

**ATTITUDES OF PRIMARY SCHOOL STUDENTS TOWARD PHYSICAL EDUCATION: AGE
AND GENDER SPECIFICS**

Duško Lepir, Aleksandar Pajkić, Željko Sekulić

Faculty of Physical Education and Sport, University of Banja Luka, Republic of Srpska,
Bosnia and Herzegovina

Abstract

The primary goal of this paper was to examine the attitudes of primary school students towards different aspects of physical education, with special emphasis on the specifics of age and gender categories. Also, the emotional relation towards physical education was examined through its ranking on the list of favorite subjects, and it was brought in connection with attitudes. The sample consisted of 6627 students (boys 3341 - 50.4%; girls 3286 - 49.6%) of primary schools in the city of Banja Luka (Republic of Srpska, Bosnia and Herzegovina), of which 2201 elementary school students and 4426 middle school students. Using t-tests, it was found that elementary school students in relation to the middle school students show statistically significantly higher values for the general attitude towards physical education. A comprehensive approach to the analysis of 15 separate items showed that the former express significantly higher values for most items. Girls and boys do not differ in terms of a general attitude towards physical education. Elementary school students ranked physical education better than other subjects, while girls of both age categories ranked physical education somewhat worse than boys. Better attitudes and ranking by younger students indicate the priority of this phase of life for physical education and the need to raise quality in working with this age. Declining values at an older age (middle school) require more proactive teacher action with an emphasis on the implementation of interesting content. The lack of differences between the attitudes of girls and boys calls for a renunciation of the traditional assumption that only boys have a benevolent attitude towards physical education. This implies greater support for girls and their stronger involvement in all organizational forms of physical education (sports sections, school competitions).

Keywords: PHYSICAL EDUCATION / SEX / AFFECTIVE AND COGNITIVE DIMENSIONS / TEACHERS

Correspondence with the author: Dusko Lepir, E-mail: dusko.lepir@ffvs.unibl.org

INTRODUCTION

The connection between adult people's regular physical activity and their better health status, which can be seen in a lower rate of chronic diseases (heart diseases, cardiovascular diseases, type 2 diabetes, hypertension, and osteoporosis) and lower risk of premature death, has been confirmed long ago (Bauman, 2004; U.S. Department of Health and Human Services, 1996). Recent research has shown that this causal relation is rooted in childhood and adolescence (Cook, Auniger, & Huang, 2009; Halfon, Verhoer, & Kuo, 2012) and that this period is a sensitive phase of development when correct values and healthy habits need to be formed.

The significance that childhood and adolescence have in laying the basis for a long and healthy life, raises the question of a more efficient approach in planning the achievement of these goals. The most logical answer for the majority of countries was obligatory physical education classes in elementary and middle schools. Unlike organized recreational activities outside the class, physical education classes integrate all children through regular physical activity (two hours a week, three hours a week, or even everyday activities). It is a unique opportunity to achieve the aforementioned health norms and adopt positive attitudes toward physical activity. Physical education can and should serve as a medium that would influence students' attitudes toward physical activity and health since it has the potential to reach every single child (McKenzie, 2003).

By researching determinants that best explain active participation in physical education classes, experts have agreed that attitudes toward physical education are the key element to which attention should be directed if we are to understand motivational processes (Biddle, & Mutrie, 2001; Solomon, 2003; Subramaniam, & Silverman, 2007). *Attitudes* are individual positive or negative feelings toward a given object (Gonzales, 1992; Oppenheim, 1992; Sabini, 1995). They can change under certain influences, despite their permanent character (Oppenheim, 1992; Tinker, 1991). This means that positive attitudes are developed in situations that lead to regular pleasant experiences, while unpleasant experiences cause the opposite effect (Oppenheim, 1992; Tinker, 1991).

Researchers' interest in attitudes in physical education has a long history (see Silverman, & Subramaniam, 1999). This could be justified by results that indicate that people with positive attitudes toward physical education are more likely to participate in physical activities outside the class (McKenzie, 2003; Portman, 2003), and an active lifestyle in childhood results in a higher probability of an active lifestyle in adulthood (Telama, Yang, Laakso, & Viikari, 1997).

