

Influence of konativ factors on the performance elements of basketball in the teaching of sport and physical education high school student population

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Abstract

The study was conducted to investigate the influence of four conative characteristics on the performance elements of basketball games implemented in the teaching of sport and physical education students in high school. A sample of 151 respondents was described by four variables for the assessment of conative characteristics and three variables to assess the situation - motor skills in basketball. When collecting data were used battery of tests F 18 PF and objectified / standard tests for situational motor abilities of students. The influence of conative variables set on the set of variables to assess specific motor skills (basketball), was estimated using regression analysis. The results suggest that there is partial correlation between conative and situational-motor abilities of students (performing elements of basketball games, realized in the teaching of sport and physical education students in high school).

Key words: **conative characteristics, basketball, situational - motor skills, secondary populations**

Sažetak

Istraživanje je provedeno s ciljem utvrđivanja uticaja četiri konativne karakteristike na izvođenje elemenata košarkaške igre realizovane, u nastavi sporta i tjelesnog odgoja učenika u srednjoj školi. Uzorak od 151 ispitanika opisan je sa četiri varijable za procjenu konativnih karakteristika i tri varijable za procjenu situaciono - motoričke sposobnosti u košarkaškoj igri. Prilikom prikupljanja podataka korišteni su baterija testova F 18 PF i objektivizirani / standardni testovi za ispitivanje situaciono motoričke sposobnosti učenika. Uticaj seta konativnih varijabli na set varijabli za procjenu specifične motoričke sposobnosti (košarka), procijenjen je korištenjem regresione analize. Rezultati istraživanja sugeriraju da postoji djelimična povezanost između konativnih i situaciono-motoričkih sposobnosti učenika (izvođenja elemenata košarkaške igre, realizovane u nastavi sporta i tjelesnog odgoja učenika u srednjoj školi).

Ključne riječi: **konativne karakteristike, košarka, situaciono - motorička sposobnost, srednješcolska populacija**

Introduction

Conveying the popularity of basketball games in the practical life lessons in sports and physical education, we can notice that the teachers of sports and physical education initiate a larger share of basketball games than other sports games are in the process of teaching. In the teaching contents basketball games need very little space, for example, basketball and sports equipment, basketball, then practically all placed in "their place" and also that is indicated by the fact that the concrete implementation of this context, no wonder even the interest of researchers for certain principles, and the interplay of sequence effects that occur within this sport. Findak (2001) these studies have highlighted an interesting time in the context of the whole structure we introduce and individualization of teaching and that should be implemented within the school. So there is a number of studies conducted by regarding the analysis of the corresponding relations and influence in the basketball game. A number of studies conducted in the situational-motor area showed a corresponding effect in the studied area (predictor / criterion). Mekić's research (2001) in a sample of 110 players at the municipal level and the Regional argues has conduct that basically-motor capacity can affect the throw the ball into the basket, and the same author (2002) determined the appropriate high and significant degree of influence of basic motor skills in adding precision ball in basketball. Examining the same elements and techniques of sports games (basketball). Bukvić's research (2003) finds that there is a significant and high

correlation between the basic-motor and motor-specific capabilities (explosive power, speed and balance against the ball control and shot at the basket), and Tallir et al. research (2008) in a sample of 30 players determined that through a basketball game 5 on 5 can increase the motor readiness. Another of the specifics that distinguished this research is to be found in the structure of Zorka secondary vocational school students, and where they are already. Kovac, Leskošek and Boom research (2007) conduct that there are differences in the morphological-motor structures between students of different high school curriculum, or that students of secondary vocational school achievers school curriculum compared to high school students more and Brettschneider and Nauli research (2004) has found that socio-economic status of families, parents' educational level and aspirations of the individuals have a strong influence on the motor status of young people. In accordance with this theoretical approach, the student athlete can be viewed as an intelligent receiver and interpreter of information obtained by performing movements with varying levels of effectiveness (Hodges, Starkes, MacMahon, 2006). This research was conceived to assess the influence of conative characteristics to the implementation of elements of basketball games in the teaching of sport and physical education. We are expecting a positive reaction by influence of conative functions on execution and implementation of dynamic elements in a basketball game which is continually used in class to sport and physical education as an indicator of students' knowledge of motor sport in this game. The above structure is interesting to check out because

it was established that there are influences other areas (motor and morphological) structure of the performance elements Vlasić, Oreb and Furjan-Mandić research (2007) has found a statistically significant correlation between the predictor morphological-motor space with a specific criterion situational motor elements.

