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THE ROLE OF PEDAGOGICAL QUALIMETRY IN THE EDUCATION SYSTEM AND ITS THEORETICAL-PEDAGOGICAL FOUNDATIONS

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Abstract
Pedagogical qualimetry emerged in the mid-20th century for the objective assessment of educational quality and effectiveness. It evolved from quantitative measures (like tests) to encompass qualitative aspects. Shaped by contributions from scholars like Galton, Binet, and Bloom, and influenced by the student-centered paradigm. In the context of modern challenges such as globalization and digitalization, it holds significant importance for managing educational processes, adapting standards, and identifying problems (particularly in the context of Uzbekistan). Qualimetry relies on theoretical foundations like quality concepts, measurement theory, monitoring, and a systemic approach, as well as pedagogical foundations like goal alignment and innovation. It plays a crucial role in ensuring educational quality, informing policy, and directing future personalized education.

Keywords: Pedagogical qualimetry, educational quality, assessment, measurement theory, student-centered education, educational monitoring, quality management, educational standards.

Introduction

Pedagogical qualimetry, as a science dealing with the measurement of educational quality and the learning process, began to form in the mid-20th century when the need arose for an objective assessment of the effectiveness of education systems. Initially, attention was focused on developing tests and exams that allowed for the quantitative determination of students' knowledge and skills levels. These approaches were based on psychometric principles and helped introduce scientific methods into the field of education. This, in turn, led to the necessity of creating complex criteria and indicators that enable not only quantitative but also qualitative assessment.

The significance of pedagogical qualimetry lies in its ability to ensure the effective management of educational processes. It allows for the identification of problematic areas in teaching, analysis of results, and making necessary adjustments to improve educational quality. Furthermore, qualimetry aids in refining educational standards and aligning them with the contemporary demands of society and the economy.

Historical development of educational measurement

The concept of measurement in education has early beginnings. In ancient times, philosophers and educators contemplated methods for determining educational effectiveness. However, the first attempts to systematize the assessment of knowledge date back to the Renaissance period, during which exams and tests emerged. The roots of the measurement concept in education trace back to ancient civilizations. For instance, Ancient China utilized examinations to select officials for state service. In Europe, the earliest attempts at standardized assessment appeared in medieval universities in the form of oral exams and debates.

In the late 19th century, Francis Galton developed methods for measuring individual differences and statistical analysis, making a significant contribution to the development of assessment systems in education [1, p. 25]. In the early 20th century, Alfred Binet and Theodore Simon created the first intelligence tests, which spurred the development of psychometrics in education [2, p. 115-123]. In the 1920s, the widespread implementation of standardized tests in schools began in the USA. In 1956, Benjamin Bloom proposed a taxonomy of educational objectives, which allowed for the systematization of the assessment process [3, p. 13]. The development of computer technologies in the second half of the 20th century expanded the possibilities for automated testing and results analysis.

In the 1960s, the concept of "formative assessment" was put forward, leading to a broader understanding of the role of assessment in the educational process. In the late 20th and early 21st centuries, methods for assessing competencies and practical skills began to develop actively. Modern trends include personalized assessment and adaptive learning using artificial intelligence and big data. These historical stages illustrate the evolution of the measurement concept in education, from simple forms of knowledge verification to complex systems for evaluating various aspects of the educational process. The development of natural sciences in the 18th-19th centuries significantly influenced the formation of the concept of measurement in education, laying the groundwork for introducing scientific assessment methods and teaching approaches. Thus, the development of natural sciences in the 18th-19th centuries introduced new measurement methodologies and approaches into education, creating the foundation for the formation of pedagogical qualimetry and the ability to assess the educational process and its quality.

The formation of pedagogical qualimetry as an independent science

Over the centuries, educators and scientists have sought objective methods to evaluate educational effectiveness and students' knowledge levels. The advancement of science and the emergence of new research methods facilitated the formation of qualimetry as an independent scientific discipline studying the problems of measuring and assessing educational quality.

In the mid-20th century, pedagogical science developed rapidly. The increasing demand for objective methods of assessing educational quality spurred research in the field of pedagogical measurements. Scholars such as Ralph Tyler [5, p. 67], Benjamin Bloom [6, p. 24], and John Raven [7, p. 28] made significant contributions to the formation of qualimetry as a science.

