



PSYCHOMETRIC CHARACTERISTICS OF THE SCALE FOR MEASUREMENT OF READINESS FOR ACTIVE INVOLVEMENT IN PHYSICAL EDUCATION CLASSES IN ELEMENTARY SCHOOL

Jelena Petrović¹, Zoran Milošević² and Ivan Petrović¹

¹ University of Defence, Military Academy, Belgrade, Serbia

² University of Novi Sad, Faculty of Sports and Physical Education, Novi Sad, Serbia

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SUMMARY

School curriculum and syllabus of physical education sets in front of the pupils the objectives and tasks that could be, by their nature, both physical and socio-psychological while the level of mastering of the contents is measured with a mark that is seen as the result of efficiency of overall educational process at a certain education level. However, the mark in physical education is a composite of numerous factors, one of which is motivation that can be considered within a school environment as readiness for an active engagement of pupils during classes (contrary to passive and mechanical fulfilment of requirements and acting based on the teachers' demand, or open and direct obstruction of a class, disturbing of discipline and refusal to actively implement the curriculum). Therefore, it is important to take pupils' motivation into account in order to fulfil the sense of physical education classes, remedy the potential shortcomings, and improve additionally the planned syllabus. The Scale for measurement of readiness for active involvement at physical education classes in elementary school has been designed with that aim since early adolescence is considered a critical period for adopting of healthy lifestyles and its metric characteristics have also been tested. The Scale consists of five levels, of Likert's type and it consists of two sub-scales (Commitment and Winning) with nine statements in total.

Correspondence author

Jelena Petrović
jelenailicpetrovic@gmail.com

With good psychometric characteristics, easy understanding, concise contents and short and simple setting it is recommended for further work and additional research in the field of motivation in physical education in both elementary and secondary school.

Key words: motivation, test, pupils.

INTRODUCTION

Motivation is one of the most studied fields of psychology. It is also one of the most important topics in sport. When it comes to physical education, there are certain doubts since it is a mandatory school subject that makes an integral part of educational – training system the objective of which is to act preventively on pupils from an early age through structured exercises under the experts' supervision showing them the significance of regular growth and development and subsequent creating of healthy lifestyle habits. The question that is raised is how to motivate the children in the best possible way to be active at physical education classes in order to enable them to adopt a healthy lifestyle on a long-term basis since it is not only an imposed but also a structured and professional guided and supervised physical activity that is adapted to the needs and capacities of the largest number of children of certain age. This is very important because of several reasons. Namely, due to poor material situation (families do not have enough money for membership fees, equipment, sports check ups), availability of infrastructure (most often it is the matter of lack of swimming pools in Serbia), place of residence (in villages and smaller places children are often less involved in sports although they are more involved in non-structured forms of physical activity), safety (very frequent tragedies when metal basket support structure at basketball courts or metal goal structure at football courts cause serious injuries or end up fatally for children due to outdatedness or decay or lack of caution among children or because the game is carried out without supervision of adults or professionals) and even the interest of pupils and actual amount of their free time, physical education becomes the only place where children can be physically active without any disturbance and fear. Another problem is early specialisation that is highly present in sports and that is a reason why instead of healthy progressing a child develops only certain motoric competences which affects a child's physiology and anthropometrics. Insisting on constant winning, competing and success achieving may have additional negative impact on a child's psyche and its mental development.

Until now, only a confined space has been dedicated in Serbia to motivation in physical education. Certain authors have been dealing with study of interest

and presence of certain sports contents at physical education classes.¹²³⁴⁵ More recent studies in the field of motivation in physical education reveal the fact that female pupils of elementary school have a lower motivation level, that motivation peak was registered at the fifth grade (11 years of age),⁶ that boys who are actively involved in sports have the highest while the girls who are not actively involved in sports have the lowest motivation level,⁷ that the sharpest decline was registered among the pupils of the seventh grade,⁸ and that male pupils of the seventh grade who are actively involved in sports have the highest motivation with better marks in physical education and poorer overall results.⁹ These studies use *Motivation scale for measurement of involvement in physical education*, which is unidimensional by its theoretical approach and its metric characteristics have not been tested nor has their standardisation been carried out until now. Therefore, this paper is aimed at testing the validity of the above-mentioned instrument, namely determining its descriptive and metric characteristics.

