RELATIONS BETWEEN INTERPERSONAL COMMUNICATION DIMENSIONS AND PHYSICAL EDUCATION QUALITY

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Abstract

The research was conducted with the aim of examining the relation between the modalities of interpersonal communication and the quality of physical education. The data were collected using the *Teaching process evaluation questionnaire (UN1)* and the *Modalities of interpersonal communication evaluation questionnaire (UK1)* on the sample consisted of 120 kinesiology students. The examination was carried out by the method of direct observation of the teaching lessons conducted by the students as part of the Kinesiological Didactic curriculum. The obtained findings confirmed the connection between communication skills and the quality of teaching. Also, the structure of the correlation between individual parts of the Physical education lesson and the dimensions of interpersonal communication are described, thus furthermore explaining the determinants of kinesiological education process as whole.

Keywords: PE students, communication skills, PE lessons, teaching quality

Introduction

Physical education is a complex process that involves planning and programming, preparing, organizing and implementing a physical exercise process (Bavčević, Babin & Prskalo, 2006). The goals of the educational process include not only the development of kinanthropological characteristics, the acquisition of motor skills and the improvement of motor achievement, but also the educational effects that manifest themselves on the psycho-sociological dimensions of students (B. Babin, Bavčević & Vlahović, 2013; J. Babin, Vlahović & Bavčević, 2008; Vlahović, Bavčević & Katić, 2007). In this process, the role of teachers as moderators of the teaching process is particularly emphasized, whose skills will largely determine the quality of the education process as a whole (Babin, Bavčević & Prskalo, 2010).

One of the most important aspects of teacher's work is the ability to establish and maintain quality interpersonal relationships as a precondition for the educational process, and this presupposes quality communication between teachers and students. Numerous studies have highlighted the importance of interpersonal communication in teaching (Bavčević, 2016). T. Bavčević, Prskalo and D. Bavčević. (2018) have described different modalities of teacher communication in physical education and identified different communication styles in relation to the quality of teaching process management.

The aim of this research is to examine the relations between different dimensions of interpersonal communication and the quality of physical education process. The impact of interpersonal communication on the individual lesson parts implementation quality will be analysed as well.

Methods

The sample of subjects included 120 students of the Faculty of Kinesiology, University of Split, as follows: 3rd year of study: 27 female and 33 male students; 4th year of study: 28 female and 32 male students.

The quality of teaching process and the modalities of interpersonal communication were assessed by the method of direct observation of students public lectures in primary school by five evaluators using the *Teaching process evaluation questionnaire (UN1)* and *Modalities of interpersonal communication evaluation questionnaire (UK1)* (Bavčević, 2010).

Using the above questionnaires, five parameters of teaching process quality were assessed: *1) Quality of introductory lesson part (NUDS), 2) Quality of preparatory lesson part (NPDS), 3) Quality of main A lesson part (NGADS), 4) Quality of main B lesson part (NGBDS), 5) Quality of closing lesson part (NZDS)*, and three parameters describing modalities of interpersonal communication: *1) Technical and content communication dimension (KTS), 2) Assertiveness and formality dimension (KAF), 3) Emphatic and closeness dimension (KEP)*.

Results and discussion

The obtained data were subjected to determination of parameters of descriptive statistics: *mean ($\bar{x}$)*, *standard deviation (σ)*, *skewness (α_3)*, *kurtosis (α_4)*. The normality of data distribution was determined by the Kolmogorov-Smirnov test with calculation of maximum deviation between the empiric and theoretical cumulative relative frequency (max d).

Relations between the dimensions of the teaching process and the process of interpersonal communication were determined using canonical correlation analysis, including next parameters: *canonical correlation coefficient (R_c)*, *eigenvalue (λ)*, *Bartlett χ^2-test value (χ^2)*, *degree of freedom for Bartlett χ^2-test (df)*, *significance level for Bartlett χ^2-test (p), correlation coefficients of manifest variables and canonical factors (F)*,*redundancy (Rd).*

Table 1 presents the descriptive statistics parameters and the results of the Kolmogorov-Smirnov test of the normality of data distribution.

