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## TECHNOLOGY OF INDIVIDUAL ABILITIES DEVELOPMENT OF STUDENTS IN THE PHYSICAL EDUCATION PROCESS

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### *Abstract*

In the context of the humanization of Russian society, one of the most important objectives of the education system is to ensure maximum consideration of the personal characteristics of students. Moreover, it is necessary to ensure the creation and implementation of opportunities for the development of individual abilities both in the process of educational, socio-cultural activity, and in studying the content of all educational disciplines (including physical education. In the course of the experimental work we found that the effectiveness of developing the students' individual abilities in the process of physical education is ensured through the integrated use of the following forms and methods: individual (consultations, classes, guidance; individual tasks to perform in the classroom or at home; preparation for subject Olympiads and competitions); group (the division of students groups differentiated by the level of motor achievements or by physical culture and sports interests; organization of sports events; development of collective projects on physical education and sports activities; lectures, meetings with interesting people, excursions). The results of the study are 1) justified methods of multivariate differentiation of students on the basis of their individual abilities and interests, which ensure the possibility of effective organization of the physical education process; 2) developed and tested pedagogical technology for the development of students' individual abilities in the physical education process based on the ideas of the individual-differentiated approach to education.

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**Keywords:** Individual abilities, technology, physical education of students.



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## **1. Introduction**

One of the leading directions of reforming the system of national general education is the development and implementation of concepts, technologies and methods in pedagogical practice. They should ensure the actualization of creative power, the manifestation and development of the younger generation individuality. One of the priorities of the education system is the creation of conditions ensuring the improvement of the students' abilities, the realization of their potential spiritual and physical capabilities (Petkov & Grebennikova, 2016). The search for ways to organize the students' physical education should be aimed at solving this problem. Thus, means, methods, forms of work of a physical education teacher, as well as the content of students' educational activities, should be differentiated according to the type of students' abilities (Chedzoy & Burden, 2009). There is a sufficient amount of theoretical and methodological knowledge in the field of technological support for the development of students' abilities. Despite this fact, the problem of data systematisation of pedagogical, psychological and physiological sciences, and implementation of theoretical provisions in the physical education practice of students through pedagogical technology remains relevant (Ozerov, 2002).

## **2. Problem Statement**

The problem of the study was to identify the essence and peculiarities of constructing the content of the technology for organizing the students' physical education, which ensures the effective development of their individual abilities.

## **3. Research Questions**

The subject of the study is to find an effective approach to the construction and implementation of pedagogical technology for the individual abilities development of students. This technology should ensure the development of students' motor abilities and qualities, the formation of interest in physical education, the need to increase motor activity and initiative in physical education lessons.

## **4. Purpose of the Study**

The purpose of the study is to scientifically substantiate, develop and test the technology for organizing physical education of students, which provides effective development of individual abilities and physical qualities.

## **5. Research Methods**

The study was conducted in four stages. At the first stage, a comparative analysis and synthesis of psychological, pedagogical and methodical literature was carried out on the following issues:

- essence, types, attributes and characteristics of personality abilities, pedagogical conditions and factors of their effective development in the educational process;
- essence, content, aims and objectives of individual-differentiated education, its potential for organizing education and upbringing of students taking into account their individual abilities.

At the second stage, methods of generalizing pedagogical experience, concretization and theoretical design were applied. As a result, we have developed conceptual provisions for designing technology for the individual abilities development of students.

At the third stage, an ascertaining experiment was conducted using the methods of analysis of educational documentation, survey and pedagogical observation. The analysis of educational documentation was carried out to determine the achievement level of students in the discipline «Physical education», for further comparison of initial and outcome performance indicators and determine their growth. Pedagogical observation and survey were used to diagnose and evaluate the indicators of students' attitude to physical education lessons and their emotional state. The results were clarified and confirmed in the process of individual interviews.

At the fourth stage, a formative experiment was organized, the content of which was to implement the developed technology. At the end of the experiment, a final study was conducted on the impact of the forms and methods of organizing individual-differentiated education on the success of physical education of students with different types of abilities. The results of ascertaining and formative experiments and their comparison are processed by the mathematical statistics methods. The arithmetic mean ( $\bar{x}$ ) and standard deviation ( $\sigma$ ) were calculated as the main compared indicators. The coefficient of variation ( $V$ ) was calculated to assess the degree of the studied sample uniformity. Student's t-test for conjugate and non-conjugate samples, as well as the sampling method, was calculated to determine the reliability of the experimental results.

## 6. Findings

The theoretical results of the study. Abilities are individual psychological characteristics of a person, relevant and determining the success of different activities. Abilities are classified on different grounds, but the main one is the type of activity and its supporting areas of psyche. There are abilities in the field of practical, cognitive, artistic and aesthetic, communicative, spiritual and value, and motor activity (Galton, 1996).