The first phase of the aforementioned research is characterized by the so-called unidimensional approach. This implies that when using the term attitude, it referred only to the affective dimension, which means that the attention is focused only on studying emotions, or more precisely, feelings toward different aspects of physical education (e.g. general emotion towards physical education, teacher, collective, etc.). Having realized how limited this approach was, researchers turned their attention toward a two-dimensional construct, where they took into account not only the emotional domain but also the cognitive domain. It refers to beliefs/opinions on the characteristics of the object of attitudes, the object, in this case, being physical education (see Silverman, & Subramaniam, 1999; Subramaniam, & Silverman, 2000). The most common characteristics of physical education that are taken into account are the utility of physical education, curriculum, or the level of expertise of the teacher. The truth is that there is no widely accepted construct for exploring attitudes toward physical education classes (Silverman, & Subramaniam, 1999), given that experts use different theoretical conceptions depending upon the needs and specificities of the research they are conducting at the given moment.

Apart from the focus on researching different dimensions of attitudes in physical education classes, research in this field tells us that it is justified to analyze differences between genders and among age groups. Researches conclude that boys and girls express different attitudes (Biddle, & Mutrie, 2001; Chatterjee, 2013). The differences are more visible between younger and older age groups since older students show less positive attitudes toward physical education, as well as intensity and commitment in class (Anderseen,

Wold, & Torsheim, 2005; Kjonniksen, Fjortoft, & Wold, 2009; Lazarevic, D., Orlic, A., Lazarevic, B., & Radisavljevic-Janic, S., 2015; Telama, Yang, Viikari, Valimaki, Wanne, & Raitakari, 2005).

Having accepted the existing scientific views and guidelines, this research focused on examining attitudes toward physical education classes of primary school students in the Republic of Srpska (Bosnia and Herzegovina). The specificity of this region is that physical education classes from the 1st to the 5th grade (elementary school) are conducted by teachers, and from the 6th to the 9th grade (middle school) by physical education teachers¹. In this regard, the primary goal of this paper was to examine the attitudes of primary school students towards different aspects of physical education, with special reference to the specifics of age and gender groups. In addition, the emotional relation towards physical education was examined through its ranking on the list of favorite subjects, and it was brought into connection with attitudes.

METHODS

Sample

In the area of the city of Banja Luka, in the period January-February 2018, a survey of the attitudes of primary school students towards physical education was conducted. Research is an integral part of the project "Development of sports through school sports sections" implemented by the City of Banja Luka and the Ministry of Education and Culture of the Republic of Srpska in cooperation with the Faculty physical education and sports at the University of Banja Luka. Data were collected from 21 primary schools. After integrating and arranging the database, complete information was obtained for 6627 students, of which 3341 (50.4%) were boys and 3286 (49.6%) were girls. The age ranged from 10 to 16 years, that is, the research included students of 4th and 5th grades (elementary school) and students from 6th to 9th grade (middle school). The total number of elementary school students is 2201 (1076 boys - 48.9%; 1125 girls - 51.1%), while the middle school students number is 4426 (2265 boys - 51.2%; 2161 girls - 48.8%). The reason for excluding students from 1st to 3rd grade is in the assessment that fulfilling the given instrument would be too demanding for them while adapting it would limit access to useful information that older ages can offer.

Instrument and variables

For the purposes of this non-experimental observation, a survey was used as an approach to examining attitudes towards physical education. There are a number of instruments in circulation (see Silverman, & Subramaniam, 1999), as researchers use different theoretical models and adapt instruments to the purpose of their research (see Tannehill, & Zakrajsek, 1993). This is exactly the case in this paper, where, taking into account the affective and cognitive dimensions of attitudes, we have created an instrument with 15 items that examine attitudes towards various relevant aspects of physical education. To facilitate the interpretation of the results, the given items were classified into 5 appropriate categories (3 items for each of the 5 categories), namely: affectivity towards physical education, perception of the utility of program, program diversity, the expertise of the teacher and the motivation of teacher. The first category corresponds to the affective dimension of attitudes towards physical education classes, while the other 4 fall under the cognitive dimension. Respondents used a three-point Likert scale (1- absolutely disagree; 2- partly agree, partly disagree; 3 - absolutely agree) to express a level of personal agreement with a given statement (examples of items in Table 1).