The history of the formation and development of the science of educational quality measurement (pedagogical qualimetry) can be conditionally divided into three stages:

• **Stage 1 (Ancient Times - Middle Ages):** The primary task of educational institutions was to instill philosophical-religious knowledge. The main focus was on stabilizing society and religious literacy. Higher education emerged, offering 7 liberal arts disciplines aimed at spiritual-moral, intellectual, and physical development. The goal was intellectual and physical perfection, developing logical thinking. Knowledge was monitored through oral questioning, but this proved insufficient, necessitating more comprehensive control methods.

• **Stage 2 (16th Century - Late 19th Century):** Initial concepts about the quality of the educational process began to form. Early studies on evaluating outcomes and teacher activities yielded limited results [8, p. 23]. J.A. Comenius's "The Great Didactic" was significant, substantiating didactic categories, teaching purposes, content, knowledge control, and quality assessment. He introduced terms like "knowledge control and assessment," "examination," "colloquium," and "dictation" [9, p. 12]. Assessment focused on acquired knowledge, skills, and competencies, leading to the introduction of the five-point grading system to improve personnel quality.

• **Stage 3 (Early 20th Century - Present):** Attention focused on controlling and assessing knowledge, skills, and (later) competencies. Education content had an ideological-political orientation, aiming for continuity between education and upbringing. The goal was to form a comprehensively developed personality by controlling theoretical and reproductive knowledge, skills, and competencies [10, p. 12].

The role and importance of pedagogical qualimetry in modern education

In current conditions, as educational institutions face challenges related to globalization and technologization, the role of pedagogical qualimetry is becoming particularly relevant. Its methodologies help teachers and administrators not only to assess student achievements but also to shape curricula that correspond to individual needs and educational goals.

• **Qualimetry as a tool for education quality management:** ensuring the compliance of educational programs and practices with state standards, labor market demands, and societal expectations.

• **The role of qualimetry in enhancing educational process effectiveness:** identifying problematic areas, evaluating the effectiveness of teachers' work, correcting educational content and methods.

• **Qualimetry as a factor in developing the educational environment:** creating conditions for self-assessment and professional growth of teachers, forming students' motivation for self-development.

• **Prospects for the development of pedagogical qualimetry in the context of education digitalization:** personalizing educational pathways and improving the quality of educational services through the use of big data, artificial intelligence, and adaptive learning.

Impact of the student-centered paradigm on qualimetry

At the modern stage of pedagogical qualimetry development, the student-centered educational paradigm has taken center stage. This approach, based on universal human values and humanism, aims to organize the educational process purposefully, taking into account the interests, needs, and motivations of each student. This paradigm has brought several positive changes to pedagogical qualimetry and the entire education system:

• A shift from traditional, frontal education to supporting individual development.
• Increased emphasis on forming knowledge, skills, and competencies based on cultural and universal values.
• Encouraging independent learning alongside compulsory teaching.
• A transition towards integrated content, interdisciplinary connections, and modular systems.
• Expansion of innovative and information technologies alongside traditional methods.
• Moving from measuring only knowledge/skills to assessing competencies reflecting personal development.

These changes have further strengthened the following conceptual foundations of pedagogical qualimetry:

• **Measuring quality in lifelong education:** enabling measurement, assessment, and generalization across all educational stages.
• **The dynamic nature of quality:** recognizing that quality is constantly evolving with societal demands.
• **Unity of theory and practice:** developing as a science based on both research and application.
• **Application of a rating system:** using ratings for objective assessment of various educational aspects (personnel, teachers, students, standards compliance, resources, etc.).

These conceptual foundations demonstrate the importance of pedagogical qualimetry and its role in modernizing education. A properly implemented rating system, for instance, can effectively assess future teachers' professional-methodological competencies.

Objectives of pedagogical qualimetry

The main objectives of pedagogical qualimetry include:

• **Defining and formulating requirements for educational quality:** Considering global changes, state policy, and system priorities.
• **Improving methods for measuring and assessing educational process quality:** Developing and refining assessment systems, measurements, and indicators based on normative documents.
• **Evaluating and analyzing the activities of educational institutions:** Conducting comprehensive evaluations considering specific institutional aspects.

