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Scientific Basis For The Development Of Meta-Competence In Primary School Teachers Based On Acmelogic Technology

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ABSTRACT

This article examines the development of a competency-based approach in education today, the study of expanding competencies, and the consideration of cross-curricular metacompetence as a methodological approach to research activities, regardless of its scope

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KEYWORDS: competence, metacompetence, continuous self-education, subject, essence and structure of research activities, classification.

Аннотация: В данной статье рассматривается развитие компетентностного подхода в современном образовании, изучение расширения компетенций, а также рассмотрение междисциплинарной метакомпетентности как методологического подхода к исследовательской деятельности независимо от её сферы применения.

Ключевые слова: компетентность, метакомпетентность, непрерывное самообразование, предмет, сущность и структура научно-исследовательской деятельности, классификация.

Annotatsiya: Mazkur maqolada bugungi kunda ta'limda kompetensiyaga asoslangan yondashuvni ishlab chiqish, kompetentsiyalarni kengaytirishni o'rganish va kurslararo metakompetentlikni uning ko'lamidan qat'i nazar, tadqiqot faoliyatiga uslubiy yondashuv sifatida ko'rib chiqishni o'rganadi.

Kalit so'zlar: kompetentsiya, metakompetentlik, uzluksiz o'z-o'zini tarbiyalash, tadqiqot faoliyati mavzusi, mohiyati va tuzilishi, tasnifi.

Statement of the Problem and Purpose of the Research.

The new conditions of modern life — characterized by technological variability, the invention of new materials, and the generally high dynamics of human activity — lead to uncertainty and unpredictable situations. This, in turn, highlights a socially and personally significant problem: the necessity of continuous education and self-development.

Within the framework of metacognitive psychology, theoretical propositions have been developed concerning the problem of individual self-education based on the learner's developed meta-competence. Its status in the hierarchy of competencies has been defined within the pedagogical process to ensure further development.

Review of Scientific Literature on the Research Problem.

Analyzing the theoretical foundations and practical implementation of the competence-based approach in education allows us to identify emerging trends within this process. It should be noted that the origins of the competence-based approach — and especially the disclosure of the concepts of "competence" and "competency" — date back to the 1960s and are associated with the research of the American linguist Noam Chomsky (Massachusetts Institute of Technology).

The concept of "competence" was introduced in the context of language use and was developed in Chomsky's theory. In his studies, the scholar distinguishes between competence and its performance (speech use). In our opinion, Chomsky's approach to understanding competence and its practical use resonates with that of A.V. Khutorskoy [Khutorskoy, 2003].

The semantics of the term "competence" were later expanded and enriched in R. White's research, which incorporated personal components, including motivation. In 1984, J. Raven introduced classifications of competence types and revealed their multi-component structure [Raven, 2002]. The next step in the classification of competencies was taken at the Council of Europe Symposium in Bern (1996), where key competencies were identified.

It should be emphasized that the shift to a competence-based approach was driven by the need to highlight individuals' personal qualities, skills, and abilities that could not be adequately supported by a knowledge-based approach — such as making decisions in non-standard situations, taking responsibility, processing large volumes of information, and working in teams. The current stage in the development of the competence-based approach has evolved to address these emerging demands through the advancement of its theoretical and practical framework.

Specific Types of Competencies

Competencies include various types such as informational, leadership, career, social, mathematical, linguistic, and others. At the same time, the development of civilization — characterized by accelerating and deepening variability — has demanded that modern individuals develop adaptive flexibility. This flexibility implies continuous self-transformation and self-education through metacognitive strategies in response to the rapidly changing world. In this regard, it is appropriate to refer to the pan-European project "Tuning Educational Structures in Europe."

According to this project, competence is defined as follows:

- Knowledge and understanding – theoretical knowledge of an academic field, and the ability to comprehend it;
- Knowledge of how to act – the ability to apply knowledge in a specific context or practical situation;
- Knowledge of how to be – values as an integral part of living and perceiving in a social context [Tuning Educational Structures in Europe, 2002].
- Competence, therefore, is interpreted not merely as a qualification, but as an integral quality of a modern individual — the capacity for lifelong learning and the ability to adapt to changing living conditions based on developed metacompetence.

To substantiate the relevance of developing students' metacompetence in the educational process, we present social, scientific, and practical arguments. It should be emphasized that the dynamic nature of all life processes, which leads to the necessity of effective and continuous self-education, determines the social significance of this issue.

The scientific rationale lies in the potential of applying findings from metacognitive psychology to solve the pedagogical problem of developing metacompetence. Education requires organizing practical means and methods that allow the learner to manage their own cognitive activity. Currently, the work of scholars in the field of metacognitive psychology has laid the theoretical groundwork for developing metacompetence in education.

Pedagogical Aspects of Developing Metacompetence:

Development of metacompetence through learning strategies — studied by T.I. Datsevich, Yu.A. Gusak, Shak-Mao Chan, I-Yu Chen, Shen-Xu Huang, and K. Kane.

