Inventory* (IMI; McAuley, Duncan, & Tammen, 1989) was used to assess students' perceived satisfaction of the need for competence (e.g. "I think I am pretty good at physical education"). Students responded on a 7-point scale anchored by 1 (strongly disagree) to 7 (strongly agree). In the present study, Cronbach's alpha coefficient for perceived competence was .89.

Perceived Relatedness. Students' perceptions of the relatedness need satisfaction were measured using five items that had been previously modified to the PE context by Koka and Hagger (2010). Students responded to the items preceded by the same stem: "In physical education class I feel ...", followed by five descriptors: (e.g. "... understood", "... safe", "... supported"). The scale used a 7-point scale anchored by 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha coefficient for perceived relatedness in this study was .82.

Motivational Regulations. Students' different types of motivational regulations toward PE were measured using the *Perceived Locus of Causality* (PLOC; Goudas, Biddle, & Fox, 1994). Students responded to the items using the same stem: "I take part in a physical education class ...", followed by different reasons. All subscales included four

items. Example items are: "... because I enjoy doing physical education" (intrinsic motivation), "... because I value the benefits of physical education" (identified regulation), "... because I will feel guilty if I do not" (introjected regulation), "... because the teacher says I should" (external regulation), and "... however, I really do not know why" (amotivation). Responses were assessed on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). In this study, the Cronbach's alphas for intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation subscales were .90, .84, .77, .68, and .87, respectively. Furthermore, CFA supported the proposed five-factor structure of the scale. The goodness of fit test parameters were: $\chi^2(160)=478.69$, $p=.001$, χ^2/df ratio=2.99, CFI=.91, NNFI=.89, RMSEA=.056, CI₉₀ for RMSEA range=.051 to .062.

Translation Procedures

To produce an Estonian version of the PPNST-PE, PPNSP-PE, and PLOC scales we used the standardized back-translation techniques (Brislin, 1986). Scales used to assess perceived psychological needs for autonomy, competence, and relatedness in this study have already been used with Estonian schoolchildren (Koka & Hagger, 2010; Koka & Hein, 2003a). First of all, the original questionnaire items were translated into Estonian by a bilingual expert. Two independent bilingual experts then translated items back into English. These two back-translated versions were compared with the original English version and any inconsistencies and errors were highlighted. In a further translation process, all the highlighted errors and inconsistencies were removed. Bilingual experts were asked to continue with the back-translation comparison process until the versions were identical. The final versions of questionnaires demonstrated no discrepancies with the original English version of the instruments when back-translated.

Data analysis

A multivariate analysis of variance (MANOVA) was performed with the three groups of participants (not in sport or up to three months, in sport more than three months and up to four years, and in sport more than four years) as the independent variable and ratings on perceived psychological needs support from the teacher and one's peers, perceived satisfaction of the needs for autonomy, competence, and relatedness and five types of motivation in physical education as dependent variables. The MANOVA was executed for boys and girls separately. If the MANOVA showed a significant main effect, univariate analysis of variance (ANOVA) was executed on each of the dependent variables to establish which one(s) contained the significant effect. When ANOVA showed significant effect, the Tukey HSD *post hoc* tests were executed

to determine any possible differences between the groups.

Results

Descriptive statistics for all variables for boys and girls with different sport experiences are presented in Table 1 and Table 2, respectively.

The MANOVA revealed a significant main effect for the groups of boys, Wilks's lambda=.84, $F(28, 580)=1.85$, $p<.01$, $\eta_p^2=.082$. The subsequent ANOVAs showed significant univariate effects for the autonomy support and relatedness support from the teacher, relatedness support from the peers, perceived satisfaction of the needs for autonomy, competence, and relatedness, and external regulation (see Table 1).

