Activities in Physical Education and Sport
2020, Vol. 10 No. 1-2, pp. 25-28

THE SUCCESS IN THE TEACHING PROCESS AND THE STUDENT`S POTENTIAL IN SPORT ACTIVITIES

Research notes

Irena Kitanova[1], Sadudin Sadiki[2] and Emilija Petrova – Gorgeva[3]
[1,2] Faculty of Educational Sciences, University "Goce Delcev", Stip, North Macedonia
[3]Municipal Technical High School, Gostivar, North Macedonia

Abstract

Starting from the thesis that the success in learning is achieved in various ways and different situations, while taking into consideration the physical, social and psycho-motoric differences of the students, the ultimate aim of the pedagogical process is to set high but realistic expectations for each child and to stimulate curiosity, research, critical thinking and collaboration, so that every child can develop affinities for success and lifelong learning skills. This paper analyses the relation between the student's success in the learning process and the student's potential in sports activities. The survey covered 124 students from three high schools, from which one is a secondary technical and economic school from Gostivar and a gymnasium from Shtip. The Grading in education is recorded for the general subjects and also for a basic sports activity that includes almost all the elements of a competitive character - athletics (sprint in 30 and 80 meters), where the sports teachers obtain all of the anthropometric characteristics and achieved time (success) in the sprint itself for these students. Obtained data were analysed using descriptive statistics parameter, t – test and ANOVA. The empirical results in this study show that there is a significant statistical correlation, an important connection between the average success of the student in the learning process and the achievements in sprinting, and it was noted that the dominant anthropometric feature of the average success is the size of the student's chest. Also, it is worth mentioning that the results showed a statistically significant difference among the sprint achievements according to the student's gender.

Keywords: *educational process, sports activities, grading in education, anthropometry, athletics, sprint*

INTRODUCTION

The question about the relationship among the various dimensions of human psychosomatic status, especially between anthropometric and motor status and the student's achievement, remains one of the issues with the highest interest to researchers in the field of physical culture (Mayers, 1974). This issue is important because the information gained from the analysis of these reports reflects the interrelationships and dependencies between these dimensions, which are important in the process of planning transformational processes with different categories and age groups. Multidimensional human status as well as the interdisciplinary approach to researching the process of human transformation conditions a great knowledge about all these impacts caused by various factors. Organized physical activities play an important role in this transformative process, which has a very wide scope in the context of all human activities. The various forms of these activities allow for greater involvement of the population, especially the youth population.

The implications of human multidimensional status are manifested especially during periods of growth and development, where the relations among dimensions change constantly (Aliu, 1999, Topuzov, Kavdanski, Vckov, Petrova, Naceva & Denceva (Топузов, Кавдански, Вчков, Петрова, Начева & Денчева), 2000). The fact that the greatest transformative impact occurs at an early age increases the need for genuine professional scientific work based on the knowledge of relationships within the human system (Topuzov, Bojcev & Gluskova (Топузов, Бојчев & Глушкова), 2000). Therefore, through this paper, we aim to investigate the relationships between movement abilities and anthropometric dimensions in the school population aged 17-18 years, finding the potential link between students' anthropometric characteristics and learning achievement, as well as potential differences between genders, and school status in running in the 30-meter and 80-meter sprint.

METHODS

The research problem and purpose

Through this analytical-quantitative research, we aim to analyse the potential links between the success (GPA) of high school students with their achievements in the field of sport, regarding anthropometric characteristics. So, the potential association between adolescent running at 30 and 80 meters (sprint) and the impact of anthropometric characteristics to this success were analysed.

Following variables were used: running at 30 and 80 meters (sprint) for determination of motor abilities; Body Height, Thigh Perimeter, Leg Length, Arm Length, Body Mass, Butterfly Skin Tummy, Chest Perimeter, Button Perimeter, Skin Tummy Tip, Stomach Skin Tummy of the Thigh for determination of anthropometric characteristics and success in educational tasks (Surender, 1993; Samia, 1966).

Research hypotheses

H1 - There is a positive relationship between student success and achievement in the 30- and 80-meter runs.

H2 - There is a statistically significant difference in 30- and 80-meter running achievements depending on the gender of the student.

H3 - There is a statistically significant difference in 30- and 80-meter running achievements depending on the student's school.

H4 - Achievements in 30 and 80-meter runs are determined by the student's anthropometric characteristics

Research sample

For the analysis in this research, we surveyed 124 students from three schools. Students with technical profiles from Gostivar were 29, students in economics were 44 also from Gostivar and 51 were from the high school in Stip. Distribution of the sample is presented at Table 1. Sample selection was also randomly made for 16-18 -year-olds with varying learning success. By gender, 78 of them were male and 46 female students, as presented in Table 2.

