



DIAGNOSTICS OF THE LEVEL OF DEVELOPMENT OF MOTOR COMPETENCIES IN PRIMARY SCHOOL STUDENTS: DEVELOPMENT AND TESTING OF A METHODOLOGY

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ABSTRACT

This article examines the pressing issue of assessing the level of motor competence in primary school students. It substantiates the need to develop and test a comprehensive methodology aimed at objectively assessing basic motor skills, coordination abilities, and physical qualities. The methodology development process is presented, including an analysis of existing approaches, the identification of key competencies, the selection of diagnostic exercises, and the creation of an assessment system. The article describes the methodology's pilot testing on a sample of primary school students and analyzes the results, demonstrating the effectiveness of the developed tool for differentiating students by competency levels. The article offers recommendations for implementing the methodology in the educational process and outlines prospects for its further development and integration with digital technologies.

Developing motor skills in elementary school students is the cornerstone of their comprehensive development. These skills, which include mastering basic movements, developing coordination skills, endurance, strength, and flexibility, lay the foundation for future physical activity, athletic achievement, and, most importantly, a healthy lifestyle. However, despite the importance of this process, there is often a lack of systematic and proven methods for accurately assessing the level of development of these skills in primary school students. This lack of such assessment hinders an objective assessment of the effectiveness of the educational process, identifying individual student needs, and timely interventions for their motor development. This article focuses on the development and testing of a method for assessing the level of development of motor skills in elementary school students.

Relevance of the problem

Primary school is the period when motor skills and abilities develop most intensively. It is during this period that the foundations for developing proper posture, preventing musculoskeletal disorders, and developing coordination and muscle strength are laid. Underdeveloped or poorly developed motor skills at an early age can lead to a number of negative consequences:

Decreased physical performance: difficulty performing even basic motor activities.

Psychological problems: low self-esteem, lack of self-confidence, avoidance of active games and sports events.

Increased risk of injury: Poor coordination and body control increase the likelihood of injury.

Formation of incorrect motor stereotypes , which are subsequently difficult to correct.

Modern educational programs emphasize the development of motor skills, but without precise diagnostic tools, it is difficult to assess how successfully these tasks are being achieved. Traditional monitoring methods (observation, adherence to standards) are often fragmented and do not always allow for a comprehensive assessment of all aspects of motor development.

The aim of the study was to develop and test a method for comprehensive diagnostics of the level of development of motor competencies in primary school students.

Research objectives:

1.To analyze existing approaches to the diagnosis of motor development in primary school children.

2.To identify key motor skills that should be assessed in primary school.

3.Develop a set of diagnostic exercises and tests aimed at assessing the development of selected competencies.

4.Create a system for assessing diagnostic results that allows one to determine the level of competence development (e.g. low, medium, high).

5.To test the developed methodology on a sample of primary school students.

6.Analyze the results obtained and make the necessary adjustments to the methodology.

The main components of the diagnostic technique:

The developed methodology is aimed at assessing the following key motor skills:

1.Basic motor skills:

Locomotion: running (with changes in speed and direction), jumping (up, forward, over obstacles), walking (various types).

Manipulation with objects: Throwing, catching, throwing (balls, objects).

Balancing: maintaining balance on one leg on a gymnastic bench.

Coordination skills:

Differentiation of muscle effort: the ability to precisely regulate the force of movements.

Spatial orientation: assessing one's position in space and in relation to objects.

Rhythm: the ability to perform movements in a given rhythm.

Dynamic coordination: synchronous execution of complex motor actions.

Static coordination: the ability to maintain balance in static positions.

Physical qualities:

Strength: the ability to overcome resistance.

Endurance: the ability to perform work for a long time.

Flexibility: the ability to perform movements with a large range of motion.

Development of diagnostic tools:

To assess each competency, special tests and exercises were selected, taking into account the age characteristics of children in grades 4–6:

- **Short-distance running (e.g. 30 meters):** assessment of speed and starting reaction.
- **Standing long jump:** assessment of explosive strength of legs and coordination.
- **Throwing a tennis ball with both hands from the chest forward:** Evaluation of strength, accuracy, coordination.
- **Shuttle run (3×10 meters):** assessment of agility, speed, coordination, and ability to restructure movements.
- **Balance test (standing on one leg with eyes closed):** assessment of static coordination.
- **Jumping rope (number in 30 seconds):** Assessment of endurance, coordination, sense of rhythm.
- **Throwing a ball at a target (e.g. a hoop):** assessment of accuracy and muscle control.
- **Flexibility (forward bend from a standing position):** assessment of the mobility of the hip joints and spine.
- **Endurance test (e.g. light jogging for 2-3 minutes with heart rate monitoring):** assessment of general endurance.

Rating system:

For each completed task, evaluation criteria were developed to translate the results into points. For example:

30m run: 10-12 sec – 3 points (high level), 13-15 sec – 2 points (medium), >16 sec – 1 point (low).

Long jump: >120 cm – 3 points, 100 cm – 2 points, 90 cm – 1 point.

The total score for all completed tasks made it possible to determine the integral level of development of motor competencies.

High level: 24–30 points.

Average level: 15–23 points.

Low level: 9–14 points.

Testing the methodology:

The method was tested on a sample of fourth-grade students from a comprehensive school (N = 50 students). The assessment was conducted during a physical education lesson, observing all necessary safety precautions. Each student completed the full set of suggested exercises.