Table 1

	Female students					Male students				
Variable	**$\bar{x}$**	**σ**	**α_3**	**α_4**	**max d**	**$\bar{x}$**	**σ**	**α_3**	**α_4**	**max d**
NUDS	3.94	0.65	-0.10	-1.04	0.101	3.61	0.90	-0.25	-1.31	0.137
NPDS	3.65	0.63	-0.61	-0.10	0.090	3.33	0.67	0.32	-0.56	0.074
NGADS	3.72	0.63	-0.22	-0.71	0.080	3.61	0.57	0.26	-0.75	0.092
NGBDS	3.60	0.87	-0.73	-0.05	0.115	3.51	0.81	-0.37	-0.56	0.083
NZDS	3.96	0.69	-0.93	0.69	0.128	3.79	0.73	-0.51	-0.65	0.095
KTS	3.87	0.65	-0.74	-0.38	0.142	3.65	0.54	-0.00	-0.47	0.064
KAF	3.52	0.50	-0.33	0.34	0.113	3.33	0.45	0.31	-0.34	0.072
KEP	3.48	0.49	-0.15	-0.77	0.066	3.34	0.53	-0.24	0.06	0.087

Threshold max d $(p<0.05)_{female}$ = 0,180; Threshold max d $(p<0.05)_{male}$ = 0.166

By analysing the results, it can be seen that the values of standard deviations (σ) do not exceed 1/3 of the corresponding mean values ($\bar{x}$) for both female and male students. The skewness values (α_3) range from -1.31 to -0.10 for the female students and from -0.85 to 0.32 for the male students subsample, indicating a symmetric distribution of data across all variables. The kurtosis values (α_4) range from -1.04 to 1.01 in the female students subsample and from -1.31 to 0.05 in the male students subsample suggesting a mesokurtic form of distribution. The Kolmogorov-Smirnov test confirmed the normality of data distribution across all variables in both subsamples.

Table 2 shows the results of the canonical correlation analysis between the dimensions of the teaching process and the process of interpersonal communication, in both female and male students subsample.

Table 2

Canonical correlation analysis

	Female students				Male students			
R_c	0.840	0.387	0.259		0.887	0.274	0.199	
λ	0.706	0.150	0.067		0.787	0.075	0.040	
χ^2	72.012	11.487	3.445		99.134	7.068	2.416	
df	15	8	3		15	8	3	
p	0.000	0.176	0.328		0.000	0.529	0.491	
		F		**Rd**		**F**		**Rd**
NUDS	0.44	-0.03	0.81		0.71	0.35	0.38	
NPDS	0.67	-0.42	0.14		0.87	-0.41	0.18	
NGADS	0.97	-0.00	-0.09	42.21%	0.89	0.02	-0.33	46.29%
NGBDS	0.81	0.32	-0.03		0.72	0.47	-0.02	
NZDS	0.76	0.48	0.14		0.54	0.27	0.39	
KTS	0.91	0.41	0.04		0.93	0.35	0.09	
KAF	0.84	-0.37	-0.39	51.78%	0.76	0.10	-0.65	61.81%
KEP	0.73	0.08	0.68		0.93	-0.31	0.17	

A canonical analysis of a female students subsample identified one significant pair of canonical factors. The canonical correlation coefficient (R_c = 0.840) indicates a high degree of correlation between the factors of the two observed sets of variables. The eigenvalue (λ = 0.706), as a measure of the canonical correlation determination, confirms the significant proportion of the common variance of the two isolated canonical factors. The statistical significance of the defined pair of canonical factors was confirmed using *Bartlett's χ^2-test* (χ^2 = 72.012; df = 15; p = 0.000).

In order to determine the partial contribution of individual variables to the formation of the corresponding canonical factor, a matrix of correlation coefficients between manifest variables and the obtained canonical factors was calculated. The highest degree of linear correlation with the associated canonical factor in the area of the teaching process variables is recorded within the variable *Quality of main A lesson part (NGADS)* (F_{NGADS} = 0.97), followed by the variables *Quality of main B lesson part (NGBDS)* (F_{NGBDS} = 0.81), *Quality of closing lesson part (NZDS)* (F_{NZDS} = 0.76), *Quality of preparatory lesson part (NPDS)* (F_{NPDS} = 0.67) and *Quality of introductory lesson part (NUDS)* (F_{NUDS} = 0.44). In the space of the interpersonal communication variables the largest contribution to the formation of the canonical factor is obtained by the variable *Technical and tactical communication dimension (KTS)* (F_{KTS} = 0.91), but high correlation coefficients were also found in the variables *Assertiveness and formality dimension (KAF)* (F_{KAF} = 0.84) and the *Emphatic and closeness dimension (KEP)* (F_{KEP} = 0.73).

Redundancy values indicate a high degree of possible estimation of first variables set values based on second variables set values. Using the set of interpersonal communication process variables, it is possible to estimate 42.21% of the teaching process variable set variance. In the opposite case, the degree of reconstruction is somewhat higher. Thus, using the set of teaching process variables, it is possible to estimate 51.78% of the variance of the interpersonal communication process variable set.

