

## GENDER AND AGE DIFFERENCES IN THE ACHIEVEMENTS AND MOTIVATION FOR ENGAGEMENT IN PHYSICAL EDUCATION IN ELEMENTARY SCHOOL

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### Abstract

**Purpose.** Since the aim of PE is to help children understand, develop and adopt patterns of healthy lifestyle, it is necessary to investigate and boost their motivation for adoption of this kind of behaviour. In certain cases PE is the only possibility offered to school children to master basic motor abilities and to actively participate in sports. The best way to attain this aim is arising children's motivation for maximal involvement in PE classes. Gender and age are very important factors that can facilitate or aggravate PE classes.

**Methods.** Our sample consisted of 706 students elementary school from 4th to 7th grade, of both sexes. We were investigated the relationships between student achievement and motivation for engaging in PE. Independent variables were: grade, gender, overall success of the previous grade, grade of physical education, students' opinion on the sufficiency of knowledge acquired in PE classes and engagement of students in sports and dependent one was the score on the scale for measuring motivation for active involvement in PE classes. The data were analyzed by ANOVA, multiple regression analysis and  $\chi^2$  test

**Results.** Girls, regardless of age showed lower levels of motivation. Also, fifth-grade students of both sex showed the highest level of motivation. School achievements were not significant predictors of the level of motivation for engagement at PE but grade, gender, engagement of students in sports and opinion about of sufficiency of knowledge acquired in physical education classes did.

**Conclusions.** Raising pupils' awareness of the advantages for health, regular growth and development, have their engagement in physical activities, at least in the most basic form, such as active participation in physical education classes, would be important for those students who are not involved to any other physical activity out of school, especially for girls in seventh grade who are not involved in physical activity apart from PE classes.

**Key words:** motivation, achievement, PE, age, gender.

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### Introduction

Students' educational achievements are the indexes of efficiency of the instruction process. Students' achievements can result from the efficiency of the overall educational process at certain level of education, but can also be observed partially as a result of educational process of a particular subject. In physical education, as well as in other school subjects, it is essential to monitor educational outcomes. Students' achievements in physical education are an entity consisting of more components, each one with particular importance and weight. It is common to monitor and evaluate sports-technical knowledge (skills-motor skills), students' motor abilities, as well as components such as: general and special knowledge from the field of physical education of students; motivation for participation in games and sports activities (exercise

– training physical activities); relation of students towards physical activities and acquisition of habits to be involved in exercises. (Višnjić, 2004)

All achievement indexes in PE instruction are monitored and expressed among the others by the grade in PE. The grade in PE, although subjective to a great extent, is one of the students' achievement and index of instruction result. It can be observed as an integral index of instruction achievement index (Martinović, 2003).

Some of factors that may have influence on students' grade are PE curriculum, students' gender, sports' involvement, level and quality of motivation, etc. Educational psychologists and curricular researchers seem to agree that the curriculum has a powerful influence on student motivation. Newmann et al. (1996) argued that the curriculum forms a context in which students spend most of their daily lives in school, and suggested that this context also provides a reference frame for students to define and determine the level of success in education. The curriculum, therefore, can be viewed as the

mechanism that energizes students as well as influences the process of internal energizing. Burke (1995) observed that content that stimulates interest, curiosity, and self-fulfillment serves as an excellent motivator. Thus, research on student motivation can be meaningful only when the motivation is studied within the realm of the curriculum for whose goals students are expected to aspire and they are motivated to achieve in the learning process.

Some authors emphasise importance of student–teacher interaction. Drudy & Uí Chatháin (2002) hypothesized that student–teacher interaction patterns can be affected by four key variables: the gender of the teacher, the class size, the gender-typed subject being taught (i.e. feminine-traditional vs masculine traditional) and the gender composition of the class. All these factors are also relevant for quality of teaching process.

