

ORIGINAL SCIENTIFIC PAPER

Peculiarities of Schoolchildren Physical Development Self-Assessment Accounting for their Gender Characteristics

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Abstract

The study aims to research the influence of the gender characteristics of boys and girls on their self-esteem regarding their physical development, health status, as well as to determine the relationship between the level of self-esteem and their belonging to the psychological type of personality (masculine, feminine, androgynous) among respondents who engage in and do not engage in sports. The study involved students in grades 5-11 (638 subjects). To study the level of self-esteem of the physical development of schoolchildren, a test questionnaire by "Self-Description of Physical Development", a test questionnaire by "Masculinity-Femininity", cluster analysis, and methods of mathematical statistics were used. It was determined that the self-esteem of the physical development of schoolchildren, for the most part, has a high and overstated level, which is 80-85% of the maximum score. The structure of age groups of boys and girls was determined according to the manifestation of psychological gender signs using cluster analysis. Based on the data obtained, it can be stated that boys and girls have certain common gender characteristics. However, there are distinctive features are more numerous. The data obtained are the basis for the systematization of data on the gender approach in physical education, the definition of limiting and stimulating factors affecting the formation of the individual physical culture of people with various signs of psychological gender.

Keywords: *schoolchildren, gender, physical education, self-assessment of physical development*

Introduction

Issues related to the study and understanding of gender issues occupy one of the leading places in various scientific fields today.

John Evans (1986) first published data exploring the experience of teachers and students in physical education programs from a sociological point of view, addressing a number of issues related to the organization and management of departments of physical education, deviance and disagreement in sports, gender inequality and concepts of community education and leisure.

Scientists rightly note that the importance of a gender approach in the educational system is determined by a number of objective factors, the most prominent of which is the transfor-

mation of gender relations in modern society. The issue of implementing a gender approach in the physical education of schoolchildren today has also become relevant. In this regard, physical education classes, based on a gender approach, should be built taking into account the gender characteristics of students, updating their gender roles (Mudrik, 2003; Kikineji, & Kryz, 2004).

Many studies have studied the motivation for physical exercises, as well as the issues of personal physical culture in the hierarchy of values of modern youth devoted their research (Evans, 1986; Krutsevich, & Marchenko, 2015; Kravets, 2013).

Several studies have been devoted to the study of social factors that determine the formation of interest in children and adolescents in physical education and sports (Murdoch,



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1995; Slingerland et al., 2014; Krutsevich, & Marchenko, 2018; Tomenko, & Bondar, 2018).

We believe that at this stage of scientific research, in order to create motivation for physical education and sports, it is necessary to pay special attention to the age and gender characteristics of boys and girls (Popova, 1996; Moskaleva, 2005; Pawlowski et al., 2015).

An analysis of the study of the gender approach in physical education made it possible to determine the contradictions between the objective social and personal significance of the gender approach, as well as the absence of scientifically based conditions for its implementation in secondary schools.

According to leading scientists, the school system of physical education can become effective only when the most favourable conditions are created for the disclosure and development of the physical, spiritual, and moral qualities of students. It should provide each child with a full and harmonious development of his abilities, as well as equip teachers with methods of personality-oriented education, of which a gender approach is an integral part (Evans, 1986; Kogan, 2000; Larina, 2011; Moskalenko, 2014; Marchenko, 2016; Tomenko, & Bondar, 2018).

The research results of several scientists of the world indicate a low level of theoretical knowledge of future specialists in the field of physical education regarding the gender characteristics of children, adolescents and students of physical education (Dickenson, & Sparkes, 1988; Evans, 1986; Pawlowski et al., 2015).

Consequently, effective cross-cultural studies of the problems of gender socialization and gender education of youth are carried out in the European educational space.

The above confirms the relevance of the problem, determines its choice as a topic of scientific research, and is the basis for creating the concept of a gender approach in the physical education of schoolchildren, which has theoretical, practical and social significance.

Methods

Our research aims to study the gender characteristics of self-assessment of the physical development of students, depending on their psychological type, to identify internal motives for physical education and sports.

The study involved students of Grades 5-11, 11-17 years of age of general educational institutions; there were 628 subjects (boys: 282; girls: 346), of whom 126 respondents (97 boys and 29 girls) were involved in the specific sport (swimming, basketball, volleyball, athletic gymnastics, wrestling, taekwondo). The rest were not involved in sports activities.

