

Research article

**EMPIRICAL REVIEW OF PHYSICAL EDUCATION
ACCOMPLISHMENTS IN SECONDARY SCHOOLS**

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Abstract. *This paper emphasizes the important place that physical education and sport have in the system of education, as well as the significance of health, physical and functional abilities, and interests in physical activities. This research examines the attitudes of secondary schoolchildren towards sport and physical activities. The research is focused on three basic goals: 1. a theoretical one, which analyzes the relevant reference materials for the purpose of recognizing theoretical and methodological aspects related to the study of the importance of sport and physical activities among young people; 2. a cognitive one, which examines the schoolchildren's attitudes towards sport and physical activities; 3. an applicable one, which means that this research is expected to contribute to the increase in the secondary schoolchildren's awareness of the importance of sport and physical activities. The methods used are descriptive, including the Likert-type scale (SASS-FAS) containing 28 items. The research was conducted on a sample of 1013 secondary schoolchildren on the territory of the Nišava District. The obtained results show that schoolchildren have positive attitudes towards physical education and sport. However, their responses prove that they spend their free time doing some other, non-physical activities. The secondary schoolchildren's responses are characterized by a high level of consistency with no statistically significant difference evident regarding the grade they attend, $p > 0.05$.*

Key words: *Physical Education, Sport, Secondary Schoolchildren, Empirical Research*

INTRODUCTION

Physical education represents a mandatory subject in the school curricula and is taught twice a week. The introduction of education standards have defined the accomplishments that schoolchildren are expected to achieve during physical education classes in terms of skills, knowledge and physical activities assessment. Besides practical skills, schoolchildren

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acquire particular knowledge about physical activity and its benefits, and they thus create their own attitudes, which are supposed to be positive and consequently contribute to their being physically active in adulthood. A standardized physical education syllabus should include the physical activities that are beneficial for schoolchildren's health (Morgan & Hansen, 2008; Waddington, Malcolm, & Green, 1997) and introduce schoolchildren to all the advantages and qualities of physical activities in general (Coe, Pivarnik, Womack, Reeves, & Malina, 2006). Physical activity at an early age significantly contributes to the increase of popularity of sports and a healthy way of life among schoolchildren. Physical education classes in schools are successful and efficient in that they contribute to the development of a physically active way of life (Rink & Hall, 2008). Physical activity is the main aspect in promoting health and healthier lifestyles (Bailey, 2006; McLachlan & Hagger, 2011).

Playing sports or doing any kind of physical activity, either recreationally or professionally, has proved to be beneficial for various areas of life. It makes people happy, enhances cognitive abilities and functions, increases self-confidence, decreases stress and anxiety, contributes to making new friends, improves lifestyles, contributes to affective, social and cognitive development, boosts self-confidence and self-respect among schoolchildren. Moreover, physical activity reinforces the sense of belonging to the group, of being involved in teamwork, of peer support, of support offered by parents and teachers, as well as spending time with friends and peers. What motivates schoolchildren to do physical activities and participate in sports games and competitions is a positive classroom atmosphere and a variety of physical activities to choose from. (Rink & Hall, 2008). A large number of studies have proved that physical activities contribute to the prevention of various diseases, such as obesity, depression, mental health, osteoporosis, cancer, cardiovascular diseases, diabetes and asthma, both at the primary and secondary stage of the disease in question (Blair, Kohl, Gordon, & Paffenbarger, 1992; Elmagd, 2016; Warburton, Nicol & Bredin, 2006; Logstrup, 2001; Strong, Malina, Blimkie & Daniels, 2005).

The fact is that the number of states in which individuals play sports actively is not so large. The most active are the citizens of the Netherlands and New Zealand (Inglehart et al., 2014a). According to the data obtained in 2006, the young people from Serbia, up to 29 years of age, evaluated their physical health as very good, but also as good and bad. Out of 311 respondents, only 11.6% of them were active members of certain sports clubs, most of them males (Inglehart et al., 2014b).

Schoolchildren's inner motivation is crucial for doing any kind of physical activity and their achievements in physical education and sport at school. Motivation represents a combination of psychological processes related to schoolchildren's attitudes to sports, amount of dedication, effort control and their affective response to sports (Kretschman, 2014; Wallhead & Ntoumans, 2004). Schoolchildren's achievements in physical education may be improved by taking certain measures, such as emphasizing enjoyment and invested efforts, perception of competences necessary for successful physical activity, orientation referring to achievement goals, perception of a motivational atmosphere, and the significant role played by a physical education teacher (Walhead & Ntoumans, 2004). Physical education teachers are not able to either engage their pupils or motivate them for physical activity without an appropriate teaching strategy (Chen & Ennis, 2004).