According to the success (GPA), the distribution of students was within the normal range with a mean of 3.12, which is a normal distribution that guarantees high objectivity of the results for the interpretation of the hypotheses. The normal distribution is seen in Table 3, below in the order of average, median and mode and the table below for the Kolmogorov-Smirnof test for normal distribution.

Table 1. Frequency of students by school

	Frequency	Percent	Valid Percent	Cumulative Percent
Technical school Gostivar	29	23.4	23.4	23.4
Economics school Gostivar	44	35.5	35.5	58.9
High school Stip	51	41.1	41.1	100.0
Total	124	100.0	100.0	

Table 2. Gender of the respondent

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	78	62.9	62.9	62.9
Female	46	37.1	37.1	100.0
Total	124	100.0	100.0	

Table 3. Descriptive Statistics of success

Mean	3.1153
Median	3.0900
Mode	3.00
Std. Deviation	1.12853
Variance	1.274
Skewness	.101
Std. Error of Skewness	.217
Kurtosis	-1.124
Std. Error of Kurtosis	.431
Range	3.82

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of success is normal with mean 3.12 and standard deviation 1.13.	One-Sample Kolmogorov-Smirnov Test	.300	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

RESULTS AND DISCUSSION

Regarding H1 research that asserts a positive association between student success and achievement in 30- and 80-meter runs, H1 There is a positive relationship between student success and achievement in the 30- and 80-meter runs, with Table 4 below shows the Pearson correlation coefficients for correlations between these two variables, including:

It turns out that between success and achievement in the 30-meter and 80-meter runs there were significant positive correlations between r = 0.531 sig = 0.003 and r = 0.522 sig = 0.004 (0.01 <p <0.05). In other words, we found that with the increasing success of students also increases the results of the 30- and 80-meter jogging in this research. So H1 stands and is verified.

Regarding H2 where there is a statistical difference in students' scores in the 30 and 80-meter runs depending on their gender, so the H2 Student, employing the difference of means (t-test) in Table 5, we present the average scores for both sexes and both runs.

Results from t – tests are presented in Table 6. The third column shows the differences for the aforementioned differences, i.e. sig = 0.042 and 0.018 for the 30-meter race results, sig = 0.017 and 0.008 for the 80-meter race results. Since it is significant for the second reliability limit (0.01 <p <0.05), we conclude that there is a statistical difference in the 30- and 80-meter run results by student gender and that men achieve higher scores (5.78 and 16.52) compared to female students 6.99 and 17.35). So H2 stands and it is verified.

Regarding H3 according the results, there is a statistical difference in 30-meter and 80-meter runs in students achievements compared from the aspect of variables related to school location and school status (school and city type). Based on this, the H3- There is a statistically significant difference in 30- and 80- meter running achievements depending on the student's school is verified. Results are presented in Table 7.

Table 8 shows the results between two groups. Based on significance of mean differences and according to sig = 0.846 and sig = 0.808 (0.01 <p> 0.05), we conclude that there is no statistically significant difference in the 30- and 80-meter run scores depending on location and type of school in this research. So H3 does not stand.

Regarding H4 where it is stated that the students' results in the 30- and 80-meter runs are determined by their anthropometric characteristics, i.e. the H4 Achievements in the 30- and 80-meter runs are determined by the student's anthropometric characteristics. The linear regression in Table 9 presents the correlation coefficients of the factor group correlation (school, respondent's gender, success, body height, thigh perimeter, leg length, arm length, body mass, butterfly skin tummy, chest perimeter, button perimeter, skin tummy tip, stomach skin tummy of the thigh) with 30- and 80-meter run scores, r = 0.867, so what is the influence of these factors together on the 30- and 80-meter run results.

We find that these set of factors (school, respondent's gender, success, body height, thigh perimeter, leg length, arm length, body mass, butterfly skin tummy, chest perimeter, button perimeter, skin tummy tip, stomach skin tummy of the thigh) have very high statistical impact r = 0.867 sig = 0.000 (0.01> p <0.05), i.e. high positive correlation and great significance for the first confidence limit.

Factor analysis continues to elaborate on the impact for each of the factors highlighted in this group, as well as the following, in Table 11, the impact coefficients for each factor in particular on the 30- and 80-meter run result. According to beta and t coefficients, we can say that this group of factors, in particular, distinguishes the influence of Chest Perimeter and Body Mass factors (t = 4.132 and t = 3.587 sig = 0.00 and sig = 0.001) (0.01> p <0.05), i.e. we say that the 30 and 80-meter run results in this research have the highest impact on Chest Perimeter and Body Mass, so two factors determine the 30 and 80-meter run result in this research. So H4 stands and is verified.