¹ Ivana Milanović and Snežana Radisavljević, "Odnos učenika osnovne škole i njihovih roditelja prema nastavi fizičkog vaspitanja i fizičkom vežbanju", *Nastava i vaspitanje* br. 37 vol. 2 (2007): 141-150.

² Jaroslava Radojević, Jelena Ilić, Dragoljub Višnjić and Srećko Jovanović, "Popularity of Sport Among Pupils of Primary Schools in Serbia", *Problems of Education in the 21st Century*, 36 (2011): 51-59.

³ Ivana Milanović and Snežana Radisavljević – Janić, "Elementary school pupils' involvement in sports in Serbia", in the *Proceedings Book of the 6th FIEP European Congress: Physical Education in the 21st Century – Pupils' Competencies*, editors Ivan Prskalo and Dario Novak (Poreč; Hrvatsko kineziološko društvo, 2011), 632 - 639.

⁴ Jelena Ilić, "Preferencije roditelja učenika osnovnih škola za uvođenje izbornog sporta u nastavu fizičkog vaspitanja", *Sport Mont* 37 – 39 (2013): 131 – 136.

⁵ Jelena Ilić, Jaroslava Radojević, Živorad Marković and Dragoljub Višnjić, "Preferencije učenika osnovnih škola za uvođenje izbornog sporta", *Sportske nauke i zdravlje* br. 2 vol. 2 (2012): 182 – 188.

⁶ Dragoljub Višnjić, Jelena Ilić, Dragan Martinović and Miroslav Marković, "Gender and Age Differences in the Achievements and Motivation for Engagement in Physical Education in Elementary School", *Ovidius University Annals, Series Physical Education and Sport/ SCIENCE, MOVEMENT AND HEALTH SUPPLEMENT* no.11 vol. 2 (2011): 562 – 568.

⁷ Dragan Martinović, Jelena Ilić and Dragoljub Višnjić, "Gender Differences In Sports Involvement and Motivation for Engagement in Physical Education in Primary School", *Problems of Education in the 21st Century*, 31 (2011): 94-100.

⁸ Dragoljub Višnjić, Jelenalić and Dragan Martinović, "Motivation for involvement, achievements in physical education and classes of male students", in the *Proceedings Book of the 6th FIEP European Congress: Physical Education in the 21st Century – Pupils' Competencies*, editors Ivan Prskalo and Dario Novak (Poreč; Hrvatsko kineziološko društvo, 2011), 504 - 511.

⁹ Dragoljub Višnjić, Dragan Martinović, Jelena Ilić and Živorad Marković, "Ispitivanje relacija postignuća i motivacije učenika sedmog razreda za angažovanje u nastavi fizičkog vaspitanja", *Sport Mont* 23-24 (2010a): 25- 32.

METHODS

The sample of study participants was appropriate and it consisted of 706 pupils from four elementary schools (from the centre of the capital city, from the outskirts settlements of the capital city, from a smaller town from the inland region and from one rural school) from the fourth to the seventh grade, 401 boys and 305 girls.

The tests were performed during the last class of a school year when marks had already been concluded. Considering that pupils of the eighth grade have already finished their school year, it was not possible to include them in the tests. The tests were performed at physical education class with the approval of the school principal and subject teacher. Tests were anonymous and pupils filled the questionnaires during a school class lasting for 45 minutes. The re-test was performed two weeks later. The questionnaire consisted of questions regarding the overall results (excellent, very good, satisfactory, unsatisfactory), mark in physical education (excellent, very good, satisfactory, unsatisfactory), involvement in sports (at clubs, recreational, not involved) and opinion on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes (yes, mainly, no) and Motivation scale for measurement of involvement in physical education that was created through modifications of the instrument for measurement of motivation for general achievement (MGA) and motivation for sports achievements (MSA) for the needs of PhD thesis by Barjaktarević.¹⁰ Motivation scale for measurement of involvement in physical education is a unidimensional construct that consists of 29 statements. Some have been taken over as original from the MSA sub-scale – achievement motivation sub-scale (the instrument also includes sub-scales for measurement of positive and negative competition anxiety) and MGA, and one of the statements has been added by Barjaktarević. MSA is specifically constructed questionnaire for measurement of expressed specific motivation for achievement in sport that was created based on MGA instrument.¹¹ MGA was created by revising Hermann's' Achievement Motivation Test. Compared to the original scale, the scoring method has been changed and it is carried out based on a five-level Likert's scale (1 = never up to 5 = always) and the score values range from 29 to 145. Descriptive scale characteristics were as follows: M = 3.50, SD = 0.49, Max = 4.80, Min = 1.00, Skewness = -0.658, Kurtosis = 2.110.