In the Special Literature identifies two groups of main traits on which the presence and type of abilities can be determined:

- motivational – characterized by increased selective sensitivity to certain types of human substantive activity or to certain forms of personal activity (physical, intellectual, artistic, creative, etc.), obtaining satisfaction from its implementation; increased interest in subjects, a high level of fascination with a certain business (Doman, 1996);
- behavioral – vary depending on the subject types of abilities: (a) intellectual abilities – quick mastery of basic concepts, easy memorization and information preservation; easy and successful mastery of the content of certain or many subjects, etc.; (b) communication and organizational abilities – easy adaptation to new situations, self-confidence, initiative and leadership in collective activities, ease of communication, readiness to take responsibility, etc.; (c) artistic abilities i.e. the ability in the field of fine / musical art – preference for sculpting, drawing / music classes for all other activities, serious attitude to artistic activity, propensity to experiment with used materials / to musical improvisation, subtle perception of color, composition / sounds,

musical pattern, etc.; (d) physical (motor) abilities – the success of an activity requiring subtle and precisely differentiated movements, high visual-motor coordination, love of movements (walking, running, jumping and etc.), skills and abilities skills to perform a wide range of movements (from slow to fast, from smooth to swift), etc. (Farfel, 1977).

An analysis of the scientific literature and generalization of practical experience of pedagogical activity show that effective consideration and development of the students' abilities is ensured by compliance with specific requirements for educational process based on the following principles:

- variability in the design of educational content which provides students with a wide range of opportunities to choose and learn the various thematic sections of the curriculum;
- enlargement of the substantive structural units of the discipline, involving the study of basic – key sections of the discipline by students;
- interdisciplinary approach to the development of educational content, ensuring broad integration of educational material in different fields of knowledge;
- providing students with opportunities for in-depth study of individual topics and disciplines, ensuring their autonomy in learning;
- ensuring the research nature of educational activities, students' mastery of techniques, strategies, methods of research work;
- focus on the development of students' creative, critical and abstract-logical thinking, promotion and stimulation of creative approach to educational and cognitive activity;
- promotion of the diversity of the process and the results of students' activities, their use in the work of different materials, information, ways, forms, etc.;
- ensuring the development of self-knowledge and self-comprehension, awareness of the originality of the manifestation of one's own motor abilities (Vandorpe et al., 2012).

The content of these requirements allows us to assert that the complex condition for effective consideration and development of the students' abilities is the construction of an educational process based on the technology of individual-differentiated approach to education. This approach is focused on the consideration of personal, physical and psychological characteristics of students, their interests, motives and needs. In conjunction, this ensures a productive pedagogical interaction of the teacher and the student. Based on the individual characteristics of students, they are differentiated and grouped. This is a prerequisite for a targeted impact on a group of students with some common characteristics in the educational process of physical education (Dacica, 2015).

Thus, the provisions of the individual-differentiated approach determine the necessity of setting specific educational tasks for different groups of students characterized by different types of abilities. And they also determine the choice of means and methods of education and upbringing that effectively impact both on the individual ability development and on the harmonious development of the students' personality.

Methodical research results. Based on the analysis and systematization of theoretical information, their concretization in accordance with the purpose of the study, we have developed a technology for the

individual abilities development of students. It is based on the provisions of an individual-differentiated approach to the organization of the physical education process of students. In this technology, the tasks of physical education teachers, which are solved in the classroom, are differentiated depending on the type of students' abilities:

When working with students with a high level of motor (physical) abilities, the activities of a physical education teacher are implemented in the following areas:

- target development of motor qualities, in which pupils show the greatest abilities (endurance, speed, strength, flexibility, dexterity);
- harmonization of physical development, involving the development of students' motor qualities, in which there are no signs of abilities;
- formation of motivational and value attitude to physical education and sports;

The main areas of work with students with other subject types of abilities are:

- motivating interest in physical education, sports and wellness activities;
- helping students with individual difficulties in mastering the physical education program;
- stimulation of the individual abilities development of students in physical education and sports activities, both at the physical education lessons, and in extracurricular activities.

The second characteristic of the technology is the basic forms and methods of work used by the teacher in physical education lessons:

1) Individual:

- consultations, individual lessons, guidance of tasks performance – their content is determined by individual achievements, cognitive needs and difficulties of children with different types of abilities;
- individual tasks for performance at lessons or at home, corresponding to the students' individual characteristics and their individual interests, focused on the help in the manifestation of motor success, stabilization of motor achievements, in overcoming the individual difficulties;
- preparation for subject Olympiads and competitions: physical education teacher provides theoretical, methodical practical assistance to children with motor abilities, emotional and psychological assistance and support to students with abilities in other fields.

2) Group:

- formation of students groups differentiated by the level of motor achievements or by physical education and sports interests; tasks are selected individually for each group;
- organization of sports events with the roles distribution in the preparation and conduct in accordance with the students' individual abilities;
- development of collective projects on organization of sports and recreational activities;
- motivating classes (lectures, meetings with interesting people, excursions), aimed at cognitive and/or motor motivation of students.