The results of the confirmatory factor analysis (DWLS estimation method on polychoric correlations) showed adequate agreement of the data with the assumed five-factor model ($\chi^2(105) = 55044.3$, $p < .001$, CFI = .98, RMSEA = .042, SRMR = .051). However, due to the small number of answer options and the small number of items per factor, the values of internal consistency coefficients were low for two of the 5 scales (for program diversity $\alpha = .50$; for the motivation of teacher $\alpha = .61$). For this reason, we

¹ In Bosnia and Herzegovina primary education is divided into lower grades (age 6-10), and higher grades (age 11-14). In this paper the term *elementary school* is used for lower grades, and *middle school* is used for higher grades.

opted for a “comprehensive approach to analyzing multivariate constructs” (Sherman, & Serfass, 2015), with each item being separately statistically analyzed.

Considering that all items were saturated with the first main factor (min. $\Lambda = .26$) with a high α coefficient (.89), a common mean score was created as an indicator of the general attitude towards physical education classes.

In addition to attitudes, the emotional relation towards physical education in relation to other school subjects was also examined. For that purpose, the students marked the position of physical education on the list of the most favorite subjects. The survey also collected the necessary demographic information on gender and grade.

Data collection and statistical analysis

After integrating the data, the inverse items were recoded and the number of missing data was identified. Results of subjects with 4 or more missing responses were excluded, while those with 3 or less were imputed with average values for a given item.

The general attitude towards the physical education classes was obtained by calculating the average values for all 15 items.

The subsamples were statistically compared using t-tests for independent samples, with Bonferroni corrections for the number of statistical tests, and in addition, Cohen d values were calculated for a standardized estimate of the effect size. The Spearman coefficient, also with Bonferroni corrections for the number of statistical tests, was used to examine correlations between individual attitudes and the rank of physical education. All these analyzes were performed using the statistical programs SPSS (Statistical Package for Social Science) version 20 and R 4.0.2 (R Core Team, 2017) and using the packages lavaan (Rosseel, 2012), lsr (Navarro, 2015), and psych 2.0.9 (Revelle, 2020).

RESULTS

The main question of this research is related to the differences between elementary and middle school students' general attitudes toward physical education. It is established that elementary school students ($M = 2.671$; $SD = 0.273$), as well as middle school students ($M = 2.538$; $SD = 0.381$) have relatively high positive scores for general attitude toward physical education. By comparing their results, it was seen that elementary school students have a significantly more positive general attitude toward physical education in relation to middle school students ($t = 14.581$, $p < .001$, $d = 0.40$). According to the obtained Cohen d value, it is a difference of medium intensity (see Cohen, 1988).

Category	Items	Elementary school students		Middle school students		p	d
		M	SD	M	SD		
Utility of program	Physical education is something I don't need in my life.*	2.685	.659	2.658	.676	1	.04
	Physical education is very useful, because it contributes to physical and psychological development of individuals.	2.830	.480	2.763	.579	.000	.12
	I can use the knowledge gained in physical education classes in everyday life.	2.667	.618	2.485	.767	.000	.26
Teachers motivation	My teacher organizes physical education classes gladly.	2.590	.597	2.651	.666	.002	.10
	My teacher is always willing to help students improve their skills in physical education classes.	2.849	.436	2.743	.594	.000	.20
	During physical education classes my teacher often gives us a ball to play while he/she finishes some other tasks.*	2.550	.714	1.955	.878	.000	.74
Affection for physical education	I enjoy participating in physical education classes.	2.826	.453	2.669	.645	.000	.28
	I do not enjoy physical education classes, because I am forced to do things I do not like.*	2.793	.524	2.647	.698	.000	.24
	I participate in physical education classes not because I like them, but because of the grade.*	2.622	.682	2.561	.752	.014	.09
Program diversity	We always do the same exercises in physical education classes.*	2.158	.761	2.056	.853	.000	.12
	I enjoy physical education classes because of the different games we play.	2.764	.562	2.581	.724	.000	.28
	In physical education classes the teacher always asks us to play the same game.*	2.488	.695	2.512	.763	1	.03
Teachers expertise	The teaching style of my teacher makes learning in physical education classes easy.	2.638	.581	2.467	.738	.000	.26
	My teacher explains the exercises well in physical education classes.	2.786	.535	2.698	.637	.000	.14
	My teacher asks us to do difficult exercises in physical education classes, so the students cannot do them.*	2.818	.500	2.629	.673	.000	.32

Table 1. Differences between elementary and middle school students for individual items of attitudes towards physical education classes.