Subsequent *post hoc* Tukey HSD multiple comparison tests revealed that Group 1 boys (in sport less than three months) scored significantly lower on perceived autonomy support from the teacher than boys in Group 3 (in sport more than four years) ($p<.01$, $d=.408$). Group 1 boys scored significantly lower also on perceived relatedness support from the teacher than boys in Group 2 (in sport more than three months and up to four years) ($p<.05$, $d=.370$) and Group 3 ($p<.001$, $d=.507$). Similarly, Group 1 boys scored significantly lower on perceived relatedness support from their peers than boys in Group 2 ($p<.05$, $d=.330$). Group 1 boys

scored significantly lower on perceived autonomy than boys in Group 2 ($p<.01$, $d=.459$) and Group 3 ($p<.001$, $d=.684$). Group 1 boys scored significantly lower on perceived competence than boys in Group 2 ($p<.01$, $d=.390$) and Group 3 ($p<.001$, $d=.565$). Similarly, Group 1 boys scored significantly lower on perceived relatedness than boys in Group 2 ($p<.05$, $d=.366$) and Group 3 ($p<.05$, $d=.364$). Finally, Group 2 boys scored significantly lower on external regulation compared to boys in Group 3 ($p<.05$, $d=.381$).

For the groups of girls, there was an overall multivariate effect, Wilks's lambda=.86, $F(28, 654)=1.83$, $p<.01$, $\eta_p^2=.073$. The subsequent ANOVAs showed significant univariate effects for perceived competence and relatedness support from their peers as well as perceived satisfaction of the needs for autonomy and competence (see Table 2).

Subsequent *post hoc* Tukey HSD multiple comparison tests revealed that Group 2 girls scored significantly lower on perceived competence support from their peers than girls in Group 3 ($p<.05$, $d=.395$). Girls in Group 1 ($p<.05$, $d=.388$) and Group 2 ($p<.05$, $d=.427$) scored significantly lower on perceived relatedness support from their peers than girls in Group 3. Group 1 girls scored significantly lower on perceived autonomy than girls in Group 3 ($p<.05$, $d=.308$). Finally, girls in Group 1 ($p<.001$, $d=.563$) and Group 2 ($p<.05$, $d=.418$) scored

Table 1. Descriptive statistics on all variables by the participation in organized sport for boys (N=306)

Measures	Participation in Organized Sport							
	Group 1		Group 2		Group 3		F	η_p^2
	(n=96)		(n=110)		(n=100)			
M	SD	M	SD	M	SD			
Perceived need support from teacher								
Autonomy support	3.97	1.31	4.39	1.25	4.51	1.34	4.65**	.030
Competence support	5.02	1.78	5.35	1.14	5.45	0.99	2.67	.017
Relatedness support	4.22	1.47	4.74	1.34	4.91	1.24	6.98***	.044
Perceived need support from peers								
Autonomy support	3.94	1.46	4.34	1.36	4.23	1.28	2.33	.015
Competence support	4.22	1.41	4.37	1.49	4.30	1.60	0.26	.002
Relatedness support	4.23	1.51	4.70	1.33	4.66	1.30	3.60*	.023
Perceived psychological basic needs								
Autonomy	3.62	1.65	4.31	1.34	4.67	1.41	12.97***	.079
Competence	4.99	1.42	5.51	1.24	5.71	1.11	8.31***	.052
Relatedness	4.36	1.46	4.87	1.32	4.85	1.22	4.62**	.030
Types of motivation								
Intrinsic motivation	4.99	1.65	5.39	1.48	5.38	1.37	2.20	.014
Identified regulation	5.10	1.55	5.48	1.30	5.46	1.31	2.31	.015
Introjected regulation	4.16	1.58	4.51	1.49	4.62	1.49	2.46	.016
External regulation	4.23	1.49	4.15	1.23	4.65	1.39	3.82*	.025
Amotivation	2.31	1.56	2.00	1.33	2.01	1.29	1.58	.010

Note. Group 1 – not in sport at all, up to three months, Group 2 – in sport more than three months, up to four years, Group 3 – in sport more than four years. * $p<.05$; ** $p<.01$; *** $p<.001$.