¹⁰ J. Barjaktarević, "Dimenzije ličnosti i stil ponašanja aktivnih učesnika u sportu" (doktorska disertacija, Filozofski fakultet Sarajevo, 2001).

¹¹ Nenad Havelka and Ljubiša Lazarević, *Sport i ličnost* (Beograd: Sportska knjiga, 1981).

An independent variable in this study was the score on the Motivation scale for measurement of involvement in physical education and dependent variables, that should have contributed primarily to validation of the instrument, included overall school results, mark in physical education, involvement in sports and opinion and opinion on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes.

Considering that the main objective of the study was the analysis of metric characteristics of the scale, the tested sensitivity and discriminativity of statements, reliability, construction, competitive and predictive validity, as well as the scale discriminativity the data were processed in SPSS 13.0 programme.

RESULTS

When it comes to independent variables, 68% of pupils had excellent and 26.7% had very good overall school results. In addition, 90.7% of pupils had the best mark in physical education, i.e. excellent mark, while 8.1% of them had very good mark. There were 54% of pupils who were actively involved in sport (club members), 25% were involved in sports recreationally and 21% of pupils were not involved in any sports at all. There were 31.9% of pupils who answered positively ("yes") to the question on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes, 41.8% answered "maybe" and 26.3% answered "no".

The results of sensitivity analysis of the Motivation scale for measurement of involvement in physical education are presented in Table 1. The highest values of arithmetic means were obtained for statements no. 28 and 10. The lowest value of arithmetic mean was obtained for statement no. 30. The highest standard dispersals were obtained for statements no. 23 and 13. The lowest standard dispersals were obtained for statements no. 10 and 28.

The value of KMO (Kaiser-Meyer-Olkin) measure of sample adequacy amounted to 0.887 and Barlett's test of sphericity was statistically significant ($\chi^2 = 4851.881$, $p < .000$), which indicates that the matrix of the set of variables is suitable for factorization. Seven factors were obtained based on the analysis of the main components by applying Guttman-Kaiser criterion. The values of their typical roots were higher than one and they explained 51% of result variance, contrary to the original version that had only one factor (Table 2). Isolated factors are largely uninterpretable. In some factors, two or three variables were with loadings, which is very little for a quality sub-scale and such scale requires a very high reliability level, which was not the case with a large number of factors.

Table 1. Descriptive parameters, skewness and distribution curve (kurtosis) coefficient and factor set matrix of the Motivation scale for measurement of involvement in physical education

Statement	M	SD	Skewness	Kurtosis	h	Factors								
						1	2	3	4	5	6	7		
1. I like to discuss about physical education with my friends.	3.04	1.322	-.019	-1.055	.533				.685					
2. I dream about the world champion title.	3.18	1.423	-.161	-1.252	.577				.565					
3. When I practice new moves in football, basketball or some other sport, I am tireless.	3.77	1.315	-.762	-.575	.518				.598					
4. I am persistent as long as I can stand it physically.	4.05	1.160	-1.057	.200	.474				.467					
5. I am always ready to train/practice and learn harder and longer than others.	3.49	1.315	-.419	-.916	.542			.440						
6. I train (practice) and work only as much as necessary to get by.	3.68	1.448	-.672	-.950	.498					.616				
7. I think I could be the best pupil in school.	2.76	1.382	.212	-1.134	.445			.508						
8. When a physical education teacher shows new exercises and moves to me, I work persistently until I master them.	4.01	1.189	-1.064	.178	.500			.577						
9. I truly mind when work during the class is irresponsible and unprofessional.	3.72	1.317	-.665	-.745	.473			.608						
10. Long and painstaking trainings are most important if you want to become a good athlete.	4.20	1.072	-1.306	.999	.465						.634			
11. I do everything that is required of me at classes because I know this is the only way to be successful in school.	3.97	1.117	-.961	.188	.522			.447						
12. Most of my friends and teachers think I am not committed sufficiently during classes.	3.36	1.313	-.445	-.879	.549					.715				
13. I am committed during classes only as much as necessary for a teacher not to criticise and punish me.	3.17	1.504	-.186	-1.403	.623					.759				
14. Each new success at school brings me new and more obligations and not only pleasure.	3.59	1.311	-.605	-.734	.261									
15. Work is more important than talent for achieving top class results in sport.	3.83	1.229	-.737	-.498	.456							.625		

