



MODEL FOR DEVELOPING THE COGNITIVE ACTIVITY OF FUTURE TEACHERS IN THE CONTEXT OF INNOVATIVE EDUCATION

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Abstract

This article examines a model for developing the cognitive activity of future teachers in the context of innovative education. The study analyzes modern pedagogical technologies, interactive teaching methods, and the potential of the digital learning environment in enhancing students' cognitive engagement. The structural components, implementation stages, and effectiveness criteria of the proposed model are substantiated, focusing on fostering independent thinking, analytical skills, and reflective competencies in prospective teachers.

Keywords: Innovative education, cognitive activity, pedagogical model, future teacher, cognitive development, competency-based approach, interactive methods, digital learning environment.

Annotatsiya:

Maqolada innovatsion ta'lim sharoitida bo'lajak o'qituvchilarning bilish faoliyatlarini rivojlantirish modeli nazariy va amaliy jihatdan tahlil qilinadi. Tadqiqotda zamonaviy pedagogik texnologiyalar, interaktiv metodlar, raqamli ta'lim muhitining imkoniyatlari hamda kompetensiyaviy yondashuv asosida talabalarning kognitiv faolligini oshirish mexanizmlari yoritiladi. Shuningdek, bo'lajak o'qituvchilarning mustaqil fikrlash, tahliliy yondashuv, reflektiv ko'nikmalarini shakllantirishga qaratilgan modelning tarkibiy komponentlari, bosqichlari va samaradorlik mezonlari asoslab beriladi.



Kalit so‘zlar: innovatsion ta’lim, bilish faoliyati, pedagogik model, bo‘lajak o‘qituvchi, kognitiv rivojlanish, kompetensiyaviy yondashuv, interaktiv metodlar, raqamli ta’lim muhiti.

Аннотация:

В данной статье рассматривается модель развития познавательной деятельности будущих учителей в условиях инновационного образования. Исследование направлено на анализ современных педагогических технологий, интерактивных методов обучения и возможностей цифровой образовательной среды в формировании когнитивной активности студентов. Обоснованы структурные компоненты, этапы реализации и критерии эффективности модели, ориентированной на развитие самостоятельного мышления, аналитических способностей и рефлексивных навыков будущих педагогов.

Ключевые слова: инновационное образование, познавательная деятельность, педагогическая модель, будущий учитель, когнитивное развитие, компетентностный подход, интерактивные методы, цифровая образовательная среда.

INTRODUCTION

Modern societal development requires new approaches to education, flexible thinking, and a high level of professional competence. In the context of globalization, rapid technological advancement, and the increasing flow of information, the role and responsibilities of teachers are undergoing significant transformation. Today, a teacher is not merely a transmitter of knowledge but also a designer of the learning process, a facilitator of cognitive development, and a guide who supports students' intellectual growth.

An innovative educational environment creates favorable conditions for enhancing the cognitive activity of future teachers. The use of interactive methods, problem-based learning, digital platforms, and a competency-based approach contributes to the development of independent thinking, analytical abilities, and reflective skills among students. Therefore, the purposeful



development of cognitive activity in teacher training programs has become one of the key pedagogical challenges in contemporary education.

The effectiveness of developing cognitive activity among prospective teachers largely depends on a systematic and scientifically grounded organization of the educational process. This necessitates the design of a conceptual model that clearly defines objectives, content, methods, tools, and expected outcomes. Such a model can significantly enhance students' cognitive engagement, foster creative thinking, and strengthen their readiness for future professional practice.

LITERATURE REVIEW AND METHODOLOGICAL FOUNDATIONS

The issue of developing the cognitive activity of prospective teachers within innovative educational settings has become increasingly significant in contemporary pedagogical research. Modern learning theories emphasize that knowledge is not passively received but actively constructed through intellectual engagement. J. Bruner argues that education should be organized in a way that encourages discovery and inquiry, rather than simple transmission of ready-made information [1]. This perspective highlights the importance of activating learners' internal motivation, analytical thinking, and problem-solving capacities as essential components of cognitive development.

The social dimension of cognitive growth is comprehensively explained in L. S. Vygotsky's socio-cultural theory [2]. According to this approach, intellectual development occurs through interaction and collaboration within a social context. The concept of the "zone of proximal development" underscores the guiding role of the teacher in facilitating higher levels of understanding. In innovative educational environments, this idea redefines the teacher's function as a facilitator who structures meaningful learning experiences and supports reflective thinking. Consequently, cognitive activity is viewed not merely as information processing but as a socially mediated and progressively structured process.

Recent educational discourse also connects cognitive development with competency-based frameworks. J. Hattie's synthesis of large-scale meta-analyses demonstrates that reflective practices, formative feedback, and self-regulation significantly influence learning outcomes [3]. These findings shift the focus from content acquisition to the learner's capacity to monitor, evaluate, and improve



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their own thinking processes. Thus, cognitive activity encompasses metacognitive awareness and purposeful engagement with learning tasks.

In the context of digital transformation, the integration of technology into pedagogy further expands opportunities for cognitive engagement. The Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler emphasizes the interdependence of technological, pedagogical, and subject knowledge in effective teaching [4]. From this standpoint, innovative educational environments should not only incorporate digital tools but also align them with pedagogical objectives to enhance higher-order thinking skills. Empirical studies on active learning strategies confirm that interactive and problem-oriented methods significantly strengthen analytical reasoning and conceptual understanding[5].

DISCUSSION

The development of cognitive activity among prospective teachers in innovative educational settings represents a complex and multidimensional process. Contemporary learning environments require students not only to acquire knowledge but also to analyze, synthesize, and apply it in diverse professional contexts. In this regard, cognitive development is closely linked to the structure of the curriculum, the teaching strategies employed, and the overall organization of the educational process. When learning is built upon interactive and problem-oriented tasks, students demonstrate higher levels of intellectual engagement and autonomy.

Furthermore, the role of the teacher within innovative education extends beyond the traditional function of knowledge transmission. The educator acts as a facilitator who guides learning processes, encourages inquiry, and promotes reflective thinking. Such an approach contributes to the formation of independent reasoning, self-assessment skills, and creative problem-solving abilities in future teachers. Cognitive activity, therefore, becomes an integral element of professional competence and pedagogical readiness.

RESULTS

Within the framework of the study, a conceptual model aimed at developing the cognitive activity of prospective teachers in innovative educational conditions was designed. Structurally, the model integrates motivational, operational, and reflective components, emphasizing their interdependence. This structure expands the understanding of cognitive activity beyond knowledge acquisition, incorporating processes of analysis, transformation, and self-evaluation.



The findings indicate that the systematic application of innovative teaching methods and digital tools contributes to increased cognitive engagement among students. In particular, problem-based tasks and interactive discussions were identified as effective means of enhancing analytical reasoning and logical thinking skills. The inclusion of reflective elements further strengthened students' capacity for self-assessment and fostered intrinsic motivation toward professional development.



CONCLUSION

The development of cognitive activity among prospective teachers in innovative educational settings represents a significant direction in contemporary teacher education. The findings suggest that organizing the learning process within a systemic, competency-based, and activity-oriented framework contributes to enhancing students' cognitive engagement. In particular, the integration of problem-based learning, project-based instruction, and reflective practices proves effective in fostering independent and critical thinking skills.

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