Physical education teaching appears to be a segment of education which is most suitable for conducting action research (Maksimović & Osmanović, 2018). Yet, schools

are known to be decreasing requirements related to physical education. Physical education classes are commonly replaced by other teaching activities aimed at the improvement of schoolchildren's academic achievements (Coe et al., 2006). This cannot be perceived as a clever and efficient method that will have a positive effect on the schoolchildren's academic achievement. Certain authors (Osipov, Vonog, Prohorova & Žavner, 2016) have obtained disappointing results related to an evident underestimation of the significance of physical education for the health and wellbeing of the young. This includes a smaller number of physical education classes as prescribed by school curricula, inadequate funding from the government budget, as well as insufficient human resources as an undeniably important aspect of physical education in schools. A great number of authors have done research on the importance of physical activities and their effect on schoolchildren's development (Pesce, Faigenbaum, Crova, Marchetti & Bellucci, 2012; Lounsbery, McKenzie, Morrow, Holt & Budnar, 2013; Morrow, Jackson & Payne, 1999; Bocarro, Kanters, Casper & Forrester, 2008; Morgan & Hansen, 2008; Verstraete, Cardon, De Clercq, & De Bourdeaudhuij, 2006; Coe et al., 2006; Taras, 2005; Chen & Ennis, 2004; Rink & Hall, 2008). As an integral part of the education system, physical education extends over the most intensive period of a young person's growing up between the ages of 6 and 15, which in turn coincides with the most sensitive period related to the development of a child's motor skills, as well as psychological personal changes, and is thus relevant for the long-term and appropriately directed influence accomplished by carefully organized teaching methods. According to numerous authors, it is important that schoolchildren develop their motor skills by gaining experience in physical education classes, and their active relationship with other school subjects.

The aim of this research is to examine secondary schoolchildren's attitudes towards sport and physical activities. The research objectives are to examine the schoolchildren's attitudes to the significance of sport and physical activities, to the significance of physical education as a school subject, and to the influences that external factors may have on increasing or decreasing the amount of physical activity.

METHODS

The theoretical framework includes the method of theoretical analysis which reviews various methodological approaches to the study of the significance of sport and physical activity. The method also used is a descriptive method, which constitutes the empirical and analytical part of this research.

The data on secondary schoolchildren's attitudes towards sport and physical activities were collected using the scaling technique and the Likert-type scale named the Scale of attitudes of secondary schoolchildren towards sport and physical activities (SASS – FAS). The study of the metrical characteristics of the instrument using Cronbach's Alpha coefficient (Cronbach Alpha is 0.780) showed that the instrument fulfilled the reliability criterion. The Cronbach Alpha coefficient showed that all the items (28 in total) measured the same phenomenon, i.e., that they were consistent. The sample of 1013 schoolchildren (100% valid sample) confirmed the reliability of the *Scale of attitudes of secondary schoolchildren towards sport and physical activities*.

A total number of 1013 secondary schoolchildren from the Nišava District participated in this research, which was conducted in the second half of 2018. The sample was selected

randomly. The schoolchildren were given the opportunity to provide the responses electronically.

A total of 264 first-year pupils, 228 second-year pupils, 288 third-year pupils and 233 fourth-year pupils from secondary schools participated in the research. The sample included grammar school pupils and vocational secondary school pupils, 1013 secondary schoolchildren in total (100% valid sample $M=2.48$; $SD= 2.48$; $N=1013$).

Procedures

The main factors of the *Scale of attitudes of secondary schoolchildren towards sport and physical activities* were identified by means of the factor analysis. The factors were identified according to the schoolchildren's responses to the specified statements (from 1 – Strongly disagree to 5 – Strongly agree).

Table 1 Matrix of the structure of the identified factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.15	21.97	21.97	6.152	21.97	21.97
2	3.77	13.47	35.44	3.771	13.47	35.44
3	2.13	7.61	43.04	2.130	7.61	43.04
4	1.56	5.58	48.63	1.444	5.16	53.78

Four factors were identified that explained 53.78% of the total cumulative variance, which justifies the use of the factor analysis in this research. A varimax rotation was used to identify four factors that were useful in further statistical analysis.

The following items were distinguished for the first factor named *The significance of sport and physical activities*: I play a sport; I go to the gym regularly; I go jogging a few times a week; Pupils who play sports regularly neglect their school duties; I don't do any exercises; Sport helps in the development of socialization; I am more self-confident when I am physically active on a regular basis.