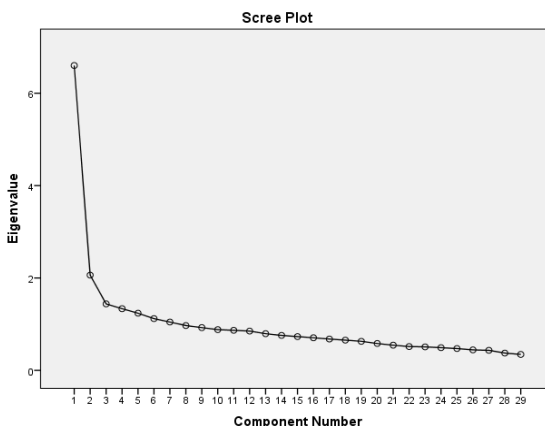
16. I am always ready to sacrifice my free time for success in sport.	3.75	1.304	-.702	-.652	.548	.593	
17. I invest maximum efforts during physical education classes because it is important to me to be the best.	3.82	1.249	-.782	-.459	.465	.417	
18. When I do not have physical education classes, I am still involved in sports activities in order not to drop out of shape.	3.95	1.241	-1.001	-.045	.618	.738	
19. I already know what sports results I want to achieve in life.	3.83	1.283	-.744	-.626	.576	.699	
20. Friends for whom sport is not the most important thing annoy me.	2.46	1.480	.508	-1.176	.552	.447	.525
21. Successes of other children involved in sports activities stimulate me to be better than them.	3.03	1.373	-.055	-1.184	.543	.640	
22. Whatever I do it is much more important to me to win rather than to merely participate.	2.59	1.482	.369	-1.270	.561	.725	
23. It is my objective to be better than the best.	3.05	1.514	-.062	-1.416	.671	.719	
24. I follow all sports competitions in order to see what sport I could get involved in.	3.35	1.423	-.306	-1.222	.526	.652	
25. Money itself is not as important to me as having a cash reward that would acknowledge my success in school.	2.96	1.533	.076	-1.448	.361	.490	
26. I never stop learning with the excuse that I can do that tomorrow as well.	3.36	1.400	-.313	-1.133	.327	.405	
27. I always want to know what my parents, teachers and other children think about my results in school.	4.06	1.190	-1.053	.048	.614	.687	
28. I feel "great" only when I accomplish the results I wanted.	4.23	1.089	-1.390	1.124	.596	.705	
29. I appreciate exceptionally successful athletes.	4.18	1.228	-1.332	.529	.444	.451	

Table 2. Total percentage of variance explanation

Factor	Initial Eigenvalues & Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.600	22.758	22.758	3.040	10.482	10.482
2	2.062	7.110	29.868	2.730	9.413	19.895
3	1.438	4.960	34.829	2.093	7.217	27.112
4	1.335	4.605	39.434	1.945	6.707	33.819
5	1.238	4.269	43.703	1.742	6.007	39.826
6	1.121	3.864	47.566	1.718	5.923	45.750
7	1.046	3.607	51.174	1.573	5.424	51.174

Cattell’s Scree Plot Test has shown it is reasonable to keep only two factors, which has also been confirmed after the performed orthogonal rotation of the obtained main components that together explained 19.89% of the total variance. Furthermore, the strictest criterion of keeping the saturation above 0.400 was also applied – parallel projections of other statements to each individual factor were significantly below the anticipated saturation value and they had low complexity so that they were dominantly saturated with only one factor, except for Item no. 14. We also established the internal consistency level, and internal factor interpretability, which proved it made sense to keep two-factor solution. The total quantity of the explained variance, namely the obtained latent structure of the Motivation scale for measurement of involvement in physical education was quite small, but not unusual, most probably because of inhomogeneity of statements it consisted of, while, on the other hand, there was heterogeneity of attitudes according to different aspects of motivation among pupils.

