Relations between sports motivation in physical education classes and dropping out of organized kinesiological engagement in adolescence

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Abstract

Vallerand (2007), suggests a hypothesis stating that the impact of the environment on individuals takes place through a causal chain of processes. *Dropping out of organized kinesiological engagement (sports, dance or recreational activity)* in adolescence is very common, and it is assumed that it is not necessarily induced by an "objective" reason. The aim of this research was to establish the relations between *motivation in physical education classes* and *dropping out of organized kinesiological engagement* occurring in adolescence.

The subject sample included 305 students of finishing grades from primary schools in Trogir, Kaštela and Solin. Variables of *motivation in physical education classes* as well as the frequency of organized kinesiological engagement of adolescents were measured by PEMS – Physical Education Motivation Scale (Milavić, Milić, Jurko, Grgantov, & Marić, 2013) and the adapted TEOSQ-PE questionnaire.

There were no differences between male and female students regarding the frequency of involvement in organized kinesiological engagement: 52 % of the male sample and the female sample are constantly active, while 39 % of female students and 34 % of male students have dropped out of organized kinesiological engagement. In female students, differences were found between the groups of *constantly active* and *drop-outs* in most of the measured motivation variables (mostly measures of *intrinsic motivation* and measures of *amotivation*), while in male students, differences were found in two measures of motivation (measure of *amotivation* and measure of *intrinsic motivation to accomplish things*).

By discriminant analysis, the difference was established in the sample of female students between the groups of *constantly active* and *drop-outs* regarding the motivation in physical education classes, but no differences were found in the sample of male students. The group of *drop-outs* from the organized kinesiological engagement in female students is characterized by higher values of *amotivation in physical education classes*, while the group of constantly active female students is characterized by a higher level of *intrinsic motivation*, but also partly by *extrinsic motivation in physical education classes*.

Results of this research call attention to the necessity of further research of relations of *motivation in physical education classes* and involvement in organized kinesiological engagement of adolescents, with the purpose of establishing the causal relations.

Key words: ***motivation in physical education classes, dropping out of organized kinesiological engagement, intrinsic motivation, extrinsic motivation, students***

Introduction

In his hierarchical model of intrinsic and extrinsic motivation, Vallerand (2007) introduces a hypothesis that the impact of the environment on individuals takes place through a causal chain of processes. Motivation is often defined as the key element of exerciser's perseverance with the exercise regimen (Wilson, & Rodgers, 2007, according to Vallerand, 2007). *Dropping out of organized kinesiological activity (organized sports, dance or recreational activity)* in adolescence is very common, and it is assumed that it is not necessarily induced by an "objective" reason. Barić, & Horga (2006) present two types of goal modeling in sports: task orientation and ego orientation. Maršić, Paradžik, & Breslauer (2006) established statistically significant differences between male and female students in motivation for physical education classes (PE). Male students, in relation to female students, had a significantly higher ego-orientation, but there were no significant differences according to gender in students' task orientation. Horga, & Štimac (1999) used a sample of elementary school students to determine the structure of intrinsic, social and extrinsic reasons for enjoying exercise, and found significant differences according to gender. Social and extrinsic reasons for enjoying exercise were isolated, whereas intrinsic reasons separated into two dimensions: game excitement and striving for mastery in female students, and challenge and striving for mastery in male students. Milić, Milavić, & Grgantov (2011) found that intrinsic sports motivation in primary school students of finishing grades is considerably higher than extrinsic sports motivation. They suggest that it is a good predisposition for participating in *organized kinesiological activity* because such adolescents find more sports satisfaction in skill acquisition and development and increasing personal sport competences, than in expecting, affirming or gaining appraisal from others. Cetinić, Polančec, & Cimerman (2008) established significant differences regarding intrinsic motivation in students of different profiles of *goal orientation*. Students with high task orientation, as opposed to students with low task orientation, make more of an effort and give greater importance to physical education classes, have greater interest for exercise and greater enjoyment in classes. Milavić, Milić, Jurko, Grgantov, & Marić (2013) constructed a scale for *measuring motivation in PE classes*, based on the *Sport Motivation Scale* designed by Pelletier, Fortier, Vallerand, Tuscon, Briere, & Blais (1995). They have established that there were no significant differences according to gender in the *intrinsic* dimension of motivation for PE classes, but there were

differences found in the motivation dimension characterized by *amotivation* and *extrinsic motivation – external motivation* scales.