In addition, a method of students' differentiation was developed in order to determine the most effective forms and methods of working with them in physical education process. The above-mentioned motivational and behavioral characteristics are identified as the leading criteria for determining the type of abilities and the basis for differentiating children into groups. Diagnosis and differentiation of children is carried out by a school psychologist. For this purpose, traditional psychological techniques are used, designed to assess the interests, abilities and propensities of a person. Assistance is provided by form-masters and subject teachers, including physical education teachers. In the process of pedagogical observation, they assess the interest of children in their subjects, emotional reactions to the content of activities, as well as educational achievement. It should be noted that differentiation is carried out only by the type of abilities, corresponding to a certain type of activity, but not by the degree of their formation, the level and form of manifestation. At the same time, it is taken into account that some students can be characterized by several types of abilities (academic, artistic, sports (motor), musical, etc.).

The content of the pedagogical experiment. Experimental testing of the developed technology was carried out on the basis of the secondary general schools no. 11 (Armavir) and no. 3 (Karachayevsk). The 5–7th grade students took part in the experiment. The results of the ascertaining experiment made it possible to form an experimental (89 people) and a control (95 people) group, which do not differ statistically by the studied characteristics. In the experimental group, the students' physical education was carried out on the basis of the implementation of the author's technology of developing individual abilities of students, and in the control group – in the traditional way. Taking into account the content of curricula and plans, as well as the specifics of particular pedagogical situations in the physical education organization, individual and collective forms of organization of students' activities were used in the experimental group (some of them are described below).

Motivational classes, common for the whole class or differentiated for groups of students with different types of abilities, were held in the form problem lectures and press conferences. Students selected arguments for the importance of physical education (for musicians, artists, scientists, writers, etc.), the significance of intellectual development or a wide outlook for athletes. Children received practical confirmation of theoretical knowledge at meetings with athletes, scientists, singers, artists, as well as during excursions to the production, etc.

The effectiveness of the developed methodology was determined on the basis of comparison of the control and experimental groups' results obtained during the ascertaining and at the end of the forming experiments.

The materials from scientific research in the field of diagnosis of students' psychomotor system, (Tudor et al., 2014) adapted by the authors, were used as the criteria for assessing the effectiveness of the developed methodology and presented in the following form:

- students' attitude to physical education were assessed by the method of pedagogical observation and written survey; students were asked to answer a question: «Rate on a five-point scale your attitude to physical education lessons» (assessment options: 1 point – absolutely do not like, 2 points – most often do not like, with few exceptions, 3 points – sometimes like, sometimes not, on mood, 4 points – most often like, with few exceptions, 5 points – very like, always);

- emotional well-being of students in physical education lessons; methods of pedagogical observation and survey were used for evaluation; the question to students was: «Rate on a five-point scale your mood in physical education lessons» (assessment options: 1 point – very uncomfortable, I feel constant discomfort, anxiety, 2 points – I am mainly uncomfortable at lessons, the mood often changes, 3 points – I do not have special feelings, the mood is the same as in many other lessons, 4 points – most often my mood in physical education lessons is good, sometimes there is discomfort, but quickly passes, 5 points – I have fun, feel emotional lift, mood always improves);
- individual increase in the results of physical exercises during the school year; initial and final results were assessed on a traditional five point scale based on the parameters of educational achievement assessment (performance of control standards); the efficiency criterion is statistically significant increase in individual assessment of educational achievement.

The results of the initial examination showed a disinterested attitude of students to physical education lessons (2.4–3.0 points), insufficiency of positive emotions experienced by students in the physical education process (2.5–2.8 points), low growth rates of test results (9.3–18.5 %).

At the end of the pedagogical experiment, the final diagnosis was carried out according to the previously used criteria. The data obtained by processing its results, firstly, showed a statistically significant ( $P < 0.05$ ) increase in the studied parameters in the experimental group (on average 4.7 and 4.5 points, 41.2 %) in the absence of such results in the control group; secondly, there were significant differences between the experimental and control groups on these indicators ( $P < 0.05$ ).

## 7. Conclusion

The results show that the application of the developed technology, based on the use of the individual-differentiated approach, has made it possible to effectively construct the physical education process of students with different types of abilities. At the same time, individual physical (motor) and psychological characteristics of students, their interests, motives and needs, as well as the nature of the pedagogical interaction of the teacher and students were taken into account.

Students were differentiated and grouped on the basis of their individual characteristics. The educational process has had a targeted impact on a group of students with some common characteristics. Taking into account the individual abilities of students and their development at physical education lessons was ensured by the following forms and methods: individual (consultations, classes, guidance; individual tasks to perform in the classroom or at home; preparation for subject Olympiads and competitions); group (the division of students groups differentiated by the level of motor achievements or by physical culture and sports interests; organization of sports events; development of collective projects on physical education and sports activities; lectures, meetings with interesting people, excursions).

As a result of the study, significant theoretical and practical results were achieved. The theoretical significance of the results is due to the increased knowledge about the means and methods of implementing the provisions of the individual-differentiated approach to education in order to develop the students' individual abilities in the physical education process.

The practical significance is the possibility of using reasonable content, forms and methods of working with children, characterized by different types of students' abilities in the physical education practice.

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