Legend: M = arithmetic mean, SD = standard deviation, p = probability after Bonferroni correction, d = Cohen measure of effect size; * recoded negative items

Differences between elementary and middle school students by individual items are grouped into 5 categories for better clarity and interpretation, which we defined in terms of content and confirmed by confirmatory factor analysis (see Table 1). Statistically significant differences were confirmed on 13 of the 15 items. Of that, for 12 items, elementary school students show higher values than middle school students. It should be emphasized that the given differences fall into the category of lower intensity, except for the question of the *tendency of the teacher to distribute props to children to play alone*, where the difference of high intensity was confirmed. Older students only evaluate *the readiness of the responsible person to organize physical education classes* more positively.

After separating the sample according to gender, it was seen that both boys ($M = 2.590$; $SD = 0.342$) and girls ($M = 2.574$; $SD = 0.367$) have high scores on the general scale of attitudes toward physical education. Analyzing the differences between them leads to a conclusion that girls do not differ significantly from boys in this aspect ($t = 1.786$; $p = .074$).

To determine if the same conclusions can be reached when age is included in this relation, the sample was separated into elementary and middle school students (Table 2). Although the values indicate that girls show a significantly more positive general attitude towards physical education in elementary school students, while the situation is reversed in middle school students, the Cohen d coefficient suggests that these are differences of lower intensity.

Table 2. Differences between boys and girls in primary and secondary education according to the general attitude towards physical education.

School-age	Gender	N	M	SD	t	df	p	d
Elementary school students	Boys	1076	2.646	.285	- 4.271	2199	.000	.18
	Girls	1125	2.695	.259				
Middle school students	Boys	2265	2.564	.363	4.547	4424	.000	.10
	Girls	2161	2.512	.398				

Legend: N= sample size; M= arithmetic mean; SD= standard deviation; t= students' t test; df= degrees of freedom; p= significance; d= Cohen's measure of effect size;

Besides a questionnaire on attitudes towards different aspects of physical education, students were offered to rank physical education on a list of their favorite subjects, to better understand their relation to physical education. It was found that elementary school students ($M = 2.09$; $SD = 1.42$) rank physical education significantly higher ($t = -16.193$; $p = .000$) compared to middle school students ($M = 3.07$; $SD = 2.64$), and the difference is of medium intensity ($d = 0.46$). Values in Table 3 indicate that elementary and middle school boys rank physical education higher in comparison to girls. Cohen d factor indicates that the statistically significant differences for elementary school students match to a category of low intensity, while the differences between boys and girls in middle school match to a medium intensity category. When the values between the age groups are compared, it can be seen that younger students rank physical education higher than older students.

Table 3. Differences between boys and girls in elementary and middle in terms of ranking physical education

School-age	Gender	N	M	SD	t	df	p	d
Elementary school students	Boys	1076	1.95	1.42	- 4.586	2199	.000	.20
	Girls	1125	2.23	1.41				
Middle school students	Boys	2237	2.50	2.27	-15.069	4379	.000	.46
	Girls	2144	3.67	2.85				

Considering the fact that two methods were used to understand attitudes toward physical education, it is justified to analyze the relation between them. *Spearman* correlation coefficients lead to the conclusion that elementary school students show no connection between general attitude toward physical education and ranking physical education ($r = -.04$, $p = .087$). This is not the case with middle school students, where the coefficient ($r = -.29$, $p < .001$) indicates that students with a more positive attitude toward physical education tend to rank physical education higher on the list.

When the general factor is broken down (see Table 4), a clearer image of the mentioned relation can be seen. In elementary school students, most of the individual items are not related to the ranking of physical education, except for a few items whose correlations are statistically significant, but very low. In middle school students, there are statistically significant correlations for 13 out of 15 items, which indicates the existence of the mentioned connection. After examining the items, it can be seen that the ones classified in the category of "affection for physical education" have the strongest correlation with the physical education ranking, especially the first item of the said factor, where the correlation coefficient is $-.36$. In other words, in the case of middle school students, the feeling of satisfaction in physical education classes is related to a better ranking of physical education in relation to other subjects. It is worth mentioning that the same item had the greatest value for elementary school students.

Table 4. Correlations between items and ranking of physical education for elementary and middle school students.