To determine the gender identity of schoolchildren who go and do not engage in sports, we tested according to the test questionnaire by "Masculinity-Femininity" (Bem, 1993), which provided 60 personality characteristics. The participants in the experiment should highlight those personality traits that are inherent in them. Further, according to a special formula, the indicators of femininity, masculinity, and androgyny were determined. The masculinity-femininity index (IS) was determined by the formula:

$IS = (F / 20 - M / 20) \times 2,322$, where F is the sum of the noted qualities that are related to the femininity stereotype; M is the sum of the noted qualities that are related to the stereotype of masculinity. The value of the IS index in the range from -1 to +1 indicates androgynous, less than 1 ($IS < 1$) - about masculinity, more than 1 ($IS > 1$) - about femininity.

The test questionnaire of "Self-description of physical de-

velopment" (Bochenkova, 2000) consists of 70 statements that relate to the field of physical development of a person and sets 10 indicators of physical development and an indicator of general self-esteem of a person. The indicators are: health, coordination of movements, physical activity, harmony of the body, athletic abilities, physical "I", appearance, strength, flexibility, endurance, self-esteem. Evaluation of the results was carried out by correlating the results with generally accepted norms of the level of personality self-esteem, in accordance with which the personality self-esteem scale was used for the following indicators:

- a very high level of self-esteem (overstated) - 75-100% of the maximum number of points;
- high level of self-esteem - 60-74% of the maximum number of points;
- the average level of self-esteem - 45-59% of the maximum number of points;
- low self-esteem - below 45% of the maximum number of points.

Mathematical and statistical processing of the obtained data was carried out using the SPSS Statistics v.17.0 software package and cluster analysis. All participants gave their written informed consent to participate in this study, which was approved by the local ethics committee and was in accordance with the Helsinki Declaration.

Results

One of the factors of effectiveness in communication and education that positively affects the health and formation of a fully fledged personality is a differentiated approach based on individual characteristics of a person (Govorun, & Kikinezhdi, 2004), and one of the main individual characteristics of a person is his gender. In ordinary life, the term "gender" means a wide range of social-behavioural, somatic and some other characteristics that can characterize any person, both male and female (Artamonova, 2008).

A preliminary study of the gender characteristics of the personality of students with the help of the questionnaire of Bem (1993) allowed us to determine the gender identity of students (femininity, masculinity, androgyny).

The complexity of studying these categories is because the previously existing traditional patterns of masculinity/femininity have changed and continue to change in current conditions, which creates certain difficulties for modern youth, who are trying to integrate various social roles, patterns of behaviour and personality traits. According to Bem (1993), 92% of respondents were classified as androgynous. In this regard, the use of Bem test-questionnaire by "Masculinity-femininity" did not fully reveal the sensitivity to determining the characteristics of masculinity and femininity at the individual level.

Using cluster analysis of the results obtained in determining the gender identity of the respondents, we modified the assessment system for the personality psychotype index by the IS Bem method of "Masculinity - Femininity", which is the next value of the studied parameter IS:

Cluster 1: respondents of the androgynous psychological type ($1 < IS < 1$) - 51.0% of the total number of respondents;

Cluster 2: respondents of masculine ($IS < -1$) and androgynous with signs of masculine ($-1 < IS < -0.46$) psychotypes - 15.72% of the total number of respondents;

Cluster 3: respondents of a feminine and androgynous psychotype with signs of a feminine ($0.58 < IS < 1.86$) - 33.26% of the total number of respondents.

An analysis of the data given in Table 1 allows us to state that the number of androgynous young men (59.04%) is more than double the number of masculine (27.71%) and more than four times feminine (13.25 %).

Table 1. Distribution of the total number of respondents according to the results of a cluster analysis of the IS parameter of the Bem test "Masculinity-Femininity"

Psychotype					
androgynous	masculine	feminine	androgynous	masculine	feminine
<i>Young men not involved in sport n=185</i>			<i>Young women, not involved in sport n=317</i>		
109	51	24	150	24	143
59.04%	27.71%	13.25%	47.22%	7.50%	45.28%
<i>Young men involved in sport, n=97</i>			<i>Young women, involved in sport, n=29</i>		
55	34	8	14	8	7
56.70%	35.05%	8.25%	48.28%	27.59%	24.14%

The number of androgynous and feminine girls with a slight difference (2%) is 47.22% and 45.28%; the masculine among them, only 7.5%. Among athletes, the number of masculine youths is 7.34% more, and 5.0% less among feminine youths - The analysis of the data revealed that with age, the number of persons with signs of masculinity increases (from 13.79% to 30.19%), and with signs of femininity it decreases (from 31.03% to 11.33%). A tendency to increase the number of feminine girls with age was also identified, which allows us to assume the influence of gender stereotypes on the formation of gender identity of adolescents.