Learning in physical education individuals often accomplish by mastering a physical movement through physical training. During this specific learning process, motivation serves as a primary force that leads students to achieve the learning goal (Solmon, 2003). Moreno Murcia et al. (2009) thinks that PE creates exceptionally favourable conditions for creation and development of positive attitudes towards physical activity in general, and especially towards sport at critical period such as adolescence. They found that both extrinsic and intrinsic motivation are positively correlated with the attitudes on importance of PE classes and knowledge acquired in these classes.

Research investigating the motivation of children and youth in physical activity has shown that the beliefs people hold about their ability could be one of the major influencing factors (Wang & Biddle, 2001). This might be an explanation for gender differences: girls may not like sport or exercise because they have a pre-existing belief that they are not ‘cut out’ to be sporty people and they spent less time participating in physical activity. Also of importance was the support found for the hypothesized gender differences, whereby the boys perceived physical education to be more enjoyable than the girls.

Because individual interest in physical activity is associated strongly with student self-identity, especially gender in contexts in which engagement in physical activity occurred, there is a need to understand the impact of gender on interest to enhance the motivation effects. But, also, in both academic and physical activity settings, some researchers have found significant declines in children's competence beliefs and motivation to learn as they become older (Eccles et al., 1998; Xiang et al., 2003). This is particularly important because of long-term effects of PE at health of children. Sallis & McKenzie (1991) thinks that the most important role of modern PE instruction is actually to prepare children for adoption of healthy

and active way of life. They think that is significant for adoption of intrinsic motivation to exercise which further results in active involvement in some sorts of physical activity throughout lifespan.

So, the subject of this paper was investigation of differences between students of different age and gender in PE achievement. The aim of the paper was to determine if there were differences between in PE achievement (expressed by PE marks, general success from the previous grades, opinion of self-sufficiency of knowledge acquired within PE classes and extracurricular sports involvement and students' motivation for engagement in PE classes) according to pupil's gender and age.

#### *Hypotheses:*

- Motivation level for active participation in PE classes shall be greater in male than in female students
- Motivation level for active participation in PE classes shall be greater in younger students
- Male students will have higher PE grade than female
- Female students will have better general success at the end of the previous grade than males
- Younger students will have higher PE grade than older
- Younger students will have better general success at the end of the previous grade than older
- Male students will be more sports involved than females
- Younger students will be more sports involved than older.

## **Method**

### *Subjects*

The sample included 706 pupils (401 males and 305 females) of two elementary schools from the downtown Belgrade, with standard conditions for realization of PE syllabus. It consisted of 154 pupils of 4th grade – age 11, 121 pupils of 5th grade – age 12, 184 pupils of 6th grade – age 13, 247 pupils of 7th grade – age 14.

### *Procedure*

The data were collected in the classroom environment and the research was anonymous.

### *Variables*

Independent variables:

- Age
- PE grade observed through five categories (insufficient, sufficient, good, very good and excellent)
  - Students' general success from the previous grade classified in five categories (insufficient, sufficient, good, very good and excellent),
  - Students' opinion on sufficiency of knowledge acquired through PE instruction expressed by the following categories – sufficient

for some students, sufficient for the majority of students and sufficient for all students.

- Sports involvement – actively, recreationally and not involved at all.

The control research variable was students' gender: male and female.

The dependent variable was the result (score) on the motivation scale obtained by replies from the questionnaire measuring students involvement in PE.

*Instruments*

The research instrument was the questionnaire consisting of:

1. Motivation scale for measurement of involvement in PE,
2. Questions related to the students' achievements (general success from the previous grade, PE grade and the question referring to involvement in sport).