Methods

Sample

The sample was defined as a population of male students, vocational school in Sarajevo, aged by 16-18 years. The report includes students who are in the process of testing and measurements were completely healthy. The total number of respondents in the sample was 151 students. All subjects had adequate conditions for the regular attendance of sport and physical education.

Sample of variables

The selection and definition of the areas (conative characteristics and situational-motor skills) in this paper was carried out based on empirically validated and standardized methods of measurement and testing, and on the basis of which there have been some data on the investigated characteristics of respondents. Sample of predictor variables is defined as follows:

As a measuring instrument for the assessment of conative characteristics were used the following scale:

- 1 - A (anxiety)
- I - 7 (inhibitory conversion)
- T-15 (aggressiveness)
- L-17 (shizoid)

These scales belong to the battery 18 PF, which is based on factor analysis of verbal stimuli from Cornell Index N4, MMPI scales, and batteries constructed named MPI by Momirović (1968). This battery includes 18 tests and the extent of the primary pathological conative factors. It is interesting to state that all tests (except test of hypomania) PF 18 batteries have a high lower limit of reliability (from .74 to .96). Factor analysis showed that the battery is measured following four second order factors: asthenic syndrome, conversion syndrome, stenic syndrome and dissociative syndrome.

Sample of criterion variables (situational-motorical) defined as follows:

Variables for assessing a basketball game:

- Keeping the ball in the slalom - OKVLS (speed and coordination)
- Toss the ball with both hands on the wall - OKBLRZ (speed and accuracy handling the ball)
- Toss the ball into the basket - OKBLK (precision guessing)

These variables, among other authors, is used in the Ph.D. program for the assessment of situational motor performance of students. (Hadžikadunić, 1986.)

Methods of Data Processing

Processing of the data obtained was performed using the software package SPSS 12.0 for Windows. At the multivariate level to determine the influence of applied regression analysis, which is extremely suitable mathematical and statistical procedures in cases where it is necessary to determine the effect of causing a variable to a set of other variables.

Results and discussion

The variables whose effect is achieved

Regression analysis of the criterion variables Keeping the ball in slalom OKVLS (Table 1), provides sufficient information about the influence of conative variables on the performance of the treated success criterion variable. Correlation of predictors with the criterion variable was $R = .31$, and explained very little (9%) together with the criterion of variability. It turned out that such a significant correlation (Sig.) at the highest level of .00. The analysis of individual influence of conative variables (Table 2), can be seen that the largest and statistically significant impact on the criterion variable with a variable inhibitory conversion (.02) and anxiety (.02), while the variables that explain the area of aggression and do not have this shizoid influence. Such a relationship setting as soon as we introduce the presence of a certain level of excitement with complex tensions, difficulties in mobilizing the energy and the different variations of the state of insecurity and fear of unknown with a touch of nervousness in the preparation and execution of basketball keeping the ball in the slalom. It is considered that the respondents in this case the task seriously, the way to access the competitive performance of the test and because of such attitudes had the appropriate dose of uncertainty and nervousness in the practical realization of the same. So before the test of keeping the ball in basketball slalom trainees / students should be adequately prepared psychologically. In order to facilitate the practical task and competition, that the specific performance, without the influence of negative features of both conative factors, achieve a better result, waiting for the appropriate award or winning better grades. The above is consistent with research Shiffrin and Schneider (1977) who confirmed that the automated processing of motor tasks requiring low level care, which is in contrast with the highly controlled information requiring attention and focusing. In contrast to the highly controlled information processing, automated processing is fast, simple and not under conscious control (Williams, AM, Davids, JG Williams, 2000). Therefore, many authors often speak of the consciousness and subconscious processes in the context of a structured research Shiffrin and Schneider (1977) and R Schneider, Dumais, and Shiffrin's (1984).