Psychological aspects of metacognitive processes — explored by M.A. Kholodnaya and A.V. Karpov.

Development of students' metacompetence in engineering and technology classes — studied by T.V. Furyaeva and O.V. Gudkova.
Development of metacompetence for the successful socialization of future young professionals — examined by S. Panchenko.
Summarizing the above, the authors, relying on research in metacognitive psychology, set the goal of revealing the pedagogical essence of metacompetence and defining its status among other competencies.
Materials and Methods.
The methodological basis of the research is a multi-paradigmatic approach, integrating the systemic, cognitive-activity, and competence-based approaches and their interactions. Activity-based approaches were appropriately applied to address various research problems.
The Systemic–Activity Approach
The systemic–activity approach makes it possible to integrate knowledge about human activity and its objects, placing the subject of thought and research in a reflective position regarding the implementation of that activity. The competence-based approach defines educational outcomes as the development of an individual, where metacompetence represents a more complex and integrative concept than ordinary "competence."
The activity-based approach, which emphasizes the activity-oriented nature of human development, assigns a central role to the use of active pedagogical technologies in the development of students' metacompetence. This research methodology is grounded in that principle.
Students are viewed as individuals who think, develop, reflect, and engage in self-education. The theoretical analysis of psychological and pedagogical literature — including monographs and normative-legal documents regulating the development of education in Russia — was utilized. Theoretical content analysis of the main concepts of metacognitive psychology was conducted in line with studies by both Russian and international scholars.
The review of research focusing on the essence of individual self-education and the development of self-educational competence provided important insights.
Research Results.
A gap in scientific understanding concerning the pedagogical essence of metacompetence was identified. The study proposes that the phenomenon under examination be defined as a general term relative to "competence." It is viewed as a dynamic personal quality of the activity subject, manifested through the ability and willingness to perform professional or learning activities effectively within a given field.
Metacompetence is expressed as an individual's ability to effectively engage in intellectual activity, involving reflective processes in self-educational discovery — such as self-analysis, self-assessment, self-control, and self-regulation of both the process and outcomes of their activity.
Discussion of Results.
The competence-based approach, which became part of the Russian educational framework following the publication of the "Concept for the Modernization of Russian Education up to 2010" (2001), has continued to evolve — both theoretically and in the accumulation of practical applications within educational practice. However, several issues remain unresolved, requiring further clarification.
Author's Position on the Controversial Issues.
In particular, due to the ambiguity of the terms "competence" and "competency" in scientific research, the author offers a clarified understanding of these key concepts within the competence-based approach, aiming to refine their theoretical and pedagogical interpretation.
In psychological and pedagogical literature, three main perspectives can be distinguished regarding the relationship between the essence and the concept of competence. Some scholars consider these concepts to be synonymous. Another interpretation of the relationship between the notions of ability and competence defines competence as a cluster of interrelated competencies, expressed through the actions that constitute competence itself.
This research draws upon the work of the Russian scholar A.V. Khutorskoy, who reveals the essence of the concept of competence through a list of requirements placed on the subject of activity. The acquisition of these competencies ensures efficiency and effectiveness in a particular field of activity. According to Khutorskoy,

competence manifests itself as a personal characteristic — the set of competencies an individual has mastered, which are demonstrated in productive activity.

In this study, considering various scholarly perspectives on the relationship between competence and competency, these notions are differentiated according to their scope:

General – competence (kompetentsiya in Russian), and

Personal – competency (kompetentnost') (A.V. Khutorskoy).

Thus, competence is understood as an integral, dynamic personal quality that reflects an individual's ability and readiness to perform activities effectively by applying acquired knowledge, methods, and experience.

When analyzing the essence and structure of metacompetence, it is important to note that the prefix "meta" (from Greek metá — "beyond," "through," "above") denotes systems that describe or analyze other systems (for example, metaphysics — that which comes after or beyond physics).

The above considerations make it possible to synthesize the concept of metacompetence as an integrative, dynamic personal quality manifested in a person's ability and readiness for self-directed development within the context of continuous learning — specifically through conscious use of goal-setting, self-organization, self-monitoring, self-regulation, and reflection on learning outcomes.

The essence of metacompetence is further clarified through its structure, which includes universally recognized components while taking into account the activity-based nature of competence:

Motivational–value component – reflects the individual's awareness of the importance of self-education and the effectiveness of mastering metacognitive strategies for exploratory activity. This enables learners to analyze search processes and solve various problems through self-regulation.

Cognitive component – encompasses the knowledge and understanding necessary for applying metacognitive and reflective strategies.

Process–activity component – includes the methods and techniques for implementing self-educational and intellectual activity.

Reflective–evaluative component – ensures self-analysis, self-assessment, and reflection on outcomes to improve future learning and professional actions.

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