By using a canonical analysis on a subsample of male students a significant pair of canonical roots were identified. The value of the canonical correlation coefficient (R_c = 0.887) indicates a high degree of correlation between the canonical factors of the two variables sets. The high eigenvalue (λ = 0.787) indicates a significant proportion of the common variance of the isolated pair of canonical factors. The statistical significance of the canonical model was confirmed using *Bartlett's χ^2-testa* (χ^2 = 99.134; df = 15; p = 0.000).

The partial contribution of individual variables within the canonical model was analysed by using the correlation coefficients matrix of the manifest variables and the obtained canonical factors. The highest degree of linear correlation with the associated factor in the set of teaching process variables was recorded with the variable *Quality of main A lesson part (NGADS)* (F_{NGADS} = 0.89) and slightly less with the variable *Quality of preparatory lesson part (NPDS)* (F_{NPDS} = 0.87). By the magnitude of the partial impact on canonical factor above mentioned variables are followed by variables *Quality of main B lesson part (NGBDS)* (F_{NGBDS} = 0.72), *Quality of introductory lesson part (NUDS)* (F_{NUDS} = 0.71), and finally *Quality of closing lesson part (NZDS)* (F_{NZDS} = 0.54). In the interpersonal communication process variables set, a very high degree of linear correlation between all three variables and the associated canonical factor was recorded. The largest partial contribution to the formation of the canonical factor is obtained by the variables *Technical and content communication dimension (KTS)* (F_{KTS} = 0.93) and the *Emphatic and closeness dimension (KEP)* (F_{KEP} = 0.93), followed by the variable *Assertiveness and formality dimension (KAF)* (F_{KAF} = 0.76).

The total amount of redundant variance indicates a high degree of ability to evaluate one set of variables by another set of variables. Based on the set of interpersonal communication process variables, it is possible to estimate 46.29% of the variance of the teaching process variable set. In the opposite case, the percentage of prediction is slightly higher. Using the teaching process variables, it is possible to estimate 61.81% of the variance of the interpersonal communication process variables set.

The findings have confirmed a high degree of correlation between the variables of the teaching process and the process of interpersonal communication in a both of female and male students subsample. This implies a conclusion that the quality of individual parts of the PE lesson is significantly related to the manifestations of the interpersonal communication dimensions.

In the subsample of female students, findings indicates that the basis of the connection between the teaching process and the process of interpersonal communication is structured, on the one hand by the organization, content, presentation and realization aspects of education, primarily those of the main A lesson part and the main B lesson part, and on the other hand by the manifestation of communication dimensions, especially the technical and content dimension as well as the assertiveness and formality dimension.

In the subsample of male students, the basis of the relation between the teaching process and the process of interpersonal communication is mainly determined by qualitative aspects of organization, content selection, presentation and realization of the main A lesson part and the preparatory lesson part on the one hand, and the manifestation of certain dimensions of communication on the other hand, primarily the technical and content dimension as well as the empathic and closeness dimension.

The obtained findings are in line with previous researches conclusions regarding the relation between the teaching process and the process of interpersonal communication. Dawes (2004) points out that the effectiveness of the educational process depends entirely on the quality of communication, and the communication process on the social interaction of individuals within the group. The same conclusions are drawn by the authors Ferch, St. John, Reyes and Ramsey (2006), stating that good communication enables mutual understanding of the participants in the teaching process. Communication is a very important factor in the teaching process, which significantly determines the quality and achievements of the education process as a whole.

Particular emphasis is placed on teacher as the communicator and moderator, who essentially determines the direction and quality of the entire education process. Coker (1999) states that clear and concrete communication by teachers significantly contributes to a more effective involvement of students in the teaching process. Xiao-yan (2008) points out that the quality of teacher's communication plays a significant role in the teaching process and directly determines the quality of teaching. Analysing the communication process in teaching, Karadag and Caliskan (2009) state that the process of effective teaching or learning depends on the quality of communication, and therefore teachers need to ensure balanced, reliable and purposeful communication based on more communication channels.

Conclusion

The communication process emerges as an important factor in all aspects of teaching and represents a significant factor in the quality of the education process as a whole. According to the findings of the conducted research, as well as with the previous researches findings, it is possible to conclude that the quality of the teaching process and the process of interpersonal communication are multiple and significantly related. In this respect, manifestations of the interpersonal communication dimensions occur as quality determinants of the organization, content presentation and the actual realization of the physical education.

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