The following items were distinguished for the second factor named *The educational component of physical education as a school subject*: Physical education is a vital component of school teaching; We are usually bored during physical education classes; Physical education is the only school subject that is concerned with the importance of health; I am not motivated to participate actively in physical and health education classes; Our physical education teacher allows us to be active in accordance with our preferences; I am physically active only in physical education classes, not after school; Physical education is an ineffectual school subject.

The following items were distinguished for the third factor named *The influences on the physical activity of the young*: I prefer watching TV to being physically active in my free time; I spend most of my day on my mobile phone; I cannot imagine a day without using social networks; I don't have time for sport and recreation; I occasionally exercise to videos from the Internet; Insufficient physical activity due to an overwhelming presence of the media has become a national problem; I feel more relaxed while surfing the net than while doing physical exercises.

The following items were distinguished for the fourth factor named *Moderate physical activity of adolescents*: Moderate physical activity helps me to relax mentally; Physical activity is beneficial for one's health; I think that my school friends who are physically active do not have to deal with the issue of obesity; I go for one-hour walks a few times a week; Physically inactive pupils a double risk of suffering from some diseases in comparison to physically active pupils; Secondary schoolchildren do not have enough time to play sports because of school duties; I am not physically active at all.

The data were obtained by means of a factor analysis, descriptive statistics (arithmetic mean-M and standard deviation-SD) and Spearman's correlation procedure that examined the connection between the studied phenomena, i.e., the respondents' attitudes and the grades they attended, or in other words, whether these attitudes were in positive or in negative correlation with the grades the respondents attended and whether their positive attitudes towards physical education and sport were better or worse as regards their school year.

RESULTS

Table 2 Significance of sport and physical activity

	N	Min	Max	Mean	SD
I play a sport	1013	2.00	5.00	4.5696	.66
I go to the gym regularly	1013	1.00	5.00	3.1767	1.24
I go jogging a few times a week	1013	1.00	5.00	4.6723	.62
Pupils who play sports regularly neglect their school duties	1013	1.00	5.00	3.2902	1.22
I do not do any exercises	1013	2.00	5.00	2.6456	.57
Sport helps in the development of socialization	1013	1.00	5.00	4.1994	.88
I am more self-confident when I am physically active on a regular basis	1013	2.00	5.00	4.4580	.64
Valid N (listwise)	1013				

Physical education is a school subject whose purpose is to help pupils become educated in the field of physical activities by providing them with the required knowledge, skills and abilities which are significant for any kind of physical activity. Physical activity represents a complex form of behaviour whose intensity, frequency and type of activity change constantly. Regular and proper physical activity is the key component of the education system.

The research showed that schoolchildren highly valued the significance of sport and physical activities. Positive attitudes of schoolchildren dominated their responses to the majority of items defining the factor *The significance of sport and physical activities* and are close to 4 ($M = 4,00$), which confirmed the agreement on *The Scale of attitudes of secondary schoolchildren towards sport and physical activities* and a positive attitude towards the identified research factor.

With Spearman's correlation the research proved that the positive attitudes were not related to the independent research variable. Regardless of their grade, the pupils' responses were largely homogenous (Spearman's rho $r=0.03$; $p>0.05$). The obtained results confirm the proposition, there is no statistically significant connection between the first identified factor, *The significance of sport and physical activities*, and the independent variable – *The school grade*.

Table 3 Physical education as a school subject

	N	Min	Max	Mean	SD
Physical education is a vital component of school teaching	1013	1.00	5.00	4.25	.79
We are usually bored during physical education classes	1013	2.00	5.00	2.72	.73
Physical education is the only school subject which is concerned with the importance of health	1013	1.00	5.00	4.52	.72
I am not motivated to participate in physical and health education classes	1013	1.00	5.00	2.72	.73
Our physical education teacher allows us to be active in accordance with our preferences	1013	1.00	5.00	3.52	1.14
I am physically active only in physical education classes, not after school	1013	1.00	5.00	2.21	1.29
Physical education is an ineffectual school subject	1013	2.00	5.00	2.31	1.37
Valid N (listwise)	1013				

A structured physical education curriculum, which provides all prerequisites for successful physical activities and testing of physical skills and abilities, may have long-term effects on children's physical activity and thus contribute positively to this goal. (Bocarro et al., 2008).