The Motivation scale for measurement of involvement in PE resulted from a revised MSP instrument used for Doctoral thesis of Barjaktarević (2001). The original scale originates from the instrument of Sports achievement motive of (MSP) Lazarević and Havelka (the instrument was created in 1976, and the results were published in 1981 in Serbian), from which a subscale of achievement motives was taken (the instrument also contains subscales for measurement of positive and negative competitive anxiety). The Motivation scale for measurement of involvement in PE consists of 29 items. Some of them were taken from the subscale of Sports achievement motives (from MSP instrument). Certain assertions were taken from the General achievement motives (MOP), created by Lazarević and Havelka (1981, in Serbian). One assertion was added by the revision author Barjaktarević (2001). Scoring was changed with regard to the original scale. Scoring is based on a 5-level Likert scale (1 = never to 5 = always). The possible minimum score on the scale is 29 and the maximum 145 points. The internal consistency of the scale, measured by Cronbach's  $\alpha$  is 0,84 (F = 165,1004, df = 28, p < .000).

*Statistical analysis*

The data were elaborated in SPSS program, using the  $\chi^2$  test, ANOVA and multiple regression analysis.

**Results**

In the examination of the relation between gender and general success from the previous grade, there was statistically significant difference ( $\chi^2 = 21,135$ ; df = 4; p < .000). Girls had better general success from the previous grade than boys.

**Table 1:** The relation between gender and general success from the previous grade

general success from the	male	female	$\Sigma$
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previous grade			
good	30	8	38
very good	125	64	189
excellent	246	233	479
$\Sigma$	401	305	706

In the examination of the relation between gender and the PE grade, there was no statistically significant difference ( $\chi^2 = 2,133$ ; df = 3; p < .545). In the examination of the relation between gender and students' opinion on sufficiency of knowledge acquired through PE instruction, there was no statistically significant difference ( $\chi^2 = 2,099$ ; df = 3; p < .552). In the examination of the relation between gender and sports involvement, there was statistically significant difference ( $\chi^2 = 38,513$ ; df = 4; p < .000). Boys are more involved in sports whether actively or recreationally than girls who were more often not involved at sports at all.

**Table 2:** The relation between gender and sports involvement

sports involvement	male	female	$\Sigma$
not involved at all	55	93	148
recreationally	95	82	177
actively	251	130	381
$\Sigma$	401	305	706

In the examination of the relation between age and general success from the previous grade, there was statistically significant difference ( $\chi^2 = 75,898$ ; df = 12; p < .000). Younger pupils indeed had better general success from the previous grade than older ones.

**Table 3:** The relation between age and general success from the previous grade

general success	Age 11	Age 12	Age 13	Age 14	$\Sigma$
good	1	4	5	28	38
very good	19	19	63	88	189
excellent	134	98	116	131	479
$\Sigma$	154	121	184	247	706

In the examination of the relation between age and the PE grade, there was no statistically significant difference ( $\chi^2 = 16,041$ ; df = 9; p < .066). In the examination of the relation between age and students' opinion on sufficiency of knowledge acquired through PE instruction, there was statistically significant difference ( $\chi^2 = 51,271$ ; df = 9; p < .000). Younger pupils thought that knowledge was sufficient for all students and older ones more often thought that knowledge acquired through PE instruction was sufficient for some students or for the majority of students. In the examination of the relation between age and sports involvement, there was no statistically significant difference ( $\chi^2 = 20,744$ ; df = 12; p < .054).

**Table 4:** The relation between age and students' opinion on sufficiency of knowledge acquired through PE instructions

students' opinion on sufficiency of knowledge acquired through PE instructions	Age 11	Age 12	Age 13	Age 14	Σ
sufficient for all students	79	46	54	47	225
sufficient for the majority of students	50	49	80	116	295
sufficient for some students	26	26	50	84	186
Σ	154	121	184	247	706

It has been shown that higher score on the Motivation scale was achieved by males 12-years-old ( $M = 106,74$ ;  $SD = 19,24$ ) and lowest score was achieved by females 13-years-old ( $M = 92,02$ ;  $SD = 15,28$ ). There were statistically significant differences according to gender and age ( $t = 7,927$ ,  $df = 7$ ,  $p < .000$ ). ANOVA results showed that male students permanently had higher scores on motivation scale, no matter on age, and post hoc comparison by Scheffe test showed that pupils of 14-years-old, both gender, had had statistically significant lower scores at motivation scale.