Table 1. Model Summary – OKVLS (dribbling slalom)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.314	.099	.074	.805

Table 2. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.384	4	2.596	4.004	.004
	Residual	94.654	146	.648		
	Total	105.038	150			

Table 3. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	I 7	.032	.014	.187	2.211	.029

The variables whose effect is not achieved

Regression analysis of the criterion variable Throwing the ball with both hands on the wall - OKBLZ (Table 4) shows that it is not isolated joint regression information about the importance of the influence of conative variables (A1, I7, T15, L17) on the success of the performance criterion variables treated (OKBLZ). Correlation of predictors with the criterion variable was $R = .20$, with a very low percentage of explanation of the variability of 4%. Although isolated regression function XD absent significant correlation (.17 Sig. in Table 5) was analyzed and the influence of individual variables (Table 6) which can be stated that is not entirely absent. So all four of the treated conative variables, only anxiety, shows the influence of performance basketball throwing ball with both hands on the wall (.02) significance. The realization of this motor task requires the attention and focusing so the participants

to implement this element of basketball games, which require fast movement, set up under the ball, precision and coordination, necessary and psychologically well prepared.

Regression analysis of the criterion variable Throwing the ball into the basket - OKBLK (Table 7) notes the lack of information about the existence of conative variables influence the success of the performance criterion variables treated. Correlation of predictors with the criterion variable was $R = .16$, with a very low degree of explanation common variability of 2%. How significant was no correlation of the regression function, so the same is absent in the individual effect of variables. So treated conative variables have no influence on the throw the ball into the basket in a basketball game so that students / trainees is not necessary to prepare psychologically for the realization of this test.

Table 4. Model Summary- throwing the ball with both hands on the wall

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.206	.043	.016	6.893

Table 5. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	309.349	4	77.337	1.625	.171
	Residual	6948.095	146	47.590		
	Total	7257.444	150			

Table 6. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	I 7	-.272	.122	-.194	-2.228	.027

Table 7. ANOVA– Throwing the ball into the basket

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.618	4	10.155	1.033	.392
	Residual	1435.329	146	9.831		
	Total	1475.947	150			

Insight into the regression analysis, and the relation of conative characteristics with the first principal component derived from three motor tests situational handball (OKVLS, OKBLRZ, OKBLK) which has a reciprocal correlation (predictor and criterion variables) $R = .29$ (Table 8) and the coefficient of determination of $.08$ leads us to conclude that the level of isolated features is very low. Although the significance of correlation ($.01$), all predictor variables have made a constructive impact on the first principal component. By analyzing the influence of individual variables, in order to verify the relationship that has been achieved with the first principal component (Table 10), we can conclude that only one variable and 17-inhibitory conversion, a significant statistical relationship with the basketball game ($.01$). This effect confirms the relationships observed in testing elements of basketball ball leading in the slalom and throwing the ball with both hands on the wall, thus confirming the importance of inhibition of conversion in the realization and implementation of elements of basketball games. These results are consistent with an explanation of the relationship between conative and motor skills by Fitts and Posner's research (1967), who found that during the process of acquiring motor skills an individual progresses through the conative stage, then the associative stage, and eventually reaches a level of automation (autonomous stage). These results confirm research and Čerenšek Baric's (2011) with the purpose of researching to find a positive relationship between ego and target orientation and before competition anxiety and establish a negative relationship between these two factors. The results of this study did not confirm their hypothesis, ie lacking the conative characteristics influence the level of implementation of elements of sport, and it was confirmed that the team sports, especially for men can have a positive effect on confidence and that team sports athletes feel less anxiety before competition. So, what are the subjects / students were less emotionally active (excited, scared the task), and better prepared technically, these are the results of the attainment of a basketball game was on a higher level.

Conclusion

The influence of conative abilities (anxiety, inhibitory conversion, aggressiveness, shizoid) to perform three situational - motor elements of the game of basketball (dribbling slalom, throwing the ball with both hands on the wall, throwing the ball into the basket) was analyzed using regression analysis on 151 subjects - student secondary vocational schools. The goal set of the research is presupposed that there is influence of conative characteristics on performance of situational-motor elements of basketball games. The proceedings showed that only one of the variables - inhibitory conversion has significant impact on the realization of the set of elements of basketball. The same variables also isolated as a significant and near, three situational-motor element, formed latent space. As conative structure-sensitive guidance and feedback from the environment. We conclude that the performance level of teaching physical education and sport, in the case of this study was characterized by the conscious / good control over the various external influences. Also, we can state that the students / pupils motor well mastered techniques of throwing the ball with both hands on the wall and throwing the ball into the basket and by the realization of the same is not interfered with the surrounding structure of relationships (other students, teacher attendance, performance evaluation, etc.). For technical elements Keeping the ball in slalom, results appeared to influence the structure (inhibitory conversion) on the implementation of this element, which in practice is that the students appeared for the symptoms listed conative characteristics. The latent situational-motor area is formed of three treated with basketball element appeared using regression effect conative structures. Lowered into the space of individual variables is defined as the influence of one variable, and also inhibition of the conversion. It can be concluded that this effect is practically transferred from the manifest space and that the participants in the realization of a basketball game felt the level of complex tensions, difficulties in mobilizing energy, uncertainty