An efficient physical education programme should be oriented to pupils' needs, abilities, skills, interests, in accordance with the pace most suitable to schoolchildren. A physical education teacher is responsible for the creation of an appropriate and efficient physical education programme. Table 3 shows that, regarding the arithmetic mean (M), secondary schoolchildren were not bored in PE classes, they were physically active after school and did not think that PE was an ineffectual school subject. Schoolchildren recognized and acknowledged the educational component of PE as a school subject.

The research proved that there was no positive relationship between positive or negative attitudes and the independent research variable.

Regardless of their grade, schoolchildren's responses were largely homogenous (Spearman's rho $r=0.03$; $p>0.05$). The obtained results confirm the assertion - There is no statistically significant connection between the second identified factor, *The educational component of physical education as a school subject*, and the independent variable - The grade.

Table 4 Influences on physical activity of the young

	N	Min	Max	Mean	SD
I prefer watching TV to being physically active in my free time	1013	1.00	5.00	4.35	.66
I spend most of my day on my mobile phone	1013	2.00	5.00	2.27	1.22
I cannot imagine a day without using social networks	1013	1.00	5.00	4.24	.81
I don't have time for sport and recreation	1013	1.00	5.00	4.26	.75
I occasionally practice to videos from the Internet	1013	1.00	5.00	2.99	1.17
Insufficient physical activity due to an overwhelming presence of the media has become a national problem	1013	1.00	5.00	4.12	.78
I feel more relaxed while surfing the net than while doing physical exercises	1013	2.00	5.00	4.49	.63
Valid N (listwise)	1013				

Extracurricular activities may enlarge the range of schoolchildren's skills and have a positive effect on their constant and life-long dedication to sport and physical activities (Bocarro et al., 2008).

However, regardless of the fact that the respondents highly valued the importance of physical education as a school subject and its educational component, the research results were all but encouraging. They showed that schoolchildren succumbed to the entertaining contents offered by contemporary technologies. The arithmetic mean (M) of the responses proved that schoolchildren were frequently influenced by multimedia, the factor that predominantly occupied their free time (Table 4). The respondents' responses confirmed that they preferred spending time on the Internet, social networks, and mobile phones to doing any kind of physical activity. This calls for a greater responsibility of schools and physical education as a school subject.

A physical education teacher has to create an appropriate environment that can motivate schoolchildren for doing physical activities. The teacher has to know their pupils and regard them as multidimensional personalities, whose physical, cognitive and emotional skills are to be seriously considered. Cognitive skills refer to the conceptual understanding of the study materials, emotional skills are related to emotional experience regarding school, classroom activities and school life in general, but also the activities done outside of school. This research is focused on the physical skills, i.e., the development of motor and sports skills (Khalkhali, 2012; McCaughtry, Barnard, Martin, Shen & Kulinna, 2006).

The research proved that there was no connection between positive or negative attitudes and the independent research variable.

Regardless of the school grade of the respondents, their responses were mainly homogenous (Spearman's rho $r=-0.04$; $p>0.05$). The obtained results confirm the proposition: There is no statistically significant connection between the third identified factor, *The influences on the physical activity of the young*, and the independent variable – The grade of the respondents.

Table 5 Moderate physical activity of adolescents

	N	Min	Max	Mean	SD
Moderate physical activity helps me to relax mentally	1013	1.00	5.00	4.65	1.06
Physical activity is beneficial for one's health	1013	2.00	5.00	4.30	.76
I think that my school friends who are physically active do not have to deal with the issue of obesity	1013	1.00	5.00	4.21	.76
I go for one-hour walks a few times a week	1013	1.00	5.00	3.34	.70
Physically inactive pupils run a double risk of suffering from some diseases in comparison to the physically active pupils	1013	1.00	5.00	4.66	1.05
Secondary schoolchildren do not have enough time to play sports because of school duties	1013	1.00	5.00	4.28	.74
I am not physically active at all	1013	2.00	5.00	2.50	1.20
Valid N (listwise)	1013				

The research showed that, despite the fact that secondary schoolchildren preferred other types of activities to physical activities and sport, they actually were physically active. The respondents also demonstrated a considerable awareness of all the consequences of being physically inactive and acknowledged all the benefits of physical education as a school

subject. The high value of the arithmetic mean confirmed that secondary schoolchildren often lacked time to play sports due to numerous school duties. Therefore, the fact that they spent their free time doing other activities that did not involve being physically active is not surprising. Spearman's correlation proved that there was no connection between positive or negative attitudes and the independent research variable.

Regardless of the school grade, the schoolchildren's responses were largely homogenous (Spearman's rho $r=-0.04$; $p>0.05$). The obtained results confirm the statement: There is no statistically significant connection between the fourth identified factor, *Moderate physical activity of adolescents*, and the independent variable – the grade of the respondents. The intensity of physical activities did not depend on the grade the respondents attended, and vice versa.