The aim of this research was to establish the relations between *motivation in PE classes* and *dropping out* of ***organized kinesiological activity (OKA)*** in adolescence.

Applied method

The subject sample consisted of 305 male and female 7th and 8th grade students of elementary schools in Trogir, Kaštela and Solin, without distinct structural deformity which would limit their involvement in sports. Out of 305 participants, 163 were female students, and 142 were male.

Variables of students' motivation for attending and participating in physical education classes were measured by *Physical Education Motivation Scale (PEMS),* constructed by Milavić, Milić, Jurko, Grgantov, & Marić (2013), and by *Task an Ego Orientation for Sport Questionnaire (TEOSQ)*, constructed by Chi, & Duda (1995), adapted for PE classes. Three measures of intrinsic motivation (*Intrinsic Motivation to Know, Intrinsic Motivation to Accomplish Things and Intrinsic Motivation to Experience Stimulation*), two measures of extrinsic motivation *(Extrinsic motivation - External regulation and Extrinsic motivation - Identified)* and *Amotivation* were measured by PEMS questionnaire. *Amotivation* represents the lack of intrinsic and extrinsic motivation, feeling incompetence and lack of control, making such persons with highly expressed amotivation candidates for aborting exercise (Deci, & Ryan, 1985). Two measures were measured by the adapted TEOSQ questionnaire: intrinsic (*task orientation*) and extrinsic (*ego orientation*) orientation of motivation in PE classes. The frequency of organized kinesiological engagement in adolescents (*sports, dance or recreational activity*) was determined by asking students to state, in the general information questionnaire, whether they have been involved in some organized kinesiological activity, and if so, at what age and how long the engagement lasted, and whether they were still active in participating in an organized kinesiological activity. Based on this data, 4 groups were created according to their involvement in OKA: *constantly active* (those who have continuously participated in OKA for more than 3 years), *sport dropouts* (those who have in the meantime dropped out of OKA), *recently activated* (those who have been active for only two years), and *constantly inactive* (those who have never been involved in OKA).

The following statistical procedures were used: calculating the descriptive characteristics of variables, procedures for determining the differences between the groups of adolescents (t-test), and discriminant analysis in order to determine the differences of

measured variables of motivation in PE classes between the two groups of students with different status of *organized kinesiological engagement*.

To be able to compare the results obtained in motivation scales with different number of items, scale results were obtained in such a way that the sum of results of every item in each scale was calculated, and then divided by a number of items of the same scale.

Results

Because of the established differences between male and female students in motivation for PE classes (Milavić et al., 2013), indicating that *extrinsic motivation – external regulation* and *amotivation* is expressed more in male students, all applied statistical procedures were conducted separately for the subsamples of male and female students.

About 52% female (Table 1), as well as male students are constantly active in their involvement in organized kinesiological activity. About a third of adolescents (40% of female students and 34% of male students) have dropped out of the OKA, and about 10% of all students are constantly inactive (8% of female students and 13% of male students). Having compared the percentages of groups with different kinesiological engagement, it has been established that there were no differences between male and female students regarding the frequency of participation in OKA. These findings differ from those of Bego, Samardžić and Turalija (2011), who found that there was a higher percentage of constantly active adolescents (59% of female students and 75% of male students) in a larger city (city of Split), but also a significantly lower percentage of dropouts (29% of female students and 20% of male students).

Table 1. The frequency of organized kinesiological engagement in male and female students

	GROUPS	FEMALE STUDENTS		MALE STUDENTS		TOTAL	DIFFERENCES OF %
		FREQUENCY	%	FREQUENCY	%	FREQUENCY	
ORGANIZED KINESIOLOGICAL ENGAGEMENT	CONSTANTLY INACTIVE	13	7.98	18	12.68	31	
	SPORT DROPOUTS	65	39.87	48	33.80	113	$\chi 2$= 3.70
	RECENTLY ACTIVATED	-	0.00	1	0.70	1	DF=3,1
	CONSTANTLY ACTIVE	85	52.15	75	52.82	160	P= .30
	TOTAL	163	100.00	142	100.00	305	

LEGEND: **$\chi 2$** – $\chi 2$-test coefficient; **DF** – degrees of freedom**; P=** – level of significance of $\chi 2$-test coefficient

Measures of *intrinsic motivation* are noticeably higher than the measures of *extrinsic motivation*, both in female and male students. The measure of *amotivation* is the least

expressed one in both subsamples. By testing the significance of differences in motivation for PE classes in female students, it has been established that the groups of *constantly active* and *dropouts* differ in 8 out of 10 measured motivation variables. In *constantly active* students, all measures of *intrinsic motivation* and a measure of *extrinsic motivation – identified* were higher, and *amotivation* was lower than in *dropouts*.