**Table 5:** The results of pupils at Motivation scale for measurement of involvement in PE according to their age and gender

Age	gender	M	SD	N
11	male	104,42	14,37	92
	female	99,48	15,50	62
	Σ	102,44	14,98	154
12	male	106,74	19,24	50
	female	100,07	16,77	71
	Σ	102,83	18,05	121
13	male	104,02	15,48	97
	female	94,80	14,02	87
	Σ	99,66	15,47	184
14	male	98,27	16,23	162
	female	92,02	15,28	85
	Σ	96,12	16,16	247
Σ	male	102,13	16,33	401
	female	96,21	15,62	305
	Σ	99,57	16,28	706

The data were analyzed by multiple regression analysis in order to establish whether it is possible to predict the level of their motivation for active participation in PE classes based on age, gender, PE grade, general success in previous grade, students' opinion on quantity of knowledge about PE and involvement in sport. In data processing we decided to use stepwise method, since not all predictors proved to be statistically significant. The coefficient of multiple correlation, obtained by this method with all three predictors calculated was  $R = .358$ ,  $F = 17.146$ ,  $df = 6$ ,  $p < .000$  and coefficient of multiple determination was  $R^2 = .128$ .

**Table 6:** Results of multiple regression analysis

Predictors	Unstand. Coeff. B	Std. Error	t	Sig.	Partial Cor.
(Constant)	98,275	8,442	11,641	,000	
age	-1,949	,544	-3,581	,000	-,134
gender	-4,879	1,211	-4,027	,000	-,151
general success from the previous grade	-,855	1,044	-,819	,413	-,031
PE grade	2,809	1,574	1,785	,075	,067
students' opinion on sufficiency of knowledge acquired through PE instruction	-2,942	,787	-3,737	,000	-,140
sports involvement	4,096	,735	5,572	,000	,206

• Age, gender, students' opinion on sufficiency of knowledge acquired through PE instruction and sports involvement proved to be significant predictors of the level of motivation for active participation in PE classes, based on the coefficient of partial correlation. Younger boys, who are not involved at sport at all and think that knowledge acquired through PE instruction is sufficient for all students had the higher scores at Motivation scale for measurement of involvement in PE.

### Discussion and conclusion

If the real aim of PE instruction is to help children understand, develop and adopt patterns of healthy lifestyle, it is necessary to investigate and boost their motivation for adoption of this kind of behaviour and the best way to attain this aim is their motivation for maximal involvement in PE classes. This is not an easy task, since, many factors can interfere.

Gender is a very important factor that can facilitate or aggravate PE classes. Williams (1988) established that girls, contrary to boys, do not like neither the competing atmosphere in the class, or the classes dedicated to team sports. Also, Clifton & Gill (1994) reported that because of social influences, male and female students can develop differentiated individual interest in physical activities. At an early age, boys begin to show preferences for team sports, whereas girls begin to favor rhythmic activities (Lee et al., 1999).

Chepyator-Thomson & Ennis (1997) established that gender-related stereotypes for sports activities are manifested in PE classes as well. Namely, it has been shown that males avoid aerobic classes and high-school female students avoid

weight lifting. In the mixed softball game males shouted abuse and critics at females and passed the ball less frequently to them than to their fellow male players in the mixed game of football. Thus, research by Adler et al. (1992) and Thorne (1993) suggests that girls may perceive that it is socially unacceptable to be strong, physical and athletically talented as this is the very definition of a popular boy.

The relationship for girls and femininity to PE is complex, partly because the agenda is at least partially set by the boys (Paechter, 2001) and part of the fear revolved around how they looked to others, particularly to the opposite sex. In the examination of the relation between gender and sports involvement at this sample, there was statistically significant difference.