Figure 1. Cattell’s Scree Plot Test



The first component was defined with five statements (16,17,18,19, and 24), that mainly described personal efforts and achieving of sports results and it was therefore called *Commitment*. The second component was also defined with five statements (20,21,22,23, and 25) that mainly described the aspiration to be successful and get acknowledgment/recognition and it was therefore called *Winning*.

However, considering that statement number 20 had similar factor loadings at both factors and that, moreover, it fit better into the structure of the Commitment factor according to the criterion of content validity; although its loading was higher by 0.078 compared to the Winning factor, we conducted additional analyses in the fourth phase. Namely, the internal consistency coefficient for the first factor that we called Commitment amounted to 0.771 in the case with five statements and 0.779 in the case with six statements. Cronbach's Alpha for the second factor, which we called Winning, amounted to 0.694 in the case with five statements, 0.730 in the case with four, and 0.720 in the case with three statements. The obtained internal consistency coefficients showed that the optimum solution was to keep five statements for the first factor (Table 3) and four for the second factor (Table 4) and eliminate statement number 25 out of it (even according to the criterion of content validity and item-total correlation as the measure of item discriminativity).

Table 3. Overview of Cronbach's Alpha coefficients, inter-correlations and corresponding item-total correlation for the kept statements at Commitment sub-scale

Inter-Item Correlation Matrix					Item-Total Statistics		
	18	19	24	16	17	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
18	1.000	.485	.449	.420	.381	.593	.711
19	.485	1.000	.370	.393	.378	.546	.726
24	.449	.370	1.000	.411	.373	.539	.730
16	.420	.393	.411	1.000	.364	.533	.730
17	.381	.378	.373	.364	1.000	.497	.742

Table 4. Overview of Cronbach's Alpha coefficients, inter-correlations and corresponding item-total correlation for the kept statements at Winning sub-scale

Inter-Item Correlation Matrix					Item-Total Statistics		
	22	23	21	20	26	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
22	1.000	.473	.403	.361	.201	.534	.606
23	.473	1.000	.511	.300	.169	.537	.604
21	.403	.511	1.000	.374	.164	.541	.606
20	.361	.300	.374	1.000	.145	.421	.656
26*	.201	.169	.164	.145	1.000	.229	.729

NOTE: Item 26 has been deleted from further analysis.

Item-total correlations range from 0.364 to 0.485 for the first and from 0.300 to 0.511 for the second sub-scale. Split-half Guttman's reliability coefficient makes 0.772 for the first and 0.708 for the second factor, while test-re-test reliability calculated via linear correlation coefficient for 36 pupils makes 0.48 ($p < 0.00$). In the analysis of parallel forms for the first factor, the obtained Cronbach's Alphas for the first three statements make 0.655, and for another two Alpha makes 0.538. The correlation between both parts of the scale makes 0.794. Mean inter-correlation of items makes $r = .401$. For the second factor, the obtained Cronbach's Alphas for the first two statements make 0.543 and for another two Alpha makes 0.642. The correlation between both parts of the scale makes 0.710. Mean inter-correlation of items makes $r = .402$.

Based on all the obtained results it can be concluded that after the performed analyses a new instrument was obtained - *Scale for measurement of readiness for active involvement at physical education classes in elementary school*. Descriptive characteristics of newly obtained scale are presented in Table 5 with scores ranging from 1 to 5.

Table 5. Descriptive parameters, skewness and distribution curve (kurtosis) coefficient and factor set matrix of the Scale for measurement of readiness for active involvement at physical education classes in elementary school

Sub-scales	M	SD	Skewness	Kurtosis
Commitment	3.74	0.94	-.627	-.158
Winning	2.78	1.09	.121	-.897

Competitive validity was measured using Pearson's correlation coefficient of Commitment and Winning sub-scales with the mark in physical education and overall school results of pupils as these two measures represent direct indicators of achievement, in both physical education and at school in general and thereby indirect indicators of commitment and aspiration for active involvement in educational process. It has been shown that there is statistically significant correlation between overall school results and mark in physical education ($r = 0.297$, $p < 0.000$), overall school results and Winning ($r = -0.100$, $p < 0.008$), mark in physical education and Commitment ($r = 0.103$, $p < 0.006$). Furthermore, it has been shown that two factors are inter-correlated ($r = 0.485$, $p < 0.000$).