		Ranking of physical education	
		Elementary school	Middle school
Utility of program	My teacher organizes physical education classes gladly.	-.08**	-.20**
	Physical education is very useful because it contributes to the physical and psychological development of individuals.	-.04	-.18**
	I can use the knowledge gained in physical education classes in everyday life.	-.07**	-.26**
Teachers motivation	My teacher organizes physical education classes gladly.	-.06*	-.23**
	My teacher is always willing to help students improve their skills in physical education classes.	-.02	-.20**
	During physical education classes, my teacher often gives us a ball to play while he/she finishes some other tasks.	-.01	-.03
Affection for physical education	I enjoy participating in physical education classes.	-.16**	-.36**
	I do not enjoy physical education classes, because I am forced to do things I do not like.	-.06*	-.24**
	I participate in physical education classes not because I like them, but because of the grade.	-.02	-.19**
Program diversity	We always do the same exercises in physical education classes.	-.02	-.14**
	I enjoy physical education classes because of the different games we play.	-.06	-.27**
	In physical education classes the teacher always asks us to play the same game.	-.02	-.02
Teachers expertise	The teaching style of my teacher makes learning in physical education classes easy.	-.04	-.19**
	My teacher explains the exercises well in physical education classes.	-.00	-.19**
	My teacher asks us to do difficult exercises in physical education classes, so the students cannot do them.	-.03	-.11**

* Correlation significant at .05 level after Bonferroni correction

** Correlation significant at .01 level after Bonferroni correction

DISCUSSION

The realization of physical education classes by specialized experts entails an assumption about the expected, more positive attitudes of the middle school students towards this subject. The results of this paper do not confirm this. On the contrary, they point out that the age variable plays a more important role and that with the transition from the younger school-age to the older one, there is a natural decline in the evaluation of physical education. This phenomenon is confirmed by some other research (Bernstein, Phillips, & Silverman, 2011; Mercier, Donovan, Givvone, & Rozga, 2017; Subramaniam, & Silverman, 2007). They assume *age preferences*, i.e. strong need for physical activity in children in elementary school and the pretension of some other values, which often collide with physical activity, at the age of 12 to 15 years.

Students in the area of the city of Banja Luka express highly positive attitudes towards physical education classes. The transition to older age leads to a decrease in value, but it should be emphasized that most of the confirmed differences are of lower intensity. The only stronger difference refers to low values at middle school students for the question of *whether the responsible person has a habit of giving them the ball to play on their own*. For this item alone, an average value below 2 was obtained. This is rightly worrying that it is not uncommon for physical education teachers, by giving children free play, to overemphasize the fulfillment of children's motives for fun and entertainment, neglecting other physical education goals such as education and health. The only item where students of elementary school show statistically significant lower values refer to the issue of satisfaction of the responsible person to organize physical education classes. Based on the information obtained in this study, we are not able to make a reliable conclusion about the causes of this specificity. Future research should certainly focus on this, with special emphasis on establishing the truth about the fairly generally accepted social opinion about the tendency of teachers to use physical education classes for the purpose of additional work on other "important" subjects.

Elementary school students also expressed a stronger emotional relation towards this subject, ranking it better on the list of favorite subjects compared to middle school students. In order to better understand the ranking of physical education, we analyzed the correlation of rank with attitudes. Interestingly, we could not connect the high ranking of physical education by elementary school students with their individual attitudes. Nor are the items in the category of *affection for physical education*, which are justified to expect to be the basis of the emotional relation towards physical education, i.e. ranking the subject on the list of favorites, had no correlations worthy of attention. The exception to some extent is the item *I enjoy participating in physical education classes*. These data warn us that we should be careful when interpreting the attitudes of elementary school students. Their higher values should not be lightly attributed solely to age preferences. It is of interest to ask the question of their competence to monitor and evaluate various aspects of physical education, especially those from the cognitive domain. Therefore, future research should pay attention to the creation of valid and reliable methods specific for examining the attitudes of elementary school students.

The situation with older students is much clearer because they have the connection of most items of attitudes and ranking of subjects. Special emphasis should be placed on items from the category of affection for physical education, which indicates that more positive emotions of older students towards physical education, i.e. satisfaction during activity, dictate a better ranking of the same. It should also be noted that greater satisfaction due to the use of different games by teachers and the recognition of the usefulness of learning in everyday life, and also the motivation of the responsible person to organize classes and help students, or to professionally transfer knowledge, are related to higher ranking of physical education. in middle school students.

