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UDC 371

**ADVANCED TECHNOLOGIES FOR THE DEVELOPMENT  
OF CRITICAL THINKING IN THE FORMATION OF INFORMATION  
AND COGNITIVE ACTIVITY OF STUDENTS  
(OBJECT OF RESEARCH NRU "TIAME")**

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**Abstract.** *This article discusses the process of reforming the education system in Uzbekistan. The author made an attempt to generalize the most important and noteworthy approaches to the modernization of educational policy, in addition, she analyzed the pedagogical conditions for the formation of a competent, information literate, active, competitive, intellectually developed, socially responsible, creative professional, the potential of educational personality-developing technology for the development of critical thinking in the formation information and cognitive independence of university students. The technology for the development of critical thinking, which is a system of educational strategies, methods and techniques, assumes an active subjective position of the individual towards his own development, expands the boundaries of his self-education, is aimed at developing the ability to navigate in the information space and carry out a reflexive and evaluative analysis of his own activities and ensures the professional development of the future specialist.*

**Keywords:** *national model of education, modernization, principles of the education system, education system.*

The problem of the quality of higher education today, the structure and content of program documents, the needs of the labor market and the demands of society are of paramount importance and put forward certain requirements for the preparation of students. Scientific and technological progress, expansion and enrichment of the information space not only actualize the development of professional skills of students with sufficient competencies, but also allow expanding the horizons of students' worldview, contribute to their development as worthy members of society as a result of the integration of science, knowledge, modern information technologies, values and culture.

Theoretical methods (analysis of program documents of higher education, pedagogical and methodological literature) and empirical methods (study of the experience of organizing the educational process at a university using modern cognitive and personality-developing technologies) were used in the study. Subject activity and axiological approaches were leading in achieving the goal of this study. The material for the study of the formation of information and cognitive independence was educational situations focused on the activation of the subjectivity of students, problem tasks and information retrieval tasks and algorithms implemented in the educational process of the university using the techniques of critical thinking development technology.

According to the Decree of the President of the Republic of Uzbekistan "On approval of the concept for the development of the higher education system of the Republic of Uzbekistan until 2030", the development of a national project in the field of education should be based on a number of important goals:

- ensuring the global competitiveness of national education, the entry of the Republic of Uzbekistan into the top 10 countries in the world in terms of the quality of general education;
- education of a harmoniously developed and socially responsible personality based on the spiritual and moral values of the peoples of the Republic of Uzbekistan, historical and national cultural traditions [5].

Achieving these goals puts forward a number of requirements for higher education as a platform for training future highly qualified professionals capable of promoting and developing the country. The modernization of higher education is currently taking place in the context of the dynamic development of all public spheres, including the information field, which gives the learning process a scientific and

technological character and actualizes the role of the student's independent activity in obtaining new knowledge and mastering ways to actively use them. Knowing a particular person is a "state of understanding" of the information itself and how to work with it. The issue of creating conditions for the development of an information literate person, the introduction of educational technologies, updating the content and improving teaching methods in the field of searching, analyzing and processing information comes to the fore.

Considering the development of information and cognitive independence, it should be noted that education is a system of interrelated components: individual abilities and culture of the individual, on the one hand, and an orderly organized learning structure, on the other. Changes in the social environment and the field of education are ongoing and require systematic tracking and forecasting in order to make timely adjustments to the educational process [4]. The personality of the student, his need for creative realization, the desire for self-development, self-actualization and professional growth constitute the value dominant of higher education [2]. The main goal of the educational system is the development of the student's personality, his formation as a full-fledged subject of activity [7]. We define cognitive independence as an integrative quality of a person, the basis of which is an active independent role in the implementation of any activity, the desire for a creative solution of professional problems and life situations, for self-knowledge and self-education, a value attitude to knowledge and skills of cognitive activity. It is the value orientations and the value attitude to what is happening that play a guiding role and are the criteria for evaluating the results of self-improvement in professional and personal terms [3]. Cognitive independence consists of two aspects: the nature of the student's activity in the educational process, which must be accompanied by independent achievement of the set goals, and individual personality traits, which are expressed by subjective activity and the presence of a personal attitude to the methods of cognition [6]. Information-cognitive independence, in our opinion, implies a critical attitude to complex problems, a holistic vision of a non-standard situation in the search for solutions, and taking responsibility for the outcome of activities. In the development of information and cognitive independence, we distinguish the following components:

- epistemological – a set of knowledge and skills focused on information and cognitive activity, mastering the necessary competencies and techniques of personally developing technologies for the effective solution of educational and professional tasks;
- praxeological – the ability to find the best ways of working and ways of self-development, to adapt to the changing conditions of the educational environment;
- axiological – the ability to navigate the world of values and develop a value attitude to personally significant goals, plans and desires;
- prognostic – readiness to carry out a reflexive and evaluative analysis of one's own activities with subsequent adoption of independent decisions.