In male students, statistically significant differences were established only in two variables: *intrinsic motivation – to accomplish things* and in the level of *amotivation*, but the differences between the groups were very close to the significance level (P=.05 and P=.06) for the remaining two variables of intrinsic motivation of the PEMS questionnaire – *to experience stimulation* and *to know.*

Considering it is reasonable to assume that different measures of *intrinsic* and *extrinsic* motivation are correlated to each other, and statistically significant differences have been established between the groups of *constantly active* and *dropouts* in several measures of intrinsic motivation, discriminant analyses were applied in both subsamples in order to determine the ***common effect*** of the motivation variable set on the occurrence of *dropping out* of OKA (Table 2).

Table 2. Descriptive statistics and significance of differences in motivation according to the organized kinesiological engagement

VARIABLE	FEMALE STUDENTS						MALE STUDENTS					
	CONSTANTLY ACTIVE		DROPOUTS		T-TEST	P=	CONSTANTLY ACTIVE		DROPOUTS		T-TEST	P=
	M	SD	M	SD			M	SD	M	SD		
PEMS_AMOTIVATION	1.78	0.09	2.13	0.76	2.54**	**0.01**	1.93	0.92	2.45	1.03	2.91	**0.00****
PEMS_IM_TOEXPER.STIMUL.	3.67	0.89	3.04	0.97	4.13**	**0.00**	3.74	0.83	3.43	0.85	2.02	**0.05**
PEMS_IM_TO KNOW	3.80	1.03	3.21	0.99	3.52**	**0.00**	3.87	0.84	3.57	0.87	1.88	**0.06**
PEMS_IM_TO ACCOMPLISH	3.90	0.91	3.42	1.00	3.10**	**0.00**	3.94	0.87	3.62	0.82	2.05	**0.04***
PEMS_EM_EXTER. REGUL.	2.72	1.04	2.43	0.88	1.79	0.08	3.08	0.94	3.07	0.87	0.04	0.97
PEMS_EM_IDENTIFIED	3.56	0.93	3.17	0.99	2.45*	**0.02**	3.57	0.86	3.49	0.91	0.46	0.65
TEOSQ_TASK ORIENTATION	4.12	0.69	3.73	0.77	3.28**	**0.00**	4.00	0.73	3.87	0.86	0.89	0.37
TEOSQ_EGO ORIENTATION	3.32	0.98	3.21	0.92	0.69	0.49	3.51	0.84	3.31	0.95	1.21	0.23

LEGEND: M – mean; **SD** – standard deviation; **T-TEST** –t-test coefficient; **P=** - significance level of the t-test coefficient; * - statistical significance of the coefficient at the level of p<.05; **** - statistical significance of the coefficient at the level of p<.01.

Significance of differences (p=0.006) in the variable set of motivation for PE classes between the groups of *constantly active* female students and *dropouts* has been established by discriminant analysis. By testing the contribution of each variable within the observed motivational model, it has been established that measures of intrinsic motivation make the greatest contribution to the differentiation of the two groups of female students, and measures of *Intrinsic motivation to experience stimulation* and *Intrinsic motivation to know* make the highest contribution (Table 3).

There was no significance of differences (p=0.071) found by discriminant analysis in the variable set of motivation for PE classes between *constantly active* male students and *dropouts*, but the significance level was not far from the criterion of statistical significance. Therefore, it cannot be claimed with certainty that an expansion or a reduction of the motivational variable set and the increase of the subject sample would not have influenced the procedure of establishing significant differences between these two groups. Even though the level of statistical significance of the motivational variable set has not been achieved, the most prominent contribution of *amotivation* in the differentiation of the two groups is noticeable.