Predictive validity was measured with regression analysis (Enter Method) where the opinion on sufficiency of physical education and level of pupils' involvement in sports were dependent variables. The determination coefficient made $R^2 = 0.030$ (corrected 0.028; $F = 11.019$, $p < 0.000$, partial $r = -0.174$, $p <$

0.000) for the sub-scale Commitment and pupils' opinion on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes, while it made $R^2 = 0.075$ (corrected 0.072; $F = 28.340$, $p < 0.000$, partial $r = 0.273$, $p < 0.000$) for Commitment and involvement in sports. The Winning sub-scale was not a significant predictor for involvement in sports and pupils' opinion on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes.

The scale discriminativity was measured by variance analysis. The participants were divided into three groups according to the achieved score for two sub-scales, as follows: 24.6-42.2-33.1% for Commitment and 23.9-43.6-32.4 % for Winning. It turned out that there are statistically significant differences between three groups for both the Commitment factor ($F = 1800.158$, $p < 0.000$) and the Winning factor ($F = 1951.605$, $p < 0.000$), while the subsequent post-hoc tests confirmed that are three groups were mutually different.

DISCUSSION

The obtained results confirm the results of previous studies¹²¹³¹⁴ that a large majority of pupils accomplish excellent overall school results and the best mark in physical education, as well as that these two success measures are mutually related. The mark may be seen as the measure of a pupil's achievement. Contrary to overall school results, which represent the mean of the sum of marks in all subjects attended by a pupil, pupils' achievements in physical education are the unity of several components each of which has a certain significance and weight.

It is usual to follow up and evaluate sports-technical knowledge, motoric competences, general and special knowledge in the field of physical education,

¹² Jelena Ilić, Dragoljub Višnjić, Dragan Martinović and Živorad Marković, "Investigation of relations between school achievements and motivation of 6th grade students for involvement in physical education classes", in the *2nd International Scientific Congress Anthropological Aspects of Sports, Physical Education and Recreation, Proceedings Book*, editor Slobodan Simović (Banja Luka: Faculty of Sport and Physical Education, 2010), 34-42.

¹³ Dragoljub Višnjić, Dragan Martinović, Jelena Ilić and Živorad Marković, "Ispitivanje odnosa školskog postignuća i motivacije učenika petog razreda za angažovanje na časovima fizičkog vaspitanja", u *Zbornik radova – Međunarodna naučna konferencija: Fizička aktivnost za svakoga*. Urednik Stanimir Stojiljković (Beograd: Fakultet sporta i fizičkog vaspitanja, 2010b), 358 - 364.

¹⁴ Dragoljub Višnjić, Jelena Ilić and Dragan Martinović, "Motivation for involvement, achievements in physical education and classes of male students", in the *Proceedings Book of the 6th FIEP European Congress: Physical Education in the 21st Century – Pupils' Competencies*, editors Ivan Prskalo and Dario Novak (Poreč; Hrvatsko kineziološko društvo, 2011), 504 - 511.

motivation to participate in games and sports activities, pupils' relationship towards physical activities and level of adopted exercising habits.¹⁵ However, Bačanac and Radovanović¹⁶ point out that pupil's achievements depend also on external factors, such as involvement in sports, intrinsic motivation, work habits, overall school results, etc. The pupils having an emphasised motive for general achievement, who are ambitious, extrapolate their aspirations and ambitions from general to concrete segment of education, which is the confirmation of the assumption stated by Havelka and Lazarević,¹⁷ which is placed in theoretical basis of the structure of MSA instrument.

Contrary to some previous studies,^{18,19} the results show that more than a half of children are involved in sports through membership in clubs and that another fourth of the study participants are involved in physical activities out of school recreationally, which speaks in favour of the fact that the climate and relationship towards physical activity in our society are changing and that this field is attributed higher significance than earlier, as well as that media campaigns and conducted reforms have given positive results at least in the youngest age group. This data is in compliance with the results obtained by other authors.^{20,21}

¹⁵ Dragoljub Višnjić, *Teorija i metodika fizičkog vaspitanja* (Beograd: Fakultet sporta i fizičkog vaspitanja, 2004).