However, one should not forget that in adolescence, "masculinity" among young men is primarily associated with physical strength and victories in competitions. It should be noted that playing sports can be one of the main factors of gender socialization of schoolchildren, which, in turn, is one of the means of creating gender identity for boys and girls.

The study of the general level of self-esteem of the physical development of schoolchildren revealed the dominance of a predominantly high level, which is manifested to a greater extent in students aged 11-13 years. With age, the self-esteem

of respondents, regardless of their gender, becomes more realistic. However, in boys, the average score of self-esteem in physical development is higher than in girls. So, at the age of 11-13 years, for boys, it makes up 81% of the maximum indicator, and 80% for girls; in the age group of 14-15 years: for boys: 81.85%, for girls: 71.86%; in the age group of 16-17 years: for young men: 76.74%, for girls: 70.15%.

The results of the Self-Description of Physical Development test among respondents who go in for sports are higher for all indicators of the questionnaire, which can be explained by the presence of sports achievements that stimulate and cultivate perseverance, willpower, strengthen self-confidence, which is a factor of confidence in their physical improvement.

To determine the relationship between the general level of self-esteem of young men and women with their type of gender identity (masculinity, androgyny, femininity), we conducted a comparative analysis of the self-description parameters of the respondents' physical development and their IS parameter. Groups of respondents with a level of self-esteem were examined regarding being the corresponding cluster (Table 2 and 3).

Table 2. The general level of self-esteem of the physical development of boys of different psychological types (n=282)

Overall self-esteem	Psychotype					
	androgynous		masculine		feminine	
	n	%	n	%	n	%
Overvalued	31	18	25	32	7	22
High	106	62	42	53	18	54
Medium	30	18	12	15	8	24
Low	3	2	0	0	0	0
Total	170	100	79	100	33	100

Table 3. The general level of self-esteem of the physical development of girls of different psychological types (n=346)

Overall self-esteem	Psychotype					
	androgynous		masculine		feminine	
	n	%	n	%	n	%
Overvalued	48	28	1	4	17	12
High	80	48	18	64	82	55
Medium	37	22	9	32	45	30
Low	4	2	0	0	5	3
Total	169	100	28	100	149	100

An analysis of the results of the study indicates that masculine schoolchildren of gender identity have better self-esteem. Among those, there were no respondents with low self-esteem.

Representatives of the feminine type mostly have a high and medium level of self-esteem. They underestimate their abilities. Representatives of the androgynous psychological type have a more accurate of their physical development and abilities.

Low self-esteem was determined only among representatives of the feminine and androgynous types of gender identity.

As noted, self-esteem regarding physical qualities and its overall level was higher among athletes. Also, according to the results of our study, it was found that among taekwondo athletes, girls are more masculine than boys.

Discussion

Opinions differ regarding the consideration of sex and gender characteristics of the organization and process of physical education and sports training of boys and girls, men and women (Abraham, Cramer, Fernandez, & Mahler, 2001).

The results of the study confirm the results of research by scientists on the impact of sport on the formation of masculine personality traits in both boys and girls (Ilyin, 2010; Damadaeva, 2010; Dulmukhametova, 2011).

Studies by Afinogenova (2006) showed that feminine personalities prevailed among female athletes involved in "female" sports (51.2%). There were fewer masculine girls (15%) and more androgynous ones (34%). Having analysed the psychological personality types of athletes who engage in "male" sports, it turned out that there are twice as many girls with a masculine psychological type than representatives of "female" sports (Afinogenova, 2006).

Artamonova (2008) examined the issues of the formation of highly qualified athletes of a gender type of personality, depending on the characteristics of sports activities. As a result of her research, sports were identified that contribute to the manifestation of masculinity or femininity in male and female athletes. The researcher concluded that, in general, men are characterized by a higher level of masculinity than women, which is due to their high blood testosterone.

Stambulova (1999), in examining wrestlers, noted a pronounced friendliness, which can be attributed rather to the stereotype of femininity. The results of our study confirm the assumptions made by Istanbul (1999) regarding the psychological characteristics of both empathy for others and the ability to make friends more pronounced among athletes (both boys and girls). At present, there are still sports activities that scientists characterize as more preferable for men or for women (Tarasenko, 2007).

Taekwondo is classified as a masculine sport. According to the results of our study, most of the young men who practise taekwondo have androgynous characteristics (96.1%), which contradicts some previous findings of scientists (Stambulova, 1999).