Boys are more involved in sports whether actively or recreationally than girls who were more often not involved at sports at all. This result emphasise all over the world detected tendency that girls generally are less involved in sport activities, of all levels.

Koka & Hein (2003) think that the influence of PE teacher must not be neglected and that PE teacher can be motivator, i.e., role model for his students. Additionally, Koka & Hein (2003) think that a teacher by his/her feedback can contribute to boosting of motivation in his students and desire to achieve good results and to maximally get involved in classes, and one of the basic forms of both collaboration and feedback of students about his/her activities in the school system is actually the grade.

Positive grade can be an indicator of child's successfulness, effort and interests as well as an important motivator for further involvement in physical activity, since it affects child's experience of his/her own competence.

They established that there is high correlation between feedback providing and interest for involvement in PE classes. This research didn't confirmed these authors assumptions since PE grade didn't proved to be important predictor of the level of motivation for active participation in PE classes, neither general success from the previous grade.

This is consistent with opinion of Nicholls (1989) that as children progressed through school, teachers' assessments were less likely to reflect effort or improvement and more likely to reflect class rank on formally evaluated tests or assignments.

But, there are also gender differences at school achievements. In the examination of the relation between gender and general success from the previous grade, there was statistically significant difference.

Girls had better general success from the previous grade than boys. Also, in the examination

of the relation between age and general success from the previous grade, there was statistically significant difference.

Younger pupils indeed had had better general success from the previous grade than older ones.

Reason for this might be more complex patterns of education and enlargement number of school subjects at elder age. According to this, in the examination of the relation between age and students' opinion on sufficiency of knowledge acquired through PE instruction, there was statistically significant difference.

Younger pupils thought that knowledge was sufficient for all students and older ones more often thought that knowledge acquired through PE instruction was sufficient for some students or for the majority of students. PE classes at elder age are more complex.

Especially reason for the result might be sought in specificities elementary school system in Serbia because since the 5th grade classes of PE leads physical education professor instead of a teacher.

This also might be an explanation for result that male students permanently had higher scores on motivation scale, no matter on age, and post hoc comparison by Scheffé test showed that pupils of 14-years-old, both gender, had had statistically significant lower scores at motivation scale. Van Wersch et al. (1992) had also shown that as children grow older their interest and participation in physical education (PE) decreases.

This research showed that 5th grade male pupils had the highest motivation. The explanation should be sought in a greater desire of males to compete.

Also, at this age increases the number subjects in school and the numbers of commitments for children so that they have less opportunity to engage in PA outside school. The most probable explication for consistent gender differences in level of motivation for active involvement in PE classes is that in Serbia, in PE classes, the most frequent sports activities are sports games (basketball, soccer, handball and volleyball).

Age, gender, students' opinion on sufficiency of knowledge acquired through PE instruction and sports involvement proved to be significant predictors of the level of motivation for active participation in PE classes, based on the coefficient of partial correlation. School achievements didn't approve to be significant factors from active involvement in PE classes.

Commensurate with such findings, from aspect of school curriculum, there is a resurgent researchers interest in understanding the motivational processes underlying behavior and psychological well-being in school physical education classes.

PE classes play a more central role in increasing physical activity levels among young people, as these classes contain nearly all members of an age cohort.

As the physical ability, interest levels, and the effortful investment of students within PE classes can be quite discrepant, understanding the motivational issues undergirding participation in this setting is particularly interesting to researchers and practitioners alike.

Finally, it can be sum up that initial hypotheses have been confirmed, that the level of motivation for active participation in PE classes is higher in male than in female students. Younger boys, who are not involved at sport at all and thinks that knowledge acquired through PE instruction is sufficient for all students had the higher scores at Motivation scale for measurement of involvement in PE.

Therefore, it is very important to raise awareness of the advantages for health, regular growth and development of children, provided by involvement in physical activity, at least in the most elementary form, such as active participation in PE classes among those elder girls who are not involved in any other extracurricular physical activity.

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