¹⁶ Ljubica Bačanac and Ivica Radovanović, *Vaspitanje kroz sport* (Beograd: Učiteljski fakultet, 2005).

¹⁷ Nenad Havelka and Ljubiša Lazarević, *Sport i ličnost* (Beograd: Sportska knjiga, 1981).

¹⁸ Dragoljub Višnjić, Dragan Martinović, Jelena Ilić and Živorad Marković, "Ispitivanje odnosa školskog postignuća i motivacije učenika petog razreda za angažovanje na časovima fizičkog vaspitanja", u *Zbornik radova – Međunarodna naučna konferencija: Fizička aktivnost za svakoga*. Urednik Stanimir Stojiljković (Beograd: Fakultet sporta i fizičkog vaspitanja, 2010b), 358 – 364.

¹⁹ Ivana Milanović and Snežana Radisavljević – Janić, "Elementary school pupils' involvement in sports in Serbia", in the *Proceedings Book of the 6th FIEP European Congress: Physical Education in the 21st Century – Pupils' Competencies*, editors Ivan Prskalo and Dario Novak (Poreč; Hrvatsko kineziološko društvo, 2011), 632 - 639.

²⁰ Dragoljub Višnjić, Dragan Martinović, Jelena Ilić and Živorad Marković, "Ispitivanje odnosa školskog postignuća i motivacije učenika petog razreda za angažovanje na časovima fizičkog vaspitanja", u *Zbornik radova – Međunarodna naučna konferencija: Fizička aktivnost za svakoga*. urednik Stanimir Stojiljković (Beograd: Fakultet sporta i fizičkog vaspitanja, 2010b), 358 – 364.

²¹ Dragan Martinović, Dragoljub Višnjić, Jelena Ilić and Živorad Marković, "Relationship between school achievements and motivation of 4th grade students for involvement in physical education classes", in the *2nd International Scientific Conference Exercise and Quality of Life: Proceedings Book*. Editors Milena Mikalački and Gustav Bala (Novi Sad: Faculty of Sport and Physical Education, 2011), 311 – 316.

However, it seems as if the pupils themselves perceive the difference in specialisation of sport and physical education because only one third say that they acquire sufficient knowledge necessary for successful involvement through physical education classes and that competition aspect and absence of extrinsic motivation make one of possible explanations for lower active involvement at physical education classes. Namely, if we assume that coaches (and even other participants in sports) emphasise competition, winning and result in sports, the emphasis in physical education is placed on acquiring of knowledge and skills and long-term strategy of health preserving, which is adapted to general population and not to each pupil individually. The only valorisation of effort and commitment in physical education classes is the mark itself and that is why it is often the case in practice that final mark is given based on this factor at the expense of competence and pupil's competition spirit, in particular if that contributes to raising of a pupil's overall result at the end of a school year. The fact supporting this opinion is reflected in the result of predictive validity testing which has shown that it is possible to predict pupils' opinions on sufficiency of knowledge necessary for successful involvement in sports acquired through physical education classes based on the score achieved at Commitment but not the Winning scale. Namely, the pupils who believe they acquire sufficient knowledge for successful involvement in sports at their physical education classes show higher commitment during classes. In favour of that is also a lower mean value achieved by pupils at the Winning sub-scale, which is much lower compared to the mean value at the Commitment sub-scale.

When it comes to the original Motivation scale for measurement of involvement in physical education, the highest values of arithmetic means and the lowest values were obtained for statements describing the significance of success achieving and importance of work and commitment in order to achieve the same. However, factor analysis has shown that although these items were not the best indicators of the scale statistical value, they still reflect in contentual sense the subject of measurement of a newly obtained Scale for measurement of readiness for active involvement at physical education classes in elementary school. Namely, the analysis of metric characteristics of the Motivation scale for measurement of involvement in physical education has shown it does not represent a unidimensional construct when it comes to elementary school pupils. Factor analysis has shown that two factors singled out from the kept set of statements making a newly obtained Scale for measurement of readiness for active involvement at physical education classes in elementary school and they were crucial for the relationship of elementary school pupils towards physical education classes – Commitment and Winning. They are not inter-connected and the scale itself has very good metric characteristics.