In turn, Taekwondo girls have 100% masculine characteristics, which confirms the opinion of scientists that sport contributes to the formation of masculine character traits (Afinogenova, 2006; Artamonova, 2008; Damadaeva, 2010; Ilyin, 2010). Girls show masculinity in those forms in which there is a direct contact struggle with an opponent (antagonistic), and increased demands are placed on multilateral techni-

cal training and psycho-functional stability.

Gender studies in the field of physical culture and sports are aimed at solving the problems of gender equality and studying the question of how much sports contribute to the formation of gender characteristics (Dickenson, & Sparkes, 1988; Slingerland, Haerens, Cardon, Borghouts, & Slingerland, 2014).

The authors studied the relationship between gender identity and gender characteristics in children. Scientists have proven that boys and girls with high self-esteem and strong own gender identity are more successful in various aspects of education (Tarasenko, 2007). Another study examined the relationship between joint training sessions for schoolchildren in team sports (volleyball, basketball) and the psychological climate in the classroom. Scientists concluded that joint training of boys and girls does not have a significant impact on the level of psycho-emotional climate in the class (Tatarintseva, 1999).

As the results of research by experts, such as Dickenson and Sparkes (1988) and Murdoch (1995), a significant difference was found in the self-esteem of students with motor fitness, starting with the last two grades of elementary school. Young men more emotionally than girls endure their defeats, both in individual and team sports competitions (Dickenson, & Sparkes, 1988; Murdoch, 1995). Researchers point out that girls have an underestimated self-esteem of their abilities, while the boys have the opposite tendency. In our study, self-esteem is quite high, especially in female athletes.

However, in many studies on the differences between boys and girls who play sports, an approach based on biological characteristics was previously used, which is justified. This approach justifies the methodology of physical education and sports training. It differs in the features of the choice of means and methods of physical activity, since physical education and sports are associated primarily with manifestations of a person's physical abilities and are determined by his biological gender. To date, it has not yet been proved that biological factors have no effect on human behaviour, abilities, inclinations, hobbies, or value orientations. In contrast, in psychophysiology, more and more facts are accumulating that confirm the presence of such an influence.

In this case, we consider the gender approach from the point of view of not of gender policy or of equal rights for men and women, but to study their psychosocial characteristics to create adequate organizational and methodological conditions in the process of physical education of schoolchildren. This is not about infringing on the rights of men and women, but about taking into account the differences between them in the interests of the development of society.

It should be noted that these and other studies of the gender characteristics of boys and girls in the field of physical education and sports are the basis for systematizing data on the gender approach in physical education and identifying factors affecting the formation of individual physical culture of schoolchildren with various signs of psychological gender.

Conclusion

Thus, studying the gender aspect of the development of the individual physical culture of schoolchildren, a study was conducted of their psychological gender. It was determined that Bem standardized test questionnaire "Masculinity-femininity" was found to be insensitive to determining the mas-

culine and feminine personality characteristics of students. It was revealed that the vast majority of boys and girls, regardless of age, are of the androgynous type IS (92.77%). In this regard, we modified the evaluation system according to the IS index of the personality psychotype according to method of "Masculinity - Femininity". Based on the results of the study, a system for assessing gender characteristics (psychological type according to the IS index) was further developed for students using a cluster analysis of test results for Bem BSRI (Bem Sex-Role Inventory) questionnaire, "Masculinity - Femininity", according to which they fully reflect all values of the investigated parameter.

As a result of data analysis, it was revealed that with age in young men the number of persons with signs of masculinity increases, and it decreases with signs of femininity.

Studying the influence of the psychological type of personality on the level of self-esteem of the physical development of boys and girls, we determined that overestimated self-esteem is predominantly by young men, who representatives of the masculine psychotype; underestimated self-esteem was determined only among representatives of the feminine and

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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- The results of the self-assessment of the physical development of the respondents showed that there are certain differences between boys and girls that can be related to their life-style, the content of the physical education process at school, and also with gender characteristics, that is, with the type of gender identity. The results of a scientific experiment suggest the existence of gender differences in the indicators of self-description of the physical development of schoolchildren, which has a direct impact on the overall level of their self-esteem.
- As a result of the study, it was determined that girls who engage in sports are more masculine. They are distinguished by high self-esteem in a number of character traits that are usually associated with masculinity, developed will, high aggressiveness and ambitiousness. Our attention is drawn to the fact that among girls who go in for sports, unlike the total number of schoolgirls, there are 20% more people with masculine symptoms, but 18.14% fewer with feminine ones. It was also determined that young athletes are less likely to show feminine personality characteristics than those who do not engage in sports.
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