In order to improve physical education classes, it is crucial not only to understand age-specific characteristics but also potential differentiation between boys and girls. Previous studies mostly concluded that boys have more positive attitudes than girls (see Biddle, & Mutrie, 2001). However, some papers do not confirm

these differences (Subramaniam, & Silverman, 2007; Marttinen, Fredrick, & Silverman, 2018), as in this case. An interesting fact from this research is that when separating the sample according to age groups, it was found that girls have even more positive attitudes at younger school-age than boys and that the situation changes with age (similar atypical results of more positive attitudes of younger students were pointed out by Van Wersch et al. as early as 1992). However, the differences in this paper can be categorized as small effect differences, and any general conclusions on the differences between boys' and girls' attitudes toward different aspects of physical education in the Banja Luka area would not be plausible.

A more pronounced difference between the sexes was confirmed when it comes to the ranking of physical education in relation to other school subjects. Elementary and middle school boys rank physical education significantly higher than girls, as has been the case in previous research (Colley, Comber, & Hargreaves, 1994; Hill & Cleven, 2005). Thus, although girls, as well as boys, express highly positive attitudes towards physical education (in 13 out of 15 items the average value is over 2.5) it should be borne in mind that they express a stronger emotional relation towards other subjects compared to boys. Perhaps, because of this more pronounced tendency of girls towards some other subjects, the environment misinterprets that their attitudes towards physical education are also significantly less favorable than boys, so the responsible persons approach them with less enthusiasm.

The shortcoming in the methodology of this research is reflected in the use of the three-point Likert scale, which leads to limited discrimination. However, if we keep in mind the mentioned problem of competence in the evaluation of physical education by younger students, the application of a five-point scale could further complicate the choice of an adequate answer, which would jeopardize the reliability of the data. Research on attitudes towards physical education should also address the problem of the lack of consensus on the application of a universal instrument with harmonized dimensions. This results in a large disparity in the results and the impossibility of mutual comparison.

The value of this research is reflected in the size of the sample of respondents, which calls for a serious interpretation of the results and allows for general conclusions at the population level. Also, the value of the research is reflected in the application of a comprehensive approach through the analysis of individual items. The traditional reduction of attitudes to several general factors can result in the loss of relevant data, and it is recommended that future research consider this method of data analysis as well.

If the improvement of health is the primary motive of the strategy of development of society, then research of this type must be an integral part of regular systemic activities at the highest social levels, which unfortunately is not the case in the Republic of Srpska at the moment. The aim of this research is not only to try to point out the current situation in our society, but also to try to initiate the adoption of strategies for continuous monitoring of physical activities of all age categories, but with special emphasis on children and youth. The information obtained would serve to better understand the trends behind their motives for movement, all with the primary goal of creating positive experiences and thus habits that will provide self-initiated physical activity to as many people as possible throughout life.

CONCLUSIONS

In the area of the city of Banja Luka, elementary and middle school students of both sexes express extremely positive attitudes for various aspects of physical education and rank physical education high on the list of favorite subjects.

With the transition to older school age, there is a decline in positive attitudes. At this age, it is important to encourage proactive action of teachers, who would stop this negative trend through the application of interesting programs.

Girls do not differ from boys in terms of the general attitude about physical education classes.

Elementary school students rank physical education significantly higher on the list of favorite subjects than middle school students. This strong emotional relation towards physical education should be an important argument for raising the quality of classes (regular teaching in appropriate conditions, introduction of narrowly specialized experts) for elementary school students.

Girls rank physical education somewhat lower than boys. The reason for that is not more negative attitudes towards physical education classes, but their affection towards some other subjects, which does not imply mutual exclusivity.

It would be necessary to redefine the traditional view of sports as a socially desirable activity exclusively for boys and to include girls in all organizational forms of physical education (sports sections, school competitions, etc.).

The ranking of physical education in middle school students is related to their attitudes towards different aspects of physical education. The motivation of teachers to organize work and help others, use various means in work, professionally transfer knowledge that can be used in everyday life, and most importantly, doing all this creates a sense of happiness and satisfaction in students, can have a strong effect on the better ranking of physical education in middle school students.

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