DISCUSSION

This research represents an empirical review of schoolchildren's attitudes towards the importance of physical education. Numerous studies dealt with the achievements of physical education in elementary and secondary schools. The results of these studies show that it is crucial to engage in physical activity, that interest in and achievement of students in the fields of physical education and sports, requires intrinsic, or internal motivation (Kretschman, 2014; Wallhead & Ntoumans, 2004). Measures that can be taken to increase students' progress in physical education are the pleasure, the effort involved, the perception of the competencies necessary for successful physical activity, the orientation of the goals of achievement, the perception of the motivational climate, and the participation of physical education teachers as important figures for the achievement of students. Such theoretical postulates were also confirmed empirically (Walhead & Ntoumans, 2004; Chen & Ennis, 2004). Without a proper strategy, physical education teachers are not able to hire students and motivate them to take part in physical activity.

In the presented empirical research, four main factors were identified that explained 53.78% of the total cumulative variance using the statistical procedure, factor analysis. The following factors were identified according to the schoolchildren's attitudes: the significance of sport and physical activities; the educational component of physical education as a school subject; external influences on the physical activity of the young; and the importance of moderate physical activity among adolescents. The high level of the arithmetic mean of the respondents' responses obtained using statistical procedures confirmed that the secondary schoolchildren valued the importance of sport and physical activities, especially during the adolescent period. However, advanced technologies and the world of multimedia are largely responsible for their being less physically active.

It is the task of education to motivate schoolchildren to play sports and do various physical activities rather than spend their free time on the Internet, social networks and mobile phones. Similar research has shown that the grade the respondents attended was inversely proportional to their being physically active (Johnston, Delva, & O'Malley, 2007).

Physical activity should begin at an early age, and this is a step that significantly contributes to the development, but also to the popularization of sports and a healthy lifestyle. Teaching in schools is successful and effective as much as it contributes to the physically active lifestyle (Bailey, 2006; McLachlan & Hagger, 2011; Rink & Hall, 2008). Physical activity is a major factor in the promotion of health and aspirations for a healthy lifestyle.

CONCLUSION

Considering the presented results, it can be concluded that there is no connection between schoolchildren's physical activities and the grade they attend, so that it is not possible to state firmly that physical activity either increases or proportionally decreases as pupils grow older and enroll in a higher grade ($p > 0.05$).

The obtained results confirm the general proposition that secondary schoolchildren's responses are expected to be homogenous without any statistically significant connection with the established independent variable, the grade they attend.

Regular physical activity should be given priority in the education system . Therefore, the achievements, feasibility and potentials of physical education as a school subject in secondary schools should be continually studied and improved.

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EMPIRIJSKI PREGLED POSTIGNUĆA FIZIČKOG VASPITANJA U SREDNJIM ŠKOLAMA

U radu je istaknut značaj fizičkog vaspitanja i sporta u sistemu obrazovanja, značaj zdravstvenih, fizičkih i funkcionalnih sposobnosti i interesovanja za bavljenje fizičkim aktivnostima. Ovo istraživanje usmereno je na ispitivanje stavova učenika srednjih škola o sportu i fizičkim aktivnostima. Istraživanje je fokusirano na temeljima tri cilja: 1. Teorijski, da se proučavanjem relevantne literature sagledaju svi teorijski i metodološki aspekti u cilju ispitivanja značaja sporta i fizičkih aktivnosti u životu mladih; 2. Saznajni, da se ispituju stavovi učenika o sportu i fizičkim aktivnostima; 3. Aplikativni: da istraživanje doprinese buđenju svesti o značaju sporta i fizičke aktivnosti kod učenika srednjih škola. U istraživanju je korišćenja deskriptivna metoda, tehnika skaliranja sa instrumentom skale procene Likertovog tipa (SUSŠ-FAS) koja sadrži 28 ajtema. Istraživanje je sprovedeno na uzorku od 1013 učenika srednjih škola na teritoriji nišavskog okruga. Rezultati su pokazali da učenici imaju pozitivne stavove o fizičkom vaspitanju i sportu, ali da slobodno vreme provode radeći druge aktivnosti koje nisu "fizičke". Kod srednjoškolaca dominira visok stepen homogenosti odgovora i nema statistički značajne povezanosti sa razredom koji učenici pohađaju, $p > 0.05$.

Ključne reči: fizičko vaspitanje, sport, učenici srednjih škola, empirija