The work with this scale is highly practical because the complete instrument consists of 9 questions and there are no obstacles for its testing and extrapolation to secondary school pupils since it is understandable to lower age groups. A thing that certainly needs to be studied further is the relationship of different groups of pupils towards motivation in physical education measured by this scale and its comparison according to gender, age, place of residence, conditions for physical education classes performing, comparison between different countries and cultures, etc.

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ПСИХОМЕТРИЈСКЕ КАРАКТЕРИСТИКЕ СКАЛЕ ЗА МЕРЕЊЕ СПРЕМНОСТИ ЗА АКТИВНО УЧЕСТВОВАЊЕ НА ЧАСОВИМА ФИЗИЧКОГ ВАСПИТАЊА У ОСНОВНОЈ ШКОЛИ

САЖЕТАК

Школским курикулумом и наставним планом и програмом физичког васпитања се пред ученике постављају циљеви и задаци који по својој природи могу бити физички, али и социопсихолошки, а степен усвојености градива се мери оценом, која се посматра као резултат ефикасности укупног образовног процеса на одређеном нивоу школовања. Међутим, оцена из физичког васпитања представља композит бројних чинилаца, од којих је један и мотивација, која се у школском окружењу може посматрати као спремност за активан ангажман ученика на часу (на супрот пасивном и механичком испуњавању захтева и поступању по захтеву наставника или, пак, отвореном

и директном ометању часа, нарушавању дисциплине и одбијањем да се активно реализује наставни програм). Стога је, да би се испунио смисао наставе физичког васпитања, али и поправили потенцијални недостаци и додатно усавршио наставни план и програм, важно имати у виду мотивацију ученика. С тим циљем је конструисана Скала за мерење спремности за активно учествовање на часовима физичког васпитања у основној школи, будући да се рана адолесценција сматра критичним периодом за усвајање здравих стилова живота, а проверене су и њене метријске карактеристике. Скала је петостепена, Ликертовог типа и се састоји од две субскеале (Залагање и Победа) и има укупно девет тврдњи. Уз добре психометријске карактеристике, лако разумевање, концизност садржаја и кратко и једноставно задавање је препоручују за даљи рад и додатна истраживања у области мотивације у физичком васпитању, како у основној, тако и у средњој школи.

Кључне речи: мотивација, тест, ученици.

LAS CARACTERÍSTICAS PSICOMÉTRICAS DE LA ESCALA PARA MEDIR LA DISPOSICIÓN PARA LA PARTICIPACIÓN ACTIVA EN LAS CLASES DE LA EDUCACIÓN FÍSICA EN LA ESCUELA PRIMARIA

RESUMEN

Con el currículo escolar y con el plan y programa educativos de la educación física, se ponen frente los alumnos los objetivos y tareas que, por su naturaleza pueden ser físicos, pero también sociopsicológicos, y el nivel de la adquisición de material se mide con el grado, que se ve como el resultado de efectividad del proceso educativo completo, en el determinado nivel de educación. Sin embargo, el grado de la educación física presenta el compósito de los factores números, desde los cuales uno es la motivación, que en el medio ambiente escolar se puede ver como la disposición de compromiso activo de los alumnos en clase (en lugar de cumplimiento pasivo y mecánico de las solicitudes y procedimiento de acuerdo de los maestros, o una obstrucción abierta y directa, una violación de disciplina y declinación de realización activa de programa didáctica). Por eso, para cumplir el significado de las clases de la educación física, pero también para arreglar las faltas potenciales y para perfeccionar adicionalmente plan y programa educativos, es importante tener en cuenta la motivación de los alumnos. Con ese objetivo está construida La Escala de medir la disposición para la participación activa en las clases de educación física en la escuela primaria, dado que la adolescencia temprana se considera un período crítico para adquisición de los estilos de vida saludables, y sus características métricas están comprobadas. La Escala tiene cinco niveles, del tipo Likert y está compuesta de dos subescalas (Devoción y Victoria) y contiene en total de nueve afirmaciones. Con buenas características psicométricas, una comprensión fácil, concisión del contenido y imposición corta y simple la

recomiendan para el trabajo futuro y las investigaciones adicionales en el campo de motivación en la educación física, en escuela primaria y secundaria.

Las palabras clave: motivación, examen, alumnos.

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