Table 2. Descriptive statistics on all variables by the participation in organized sport for girls (N=343)

Measures	Participation in Organized Sport							
	Group 1		Group 2		Group 3		F	η_p^2
	(n=152)		(n=98)		(n=93)			
	M	SD	M	SD	M	SD		
Perceived need support from teacher								
Autonomy support	3.98	1.19	3.82	1.22	4.09	1.30	1.20	.007
Competence support	4.92	1.25	4.92	1.17	5.17	1.31	1.36	.008
Relatedness support	4.33	1.32	4.30	1.44	4.50	1.45	0.59	.003
Perceived need support from peers								
Autonomy support	4.71	1.30	4.62	1.27	4.98	1.20	2.14	.012
Competence support	4.73	1.37	4.53	1.35	5.05	1.28	3.59*	.021
Relatedness support	5.21	1.36	5.18	1.29	5.68	1.04	4.85**	.028
Perceived psychological basic needs								
Autonomy	3.52	1.32	3.73	1.35	3.95	1.47	2.94*	.017
Competence	4.68	1.42	4.88	1.38	5.42	1.20	8.82***	.049
Relatedness	4.85	2.03	5.09	1.39	5.34	1.35	2.46	.014
Types of motivation								
Intrinsic motivation	4.22	1.52	4.47	1.52	4.44	1.64	1.01	.006
Identified regulation	5.02	1.38	5.16	1.21	5.12	1.31	0.37	.002
Introjected regulation	4.20	1.43	4.15	1.23	4.42	1.51	1.01	.006
External regulation	4.40	1.35	4.32	1.32	4.71	1.12	2.47	.014
Amotivation	2.38	1.44	2.46	1.46	2.50	1.52	0.21	.001

Note. Group 1 – not in sport at all, up to three months, Group 2 – in sport more than three months, up to four years, Group 3 – in sport more than four years. * $p < .05$; ** $p < .01$; *** $p < .001$.

significantly lower on perceived competence than girls in Group 3.

Discussion and conclusions

This study aimed at comparing students who have participated in organized sport after school with different periods of time with students who have not based on the SDT-based constructs (Deci & Ryan, 1985, 2000) such as: perceived basic psychological needs support from both teachers and one's peers, perceived satisfaction of basic psychological needs for autonomy, competence, and relatedness and different types of motivation in physical education. Focusing first on the differences in perceptions of psychological needs support from the teacher and one's peers, the results revealed some interesting findings. Boys with different afterschool sport experience differed in their perceptions of autonomy and relatedness need support from the teacher, whereas girls with different afterschool sport experience differed in their perceptions of competence and relatedness need support from their peers. This is not consistent with our hypothesis, or the results of an earlier study (Koka & Hein, 2003b), which showed that afterschool sport participation was related to differences in girls', but not in boys' perceptions of the teacher's behavior. A possible explanation for

this discrepancy between results of a previous study (Koka & Hein, 2003b) and the current one might be the different level of generalization of constructs at hand. Specifically, Koka and Hein (2003b) assessed students' perceptions of specific teaching behavior (i.e. perceptions of positive general feedback from the teacher) where differences between girls with various sport experiences may occur, whereas the present study focused on examining perceptions of psychological needs support from the teacher that was measured in a more generalized manner.

The results of the present study thus showed that boys who had less afterschool sport experience or have no experience at all perceived significantly lower autonomy- and relatedness-supportive behavior from the PE teacher than boys with more extensive afterschool sport experience. That is, boys with limited or no afterschool sport experience perceived that the teacher provides them with fewer choices and options, encourages them less to ask questions, etc. (i.e. autonomy support), and that the teacher is less friendly towards them and less respectful (i.e. relatedness support).