Table 4. Correlations

		Success	30-meter run	80-meter run
Success	Pearson Correlation	1	.531	.522
	Sig. (2-tailed)		.003	.004
	N	124	116	116
30-meter run	Pearson Correlation	.531	1	.767**
	Sig. (2-tailed)	.003		.000
	N	116	116	116
80-meter run	Pearson Correlation	.522	.767**	1
	Sig. (2-tailed)	.004	.000	
	N	116	116	116

***. Correlation is significant at the 0.01 level (2-tailed).*

Table 5. Difference of running averages by gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
30-meter run	M	74	5.7619	1.07637	.12513
	F	42	6.9924	.89231	.13769
80-meter run	M	74	16.5251	1.43256	.16653
	F	42	17.3505	1.31636	.20312

Table 6. Independent Samples Test

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
30-meter run	-1.177	114	.042	-.23049	.19590	-.61857	.15759
	-1.239	98.828	.018	-.23049	.18605	-.59966	.13868
80-meter run	.650	114	.017	.17466	.26890	-.35803	.70735
	.665	91.440	.008	.17466	.26266	-.34705	.69637

Table 7. Difference of running averages by school

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
30-meter run	Technical school Gostivar	27	6.8948	1.08928	.20963	6.4639	7.3257
	Economics school Gostivar	40	6.8908	1.04408	.16508	6.5568	7.2247
	High school Stip	49	6.7810	.96748	.13821	6.5031	7.0589
	Total	116	6.8453	1.01572	.09431	6.6585	7.0321
80-meter run	Technical school Gostivar	27	17.539	1.53570	.29555	16.9318	18.1468
	Economics school Gostivar	40	17.531	1.50002	.23717	17.0515	18.0110
	High school Stip	49	17.362	1.22277	.17468	17.0114	17.7139
	Total	116	17.461	1.38838	.12891	17.2066	17.7172

Table 8. ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
30-meter run	Between Groups	.351	2	.176	.168	.846
	Within Groups	118.293	113	1.047		
	Total	118.644	115			
80-meter run	Between Groups	.837	2	.418	.214	.808
	Within Groups	220.838	113	1.954		
	Total	221.675	115			

Table 9. Linear regression - Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.867a	.751	.717	.54042

a. Predictors: (Constant), School, Respondent's Gender, Success, Body Height, Thigh Perimeter, Leg Length, Arm Length, Body Mass, Butterfly Skin Tummy, Chest Perimeter, Button Perimeter, Skin Tummy Tip, Stomach Skin Tummy of the Thigh

Table 10. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	89.148	14	6.368	21.803	.000b
	Residual	29.497	101	.292		
	Total	118.644	115			

a. Dependent Variable: 30 and 80-meters run

b. Predictors: (Constant), School, Respondent's Gender, Success, Body Height, Thigh Perimeter, Leg Length, Arm Length, Body Mass, Butterfly Skin Tummy, Chest Perimeter, Button Perimeter, Skin Tummy Tip, Stomach Skin Tummy of the Thigh

Table 11. Factorial analysis – Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.075	1.517		.709	.480
Gender	.192	.116	.091	1.660	.100
Success	-.023	.045	-.027	-.517	.606
School	.061	.067	.047	.899	.371
Body Height	-1.328	.560	-.139	-2.372	.020
Thigh Perimeter	.003	.012	.030	.212	.833
Leg Length	-.053	.018	-.301	-2.980	.004
Chest Perimeter	.029	.007	.325	4.132	.000
Body Mass	.037	.010	.331	3.587	.001
Butterfly Skin Tummy	.003	.009	.031	.367	.714
Arm Length	-.010	.016	-.059	-.594	.554
Button Perimeter	.005	.007	.133	.774	.441
Skin Tummy Tip	-.008	.019	-.105	-.436	.664
Stomach Skin Tummy of the Thigh	.003	.025	.033	.130	.897

a. Dependent Variable: 30 and 80-meters run

CONCLUSION

• We note that with the increase in student success, there is also an increase in the results of the 30- and 80-meter runs in this research.

• We conclude that there is a statistical difference in the results of running at 30 and 80 meters by student gender and that males achieve higher scores (5.78 and 16.52) than female students 6.99 and 17.35).

• We conclude that there is no statistically significant difference in the results of the 30- and 80-meter run depending on the location and type of school in this study.

• We find that these set of factors have very high statistical impact $r = 0.867$ $sig = 0.000$ $(0.01 > p < 0.05)$

• the 30 and 80-meter run results in this research have the highest impact on Chest Perimeter and Body Mass, so two factors determine the 30 and 80-meter run result in this research.

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Correspondence:
Assoc. prof. Irena Kitanova, PhD
Faculty of Educational Sciences,
University “Goce Delcev“, Stip
irena.kitanova@ugd.edu.mk