Table 3. Discriminant analyses on samples of male and female students of different *kinesiological engagement* (*constantly active – dropouts*)

SAMPLE	λ	*Rc*	*Wilks' lambda*	χ^2	DF	P=
FEMALE STUDENTS	0.16	0.37	0.86	21.69	8	0.006
MALE STUDENTS	0.13	0.34	0.88	14.45	8	0.071

VARIABLE	Structure matrix	
	FEMALE STUDENTS	MALE STUDENTS
PEMS_AMOTIVATION	0.52	0.73
PEMS_INTINSIC MOTIVATION_TO EXPERIENCE STIMULATION	-0.84	-0.51
PEMS_ INTINSIC MOTIVATION _TO KNOW	-0.72	-0.47
PEMS_ INTINSIC MOTIVATION _ACCOMPLISH	-0.63	-0.52
PEMS_EXTRINSIC MOTIVATION_EXTERNAL REGULATION	-0.37	-0.01
PEMS_ EXTRINSIC MOTIVATION _IDENTIFIED	-0.50	-0.12
TEOSQ_TASK ORIENTATION	-0.67	-0.22
TEOSQ_EGO ORIENTATION	-0.14	-0.30

GROUPS OF ORGANIZED KINESIOLOGICAL ENGAGEMENT	Group centroids	
	FEMALE STUDENTS	MALE STUDENTS
DROPOUTS	0.46	0.45
CONSTANTLY ACTIVE	-0.35	-0.29

LEGEND: **λ** – Eigenvalue; **Rc** – coefficient of canonical correlation; **Wilks' lambda** – Wilks' lambda coefficient (Wλ) of discriminant function; χ^2 – significance test of discriminant function– χ^2 test; ***** – significance level of DF at p<.05; **DF** – degrees of freedom; **P=** – statistical significance level of DF (of χ^2 -test).

Discussion

The findings of this research indicate a somewhat lower level of adolescents' participation in OKA and a higher percentage of dropouts in smaller towns, in relation to adolescents in a larger city (Bego et al., 2011). These differences in the frequency of dropping out of OKA are probably not to be attributed simply to the higher motivation and perseverance in exercise of adolescents in larger cities. Reasons should rather be "looked for" in a likely greater number of possibilities for participation in OKA in a larger city, as well as in possible problems with traffic connections in smaller towns (distance between the settlements, the lack of adequate bus lines). It is recommended to replicate the study using a larger subject sample from cities with different population sizes, but including some variables of availability of OKA (variety of available activities, manner of organization, traffic

connections, expenses of participation in OKA, etc.) because participation of adolescents in organized kinesiological activities is a social goal with the purpose of healthy development of the adolescent population. The established noticeable differences in higher intrinsic motivation for PE classes in adolescents in relation to their extrinsic motivation confirm previous findings of Milić et al. (2011) about similar differences regarding sports motivation.

In female students, the established differences between the groups of *constantly active* and *dropouts* can be attributed mainly to *intrinsic motivation* for participation in physical education classes, because differences have not been established only in two measures of *extrinsic motivation*: *external regulation* and *ego orientation*. Both measures represent exactly that which is usually considered as extrinsic motivation. Although there are considerable differences in relation to female students, the result about the differentiation of groups of male students according to their involvement in OKA is similar to the one obtained on a sample of female students, because significant differences have been established in *intrinsic motivation* and *amotivation*. These findings indicate that motivation for PE classes on one hand, and on the other hand, motivation for participating in organized kinesiological activities, which actually makes students persist or drop out of such activities, have the same source. This source is *intrinsic motivation* of adolescents, a motivation which is not easy to influence.

As the differences in motivation between *constantly active* and *dropouts* were more prominent in female students as opposed to male students, such findings are replicated in discriminant analysis. A group of *constantly active* female students is characterized by high intrinsic motivation, and also by more pronounced measures of *extrinsic motivation*, although to a lesser extent. As opposed to that, the group of *dropouts* among female students is characterized by high *amotivation* in PE classes. Female adolescents who persist in their involvement in organized kinesiological activity are also motivated for participating in PE classes. It can be concluded that there is a ***positive motivational transfer*** between similar activities, those which are obligatory in classes and extracurricular ones, organized outside of regular classes.

Among male students, the differences between the groups of *constantly active* and *dropouts* are more subtle. *Amotivation* is expressed more in the group of dropouts. As earlier, it is recommended to replicate the study by increasing the number of subjects in the sample of male students in order to determine with greater precision whether the groups of *constantly active* and *dropouts* differ in all measures of intrinsic motivation.