There are at least two possible explanations for the observed differences. First, these differences in perceptions of psychological needs support may reflect a different level of needs support from the teacher to the students based on their sport experience and physical competence. Specifically, those

boys who are more experienced in sport and thereby more physically competent may be able to get support from the teacher more easily, compared to boys with limited sport experience. Alternatively, differences in perceptions of psychological needs support from the teacher may reflect boys' different level of seeking the need support from the teacher. That is, boys who have more experience in afterschool sport may be those who are seeking more need support from the teacher, compared to boys with limited sport experience. It follows that both student- and teacher-focused qualitative work may be informative in this line of research that should provide greater depth of understanding of what the experiences and processes are that lead to the observed differences in perceptions of psychological needs support from the teacher among boys with different afterschool sport experience. However, in order to enhance the perceptions of autonomy and relatedness support from the teacher among boys with little or no sport experience, teachers should interact with them more frequently and involve them more into the decision-making process. Recent studies in physical education (Cox, Duncheon, & McDavid, 2009; Cox & Williams, 2008) have shown that perceived relatedness (i.e. feeling socially connected to others) may predict a self-determined motivation even stronger than perceived competence or autonomy. Therefore, teachers should particularly focus on behaviors that help to satisfy students' feelings of relatedness.

The results revealed that girls with different afterschool sport experience perceived the relatedness-supportive behaviors from their peers differently. Specifically, girls with more extensive sport experience perceived their peers to be more friendly and respectful towards them during PE classes, compared to girls who have less sport experience or have no experience at all. Due to the correlational nature of the study it is impossible to argue whether the girls with extensive sport experience are those who are seeking more relatedness support from their peers or, alternatively, are able to get it more easily from their peers. Future research would do well to explore the reasons for the emerged differences in perceptions of relatedness support from peers in depth using the qualitative approach. In order to enhance the perceptions of relatedness support from the peers among the girls with little or no sport experience, teachers should create opportunities where students with different sport experience are able to interact and communicate more with each other. According to the results of the study by Morgan and Carpenter (2002), teachers should set up cooperative tasks in small groups selected randomly to ensure that they are heterogeneous. In doing so, this may facilitate the opportunities that less skilful girls can interact with their peers and feel the encouragement and respect from them.

The results of the current study showed that both boys and girls who participated in organized sport after curricular school hours scored significantly higher in perceived competence in PE than students who did not participate in sport, supporting the hypothesis. This result is consistent with a previous study (Goudas, et al., 2001) which showed that perceived competence in PE is higher for those students who participated in sport outside school. Thus, it can be concluded that the participation in organized afterschool sport is an important factor related to the perceptions of competence in physical education. Furthermore, the results of the present study indicated that students who participated in organized afterschool sport perceived higher than their counterparts without organized sport experience that they are involved in the decision-making process in PE classes (i.e. perceptions of autonomy), and are supported, listened to, valued, etc. (i.e. perceptions of relatedness), confirming our hypothesis. These results support one of the tenets of SDT (Deci & Ryan, 1985, 2000) that three basic psychological needs are complementary. It is therefore not surprising that differences between the three groups occurred in all three needs, except in perceptions of relatedness among girls.

Contrary to our hypothesis that students with afterschool sport experience would score higher on the self-determined types of motivation (i.e. intrinsic motivation and identified regulation) and lower on the non-self-determined types of motivation (i.e. introjected and external regulation) for PE compared to students without sport experience, no significant differences emerged, except in the external regulation among boys. In other words, boys with extensive afterschool sport experience scored significantly higher in external regulation compared to those who had less afterschool sport experience. This suggests that an external reason for participating in PE such as "I will get into trouble if I do not participate in physical education" is relatively dominant for boys who practice sport after curricular school hours. A possible explanation for the higher score on external regulation could be that boys with afterschool sport experience may find PE classes too easy and therefore boring and not challenging for them. Similar results have been found by Hassandra, Goudas, and Chroni (2003) in their qualitative study, in which they examined factors that might be associated with motivation in physical education. In line with work of Hassandra and colleagues (2003), another possible reason for a higher score on external regulation may be that these boys like to do in PE only the same sport that they do outside school. For example, one may like to do only gymnastics in PE because s/he has been doing it for many years after curricular school hours. In order to reduce the domination of extrinsic regulation among boys who participate in

afterschool sport, teachers should make an effort to make the classes for them even more interesting (i.e. offering a wide range of tasks and activities). Also, these students should be provided with tasks that are optimally challenging for their ability, which is, according to SDT (Deci & Ryan, 1985), one of the prerequisites for maintaining interest and intrinsic motivation. Mitchell's (1996) study also showed that for both boys and girls perceiving the learning environment as optimally challenging is an important predictor of intrinsic motivation.