Test results and their analysis:

The following data were obtained as a result of testing:

High level of development of motor competencies: 32% of students.

Average level of development of motor competencies: 56% of students.

Low level of development of motor skills: 12% of students.

An analysis of the results showed that the method allows for differentiating students based on their level of motor skills. Specific exercises were identified that posed the greatest challenges for certain groups of students, allowing for the identification of intervention options. For example, students with low levels often struggled with exercises requiring complex coordination and rapid movement changes (shuttle runs, jumping rope).

Conclusion and recommendations:

A developed and tested method for assessing the level of motor skills in elementary school students has proven effective. It provides an objective picture of students' motor development, identifies their strengths and weaknesses, and allows for the planning of individualized correction and development programs.

Recommendations:

Introduce this methodology into the practice of physical education teachers in primary schools to conduct regular diagnostics (at least 1-2 times a year).

Use the obtained results to adjust the curriculum, select individual assignments and form groups for in-depth work.

To develop recommendations for parents on developing motor skills in children at home based on the methodology.

Conduct further research with a wider range of students and in different educational institutions to validate the methodology.

Consider developing a digital version of the methodology using interactive platforms to automate data collection and analysis.

Prospects:

Further improvement of the methodology could include integration with digital technologies (wearable devices, video analysis) for more accurate and rapid assessment, as well as the development of specialized intervention programs based on diagnostic results. Systematic and accurate assessment of motor skills is key to building an effective physical education system that promotes the harmonious development of the younger generation.

Bibliography:

1. Abbasov , A. K. Physical development and motor activity of schoolchildren / A. K. Abbasov , Z. A. Medzhidov. - Makhachkala: IPC DSU, 2018. - 152 p.
2. Vilensky , M. Ya. Scientific and pedagogical foundations of managing the process of physical education of schoolchildren: monograph / M. Ya. Vilensky , L. I. Beschatnykh. - M.: Sovetsky Sport, 2014. - 288 p.
3. Guzhalovsky , A. A. Fundamentals of the theory and methodology of physical education / A. A. Guzhalovsky . - M.: Physical Education and Sport, 2009. - 286 p.
4. Lyakh, V. I. Comprehensive assessment of motor abilities of schoolchildren / V. I. Lyakh // Physical education: upbringing, education, training. - 2000. - No. 2. - P. 18-23.
5. Application of information technologies in physical education : a tutorial / E. A. Kovalchuk, N. S. Ignatyeva, I. A. Skvortsova [et al.]. - Chelyabinsk: Publishing center of SUSU , 2015.
6. Fomin, N. A. Age-related foundations of physical education / N. A. Fomin. - M.: Physical Education and Sport, 2008. - 264 p.
7. Kozlova Galina Gennadyevna, Yakubova Zarina. (2025). FORMATION OF HEALTHY LIFESTYLE COMPETENCIES IN SCHOOLCHILDREN THROUGH THE ORGANIZATION OF EXTRACURRICULAR SPORTS ACTIVITIES. SAMARALI TALIM VA BARQAROR INNOVATSIYALAR JURNALI , 3 (4), 193–201. Retrieved from <https://innovativepublication.uz/index.php/jelsi/article/view/2880>
8. Kozlova Galina Gennadiyevna. (2025). Collaborative learning and digital feedback in physical education: an innovative approach to skill development. SAMARALI TA'LIM VA BARQAROR

INNOVATSIYALAR JURNALI , 3 (8), 39–48. Retrieved from
<https://innovativepublication.uz/index.php/jelsi/article/view/3878>

9. Kozlova G. (2024) . OPTIMIZATION OF PHYSICAL EDUCATION TRAINING PROGRAMS TO INCREASE PHYSICAL ENDURANCE. IN THE INTERNATIONAL JOURNAL OF APPLIED SCIENCES AND TECHNOLOGIES (Vol. 4, Issue 1, pp. 138–141). Zenodo .
<https://doi.org/10.5281/zenodo.10522401>

10. Kozlova Galina Gennadiyevna. (2024). THE ROLE OF METHODOLOGICAL INNOVATIONS IN INCREASING STUDENTS' INTEREST IN PARTICIPATING IN PHYSICAL EDUCATION CLASSES. SAMARALI TA'LIM VA BARQAROR INNOVATSIYALAR JURNALI , 2 (2), 14–20. Retrieved from
<https://innovativepublication.uz/index.php/jelsi/article/view/406>

11. INTEGRATION OF DIGITAL TECHNOLOGIES INTO THE SYSTEM-ACTIVITY APPROACH IN PHYSICAL EDUCATION: ADVANTAGES AND CHALLENGES. (2024). International Journal of Artificial Intelligence, 4(07), 205-208. <https://www.academicpublishers.org/journals/index.php/ijai/article/view/1250>

12. Ruzieva , M. (2024). SPORT AS A TOOL FOR DEVELOPING PERSONAL RESILIENCE AND CONFIDENCE. Theoretical Aspects in the Formation of Pedagogical Sciences, 3(3), 38–43. extracted from <https://econferences.ru/index.php/tafps/article/view/12421>

13. Ruzieva , M. (2024). COMPARATIVE ANALYSIS OF METHODS OF ASSESSING PHYSICAL FITNESS OF STUDENTS. Bulletin of teachers of the new Uzbekistan, 2(1), 40–46. retrieved from <https://in-academy.uz/index.php/yopa/article/view/25928>