Table 8. Model Summary-I MAIN COMPONENT AND BASKETBALL GAMES

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.290	.084	.059	.970

Table 9. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.627	4	3.157	3.355	.012
	Residual	137.373	146	.941		
	Total	150.000	150			

Table 10. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	17	-.044	.017	-.217	-2.553	.012

and vague fear with a touch of nervousness in the preparation and implementation techniques of treated components. This was partially confirmed in practice, research goal, given that the four variables are treated, only one (inhibitory conversion) has an evident influence on the practical, situational-motor work trainees / students. In essence, for better implementation of the content of teaching trainees / students should be well prepared and technically (quality motor knowledge) because in this case we have a situation where the student / learner, the implementation element "under pressure" (which is graded or in space where it realizes there is an element of noise is made, or psychological pressure caused by the presence of other students or teachers, etc.), it performs very well and ultimately achieve better success in the classroom.

References

- Barić, R., Čerenšek, I. (2011). *Competitive anxiety and goal orientation in croatian athletes*. Integrative Power of Kinesiology, 6th International Scientific Conference on Kinesiology (pp 375 - 378), Opatija, Croatia.
- Bretschneider, S., Naul, S. (2004). *The influence of social status on the level of motor readiness of secondary students population*. Kineziology No 1/2004, (pp 23-34). Zagreb.
- Bukvić, O. (2003). *Relations between basic-and motor-specific motor skills of basketball players and their impact on the success in basketball*. Homo sporticus No 1/2003., (pp 17-28). Sarajevo.
- Fitts, P. M., & Posner, M. I. (1967). *Human performance*. Belmont, CA: Brooks/Cole Publishing Company.
- Findak, V. (2001). *Methodology of physical education*. School books, Zagreb.
- Hadžikadunić, M. (1986). *Correlation between morphological characteristics and motor abilities with the results of acquisition of certain pedagogical teaching materials in primary school cycle*. Doctoral dissertation at the Faculty of Physical Education, University of Sarajevo.
- Hodges, N.J., Starkes, J.L., MacMahon, C. (2006). *Expert Performance in Sport: A Cognitive Perspective*. In K. A. Ericsson, N. Charness, P.J. Feltovich, R.R. Hoffman (Eds.), *The Cambridge Handbook of Expertise and Expert Performance* (pp 11-13), Cambridge University Press, New York.
- Kovač M., Leskošek, B., Strel, J. (2007). *Comparison of morphological characteristics and motor abilities of boys of secondary school students of different programs*. Kineziology 1/2007, , (pp 62-73). Zagreb.
- Mekić, M. (2001). *Effect of basic motor abilities on the accuracy of basketball shooting in basketball*. Homo sporticus, No. 1.. (pp 31-40). Sarajevo.
- Mekić, M. (2002). *Effect of basic motor abilities in a ball with precision in basketball*. Proceedings of the International Scientific Symposium (pp 33-35). Skopje.
- Schneider, W., Dumais, S.T., Shiffrin, R.M. (1984). *Automatic and control processing and attention*. In R. Parasurman, R. Davies (Eds.), *Varieties of Attention*, Academic Press (pp. 124-130). Orlando FL.
- Shiffrin, R. M., Schneider, W. (1977). *Controlled and automatic human information processing*. II. Perceptual learning, automatic attending, and a general theory. *Psychological Review*, 84 (2), (pp 127-190).
- Tallir, L., Valacke, M., Musch, E., Philippaters, R., Lenoir, M. (2008). *Learning opportunities in 3 on 3 versus 5 on 5 basketball game play*. Book of Abstracts of the 13th Annual Congress. (pp 28-29), Estoril -Portugal.
- Vlašić, J., Oreb, G. and Furjan-Mandić, G. (2007). *Relationship of motor and morphological characteristics of the student s performance in folk dances*. Kineziology 1/2007, (pp 49-61). Zagreb.
- Williams, A.M., Davids K., Williams J.G. (2000). *Visual perception and action in sport*. Routledge. New York, NY.

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