• **Taking practical measures to improve educational quality:** Implementing targeted actions, including innovations and technologies, based on assessment results.

In general, pedagogical qualimetry provides the necessary scientific-methodological basis for timely problem identification, impartial quality assessment, and consistent improvement.

Current challenges in pedagogical qualimetry (uzbekistan context)

Based on the analysis of literature, the current problems of pedagogical qualimetry relevant to the research context include:

1. Lack of a unified system for quality assessment in Uzbekistan's lifelong education system; underdeveloped integration of diagnostics, expertise, monitoring, and qualimetry.
2. While the qualimetric approach (especially tests) is effective for knowledge assessment, it faces difficulties in evaluating creativity, reasoning, and other competencies.
3. Underdeveloped information systems for education monitoring in Uzbekistan, with low levels of data analysis and conclusion drawing.
4. Insufficient utilization of international experience in educational quality assessment and monitoring, particularly concerning test development and monitoring systems. Strengthening international cooperation is deemed necessary [10, p. 15].
5. Lack of sufficiently strict norms and requirements for the development, application, and objectivity assurance of test tasks used in quality assessment.

Theoretical and pedagogical foundations of qualimetry

Based on the preceding analyses, the theoretical-pedagogical foundations of pedagogical qualimetry are identified as follows:

Theoretical foundations:

Concept of educational quality: based on clear concepts of quality's essence, indicators, and criteria (alignment with standards, meeting learner needs).

Theory of measurement and assessment: utilizing scientific methods (quantitative and qualitative) for measuring, analyzing, and evaluating pedagogical processes.

Pedagogical monitoring: relying on systematic data collection, processing, and evaluation for quality analysis and forecasting in lifelong education.

Systemic approach: viewing education as an interconnected system where all factors (curricula, environment, staff, resources) are studied interdependently.

Pedagogical foundations:

Correspondence of pedagogical goals and results: organizing education based on clear goals and evaluating outcomes against them.

Learner-centered education: relying on individual approaches considering learner needs, interests, and abilities.

Innovative and modern pedagogy: developing in conjunction with modern technologies, methods, and assessment systems.

Enhancing educational process effectiveness: practically aiming to identify and rectify deficiencies to improve quality.

Conclusion

Pedagogical qualimetry, relying on its solid theoretical-pedagogical foundations, serves to measure and evaluate educational quality through scientific approaches and continuously improve pedagogical processes based on the identified results. This, in turn, creates a quality guarantee at every stage of the educational environment and ensures continuous development in the education system. Therefore, pedagogical qualimetry holds significant importance in ensuring educational quality in the modern world. Its methods and tools allow not only for assessing educational outcomes but also for deeply understanding the factors influencing their formation. This creates a solid foundation for making informed management decisions and effectively improving education systems at all levels. The future development of qualimetry is directed towards integrating achievements from various disciplines, widely implementing innovative technologies, and shaping learning pathways adapted to the individual educational needs of each student.

REFERENCES

1. Bloom, B. (1986). Taxonomy of Educational Objectives. (Trans. from English). Moscow: Pedagogika. – 103 p.
2. Galton, F. (1892). Inquiries into Human Faculty and Its Development. St. Petersburg: Nauka. – 256 p.
3. Comenius, J.A. (1982). The Great Didactic. Moscow: Prosveshcheniye. – 45 p.
4. Polat, E.S. (2008). New Pedagogical and Information Technologies in the Education System. Moscow: Academia. – 376 p.
5. Raven, J. (2002). Competence in Modern Society: Identification, Development and Realization. Moscow: Cogito-Center. – 85 p.
6. Binet, A.; Simon, T. (1984). The Development of Intelligence in Children. Moscow: Prosveshcheniye. – 123 p.
7. Tyler, R.W. (1949). Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press. – 67 p.
8. Alimov, Z. (2021). Pedagogical Competence and Qualification: Theoretical Foundations and Modern Approaches. Tashkent: Fan va texnologiya. – 79 p.
9. Law of the Republic of Uzbekistan "On Education". (2020). Tashkent. – 23 p.
10. Collection of Standards for Pedagogical Education. (2019). Tashkent: Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan. – 32 p.

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