THEORETICAL AND METHODOLOGICAL FOUNDATIONS FOR IMPROVING STUDENTS' COGNITIVE COMPETENCE IN DISTANCE LEARNING

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Abstract. The thesis examines the improvement of students' cognitive competence in distance learning as a pedagogical problem. The concept of cognitive competence is clarified in relation to the digital learning environment, and the activity-based, competence-based, constructivist, connectivist and metacognitive approaches are analysed with respect to their potential for developing this competence. An integrative theoretical and methodological framework is proposed, together with a system of pedagogical principles that can serve as a basis for designing a methodology for improving students' cognitive competence in distance higher education.

Keywords: distance learning, cognitive competence, metacognition, constructivism, connectivism, competence-based approach, self-regulated learning, digital learning environment.

The digital transformation of higher education has substantially increased the share of distance and blended forms of instruction. In the Republic of Uzbekistan, the Concept for the Development of the Higher Education System until 2030 identifies the wide introduction of digital technologies into the educational process as a strategic priority [7]. Learning management systems, video conferencing tools and open educational resources have become an everyday part of university teaching. However, the digitalisation of the form of instruction does not in itself guarantee an increase in the quality of learning. In a distance environment the student has to search for, select, critically evaluate and transform information into knowledge largely on his or her own, while the direct guidance of the teacher is considerably reduced.

From this point of view, the cognitive competence of students becomes a decisive factor in the effectiveness of distance education. Cognitive competence covers the ability to manage one's own learning activity, to analyse a problem, to apply knowledge in a new situation and to monitor one's own thinking. Educational practice, however, shows a clear contradiction. On the one hand, the distance format requires a high level of independent cognitive activity from students. On the other hand, many distance courses are still limited to the transmission of information in the form of lecture texts and presentations and to the verification of reproductive knowledge through closed tests. As a result, higher-order cognitive processes such as analysis, evaluation and creation, which are central to professional competence, remain insufficiently developed. The analysis of the literature shows that the concepts of "competence" and "competency" are interpreted in different ways. I.A. Zimnyaya considers key competences as a new paradigm of the results of education, emphasising that competence is manifested in activity and includes motivational, cognitive and value components [8]. A.V. Khutorskoy treats competence as a set of interrelated personal qualities that allow a person to act productively in a certain range of situations [9]. Generalising these positions, in this study cognitive competence is understood as an integrative personal quality reflecting the student's readiness and ability to acquire knowledge independently, to analyse, evaluate and creatively apply it in new situations, and to plan, monitor and reflect on his or her own cognitive activity. In the distance learning context this quality is complemented by the skills of working with digital information and of communicating in a virtual environment. The aim

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of the study is therefore to determine and systematise the theoretical and methodological foundations for improving students' cognitive competence in distance learning.

The theoretical basis of the research is formed by works in cognitive psychology, learning theory and the didactics of distance education. The study used theoretical analysis and generalisation of the scientific and pedagogical literature, terminological and content analysis of the key concepts, comparative analysis of theoretical approaches according to defined criteria, as well as systems analysis and modelling. The approaches were compared according to four criteria: the depth of explanation of the nature of cognitive activity, support for independent learning, consideration of social and communicative interaction, and the possibility of implementation in a digital environment. The activity-based approach, rooted in the cultural-historical theory of L.S. Vygotsky [1], holds that knowledge is acquired most effectively in the process of purposeful activity and social interaction. Its concept of the zone of proximal development is especially relevant for distance learning, where scaffolding is provided not only by the teacher but also by digital tools, peers and adaptive tasks. In the online format this approach is realised through practical assignments, case studies and project work.

The competence-based approach shifts the focus of education from the amount of acquired knowledge to the ability to use it in real situations [8; 9]. For the development of cognitive competence it provides a clear orientation towards learning outcomes and allows them to be assessed with competence-based rubrics. Its limitation is that it describes what should be achieved rather than how cognitive mechanisms are formed. The constructivist approach views learning as the active construction of knowledge by the learner. In distance education it is implemented through problem situations, virtual laboratories, interactive simulations and tasks that require students to build their own explanations. The revised taxonomy of educational objectives proposed by L.W. Anderson and D.R. Krathwohl [3] gives this approach an operational tool: it distinguishes six levels of cognitive processes, from remembering and understanding to analysing, evaluating and creating, and makes it possible to design distance course tasks that deliberately target the higher levels. The connectivist approach, formulated by G. Siemens as a learning theory for the digital age [4], considers learning as the process of forming connections between information sources, people and ideas in a network. It explains well why the ability to find, filter and connect information is a component of cognitive competence in a digital society. At the same time, connectivism pays less attention to the mechanisms that ensure the depth and structure of individual knowledge.

Finally, the metacognitive approach is based on J. Flavell's concept of metacognition as knowledge about and regulation of one's own cognitive processes [2] and on B. Zimmerman's model of self-regulated learning [6]. Since in distance learning the external control of the teacher is weakened, the student's ability to plan, monitor and evaluate his or her own learning becomes particularly important. Online learning diaries, self-assessment sheets and reflective assignments are the main tools for implementing this approach. The comparative analysis demonstrates that each of the approaches highlights a separate aspect of cognitive competence, but none of them, taken in isolation, fully meets the requirements of distance education. This conclusion justifies the need for an integrative theoretical and methodological framework. Within the proposed framework, the competence-based approach determines the goals and expected learning outcomes; the activity-based and constructivist approaches determine the content and the process of learning; the connectivist approach defines the information and communication environment; and the metacognitive approach provides the mechanism of self-regulation and reflection. The integration of these approaches makes it possible to consider cognitive competence simultaneously as a result, as a process and as a condition of successful learning in a digital environment.

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The proposed principles are also consistent with M.G. Moore's theory of transactional distance [5], according to which the psychological and communicative distance between teacher and learner is determined by the balance of dialogue, course structure and learner autonomy. Interactive communication and prompt feedback strengthen dialogue, problem-based tasks give the course a flexible structure, and metacognitive assignments increase learner autonomy. Thus, the improvement of cognitive competence and the reduction of transactional distance turn out to be two sides of the same pedagogical task.

In conclusion, the improvement of students' cognitive competence in distance learning is an urgent pedagogical problem whose solution requires not only a technological but, above all, a didactic and methodological restructuring of the learning process. The study clarifies the definition of cognitive competence for the distance learning context, substantiates the potential of five theoretical approaches and proposes an integrative framework together with six pedagogical principles. This framework serves as the methodological basis for the next stage of the research: the development of the content, structure, criteria and indicators of cognitive competence and of a methodology for its improvement on the basis of distance learning platforms and interactive approaches. Its effectiveness is to be verified through experimental work.

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