Although the present study provided interesting and unique information about the afterschool sport participation and its relation to SDT-based variables in PE among secondary-school students in Estonia, the reader must be cautioned about the limitations of the study. First, as was already mentioned earlier, this study employed a cross-sectional design. Therefore, the causal order among afterschool sport participation and SDT-based constructs cannot be assumed. Experimental studies are needed to determine if the participation in afterschool sport would lead to higher perceptions of psychological needs support from the teacher and one's peers, a higher perceived satisfaction of the needs for autonomy, competence, and relatedness and different types of motivation. For example,

future research might employ an experimental design in which previously sedentary students would be randomly assigned to various levels of afterschool sport participation programs and then would be assessed on SDT-based variables after participation in these sport programs. Second, the sample consisted predominantly of children aged 13–14 years that reduces considerably the level of generalizability of the results.

In summary, a PE teacher should during the classes focus more on students who are not involved in afterschool organized sport and may not be therefore as skilful and physically competent as those who have participated in afterschool sport. Teachers should use behaviors that support the satisfaction of the students' basic psychological needs for autonomy, competence, and relatedness, which, in turn, would enhance their interest and self-determined types of motivation towards physical education. Teachers should direct interaction between peers so that this would facilitate the students' basic psychological need satisfaction that should result in the promotion of intrinsic and self-determined types of motivation. Physical education teachers are also advised to encourage their students to take part in organized sport outside school, especially those who have not done so yet.

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SUDJELOVANJE U IZVANNASTAVNIM SPORTSKIM AKTIVNOSTIMA: POVEZANOST S POTREBOM ZA POTPOROM, POTREBOM ZA ZADOVOLJSTOVOM I S MOTIVACIJOM U TJELESNOJ I ZDRAVSTVENOJ KULTURI

Cilj je ovog istraživanja bio ispitati razlike u percepciji konstrukata proizišlih iz teorije samodeterminacije kao što su: psihološka potreba za potporom učitelja i vršnjaka, stupanj zadovoljenja potrebe za kompetentnošću, autonomnošću i socijalnom povezanošću te različiti oblici motivacije u tjelesnoj i zdravstvenoj kulturi u učenika koji se bave različitim organiziranim izvanškolskim sportskim aktivnostima. U istraživanje je bilo uključeno 659 estonskih srednjoškolaca koji su ispunjavali upitnike radi vrednovanja ključnih varijabla. Rezultati su pokazali da su dječaci koji su se bavili sportom izvan škole davali značajno više procjene za doživljaj autonomije, povezanosti i potpore koju dobivaju od svojih nastavnika te za doživljaj povezanosti i potpore

koju dobivaju od svojih vršnjaka, zatim za varijable osjećaja autonomije, kompetentnosti te socijalne povezanosti i za varijablu vanjskog upravljanja ponašanjem nego li dječaci koji se nisu bavili sportom izvan redovite nastave. Djevojke koje su sudjelovale u izvannastavnim sportskim aktivnostima su se osjećale značajno kompetentnijima i povezanim s vršnjakinjama te su u višem stupnju zadovoljavale svoju potrebu za autonomijom i kompetentnošću u usporedbi s djevojkama koje se nisu bavile sportom izvan školske.

Ključne riječi: teorija samodeterminacije, adolescenti, percipirane psihološke potrebe, ekstrinzična motivacija, intrinzična motivacija