Practical value of this paper is in its determination of the existence of *positive motivational transfer* between motivation in PE classes and “the consequences” of free choice

in engaging in organized kinesiological activities. The direction of causal relations cannot be clearly determined, but it can be assumed that the influence is mutual. By acquisition of competences through their involvement in organized kinesiological activities (sports, dance or recreational activities), adolescents also become more motivated for mastering different tasks and activities in PE classes. Also, having successfully mastered the units and tasks of the PE curriculum, adolescents will probably choose kinesiological activities in which they can apply the competences acquired in class, usually being kinesiologically active among their peers, which indirectly affects their socialization. These findings partly confirm those of Cetinić et al. (2008), who have established that students with high intrinsic motivation differ from students with low intrinsic motivation by showing a greater interest in exercise, but also by making more of an effort and enjoying PE classes more, and by giving greater importance to physical education. Moreover, these results "increase" the importance of the complementary function of PE teachers, as well as program creators and experts implementing organized kinesiological youth activities in the area of intrinsic motivation development. Teachers and coaches, by implementing their programs, develop intrinsic motivation of adolescents for persistent mastering of more complex tasks, and significantly influence a positive development of young people. As there is a mutual transfer between obligatory (classes) and organized kinesiological activity (adolescents' free choice), it can be assumed that the acquired competences are also positively transferred into other domains of life, for example, academic (educational) or social domain. Students who are successful in one domain, like the domain of kinesiological activity, are generally motivated, confident about their abilities and competences, persistent in solving problems and tasks, and therefore exhibit a higher level of intrinsic motivation for mastering problems and tasks in other domains of life as well. It is recommended to coaches and others implementing OKA, naturally if the necessary conditions are met within their institutions and clubs, to maintain the engagement of a high number of adolescents, and not to perform selections too soon, in order to support a positive development of adolescents through kinesiological activity involvement over a longer period of time. It is recommended to physical education teachers to give more consideration to individualization and quality communication with students of finishing grades of primary school, and thereby to an enhanced influence of students' motivation for participation in physical education classes.

References

Barić, R., & Horga, S. (2006). Psychometric properties of the croatian version of Task and

Ego Orientation in Sport Questionnaire (CTEOSQ). *Kinesiology 38,* (2), 135-142.

Bego, J.,Samardžić, M., & Turalija, P. (2011). Social-demographic differences of adolescents persistent in sport and adolescents drop-out from sport [In Croatian language]. *Proceedings of 2nd International Symposium " Sport, Tourism and Health"*. Editors: Skender N., N. Čikeš. 14-16 October 2011. Bihać, Bosnia and Herzegovina. 169-172.

Cetinić, J., Polančec, J., & Cimerman, M. (2008). Profiles of a goal orientation in physical education classes: differences in factors of intrinsic motivation [In Croatian language]. U: *Neljak, B. (ur.): 17. ljetna škola kineziologa Hrvatske*, Poreč (pp 101-106). Zagreb: Hrvatski kineziološki savez.

Chi, L., & Duda, J.L. (1995). Multi-Sample Confirmatory Factor Analysis of the Task and Ego Orientation in Sport Questionnaire. *Research Quarterly for Exercise and Sport 66,* American Alliance for Health (2),91-98.

Deci, E.L., & Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Horga, S., & Štimac, D. (1999). Why children exercise? Evaluation of motivational scale [In Croatian language]. *Kinesiology, (0351-1057) 31.* (1), 57-63.

Maršić, T., Paradžik, P., & Breslauer, N. (2006). Gender differences in motivation of physical education classes [In Croatian language]. *Napredak, 147* (3), Zagreb, 328-334.

Milavić, B., Milić, M., Jurko, D., Grgantov, Z., & Marić, K. (2013). Adaptation and validation of the motivation scale in physical education classes. *Croatian Journal of Education, (In press*).

Milić, M., Milavić, B., & Grgantov, Z. (2011). Relations between sport involvement, self-esteem, sport motivation and types of computer usage in adolescents. In S. Simović (Ed.), *Proceedings of 3rd International Scientific Congress "Anthropological Aspects of Sport, Physical Education and Recreation"*. November 2011. Banja Luka: University of Banja Luka, Faculty of Physical Education and Sport (*in press*).

Pelletier, L.G., Fortier, M.S., Vallerand, R.J., Tuscon, K.M., Briere, N.M., & Blais, M.R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale. *Journal of Sport and Exercise Psychology, 17,* 35-53.

Vallerand, R.J. (2007). Intrinsic and Extrinsic Motivation in Sport and Physical Activity. In G. Tenenbaum, & R. C. Eklund (Eds.), *Handbook of Sport Psychology*. (pp. 59-80). Hoboken, NJ: John Wiley & Sons, Inc.