Indicators of the formation of information and cognitive independence, in our opinion, can be: the need for knowledge and self-improvement; independence of thinking, the desire not only to acquire the knowledge necessary for the profession, but also to better understand the ways of obtaining them; critical reflection on new material; having one's own view of the problem; use of the information received in professional development.

The technological aspect, according to Masharipova U, is one of the main ones for ensuring innovative activity in the modern educational process [6]. The development of information and cognitive independence proceeds more efficiently in the conditions of a specially created information and educational environment with the help of technology for the development of critical thinking. This technology, which is a system of educational strategies and techniques, implies an active subjective position of the individual towards their own development and is considered by us as a means of forming the information and cognitive independence of university students. By Axmedova M., critical thinking is the main condition for the development of intellectual and creative potential, this thinking is evaluative and reflective, allowing to produce new knowledge [1].

We understand critical thinking as a selective, purposeful, controlled, independent, evaluative-reflexive type of thinking, which is characterized by a high level of intellectually active activity that occurs in the conditions of choice and making the right decisions. Personal goals, attitudes and values determine the direction and degree of activity of information retrieval activities. The teacher not only demonstrates the processes of cognition, actively including critical thinking techniques in the educational process, but also shares his own experience, which becomes useful when students form their own view of the problem situation. The work according to the presented scheme has three stages, each of which is the basis for the

implementation of the technology for the development of critical thinking: challenge, comprehension and reflection.

At the challenge stage, students actualize the knowledge gained earlier. For a more thorough understanding of the available information, it is necessary at this stage to carefully analyze the already known material and make corrections for erroneous and inaccurate judgments. The goal of the challenge stage is to interest and involve each participant in the educational process as much as possible. At this stage, the motivational and communication spheres of the personality are updated. At the stage of comprehension, there is a comparison, analysis and systematization of fixed knowledge with a new information flow. Thinking becomes systematized. The stage of reflection involves an active process of changing knowledge and ideas, the transition to a conscious stage of development, in which the ability to choose the goals and objectives of educational routes is formed; the ability to objectively assess their own activities; awareness of their importance and value role in the chosen profession; the presence of an internal need for further and continuous self-improvement. At this stage, the value-motivational, information-search and evaluation - activity spheres of the personality are updated.

The use of technology for the development of critical thinking in the educational process of the university makes it possible to implement problematic tasks, information retrieval tasks and algorithms; to introduce into the educational process a system of independent information-cognitive tasks, situations and projects that are becoming more complex, requiring a certain skill in finding the necessary information. The introduction of techniques for the development of critical thinking in the educational environment, their active development and use in practice allows students to more confidently navigate the updated information flow and create a context for successful professional training, which contributes to the formation of information-cognitive independence and literacy of the future specialist.

The above theoretical analysis of the issue under study and the methods of work implemented in the educational process using the techniques of critical thinking development technology made it possible to establish signs of information and cognitive independence of students, taking into account the goals of education in the preparation of highly qualified specialists (table 1).

Table 1

**Signs of information and cognitive independence in accordance with the goals of education**

Goals	Signs of information and cognitive independence	Techniques for the development of critical thinking
Formation of a worldview based on a system-information approach	<ol style="list-style-type: none"> <li>1. Understanding the patterns and principles of information processes.</li> <li>2. Knowledge about the types of information and how it is processed.</li> <li>3. Algorithmization of information retrieval.</li> <li>4. Knowledge about the possibilities of critical thinking.</li> <li>5. Ability to work individually and in groups</li> </ol>	Insert; clusters; zigzag; 6 thinking hats; TASK-analysis; fishbone
Formation of the abilities necessary for the successful and safe use of information resources and flows	<ol style="list-style-type: none"> <li>1. Emotional stability and a positive focus on effective activity.</li> <li>2. Critical thinking and personal responsibility for the safe use of information resources and flows.</li> <li>3. Striving for success through productive activities using information resources and technologies.</li> <li>4. The ability to conduct teamwork in solving common problems</li> </ol>	Tree of predictions; ideal; stop reading; effective lecture; cross discussion
Formation of the ability to effectively solve tasks using information technology	<ol style="list-style-type: none"> <li>1. Digital literacy.</li> <li>2. Information competence and independence.</li> <li>3. Cognitive orientation and activity</li> </ol>	True and false statements; I know – I want to know – I found out; ideal; "thick" and "thin" questions
Formation of a critical style of thinking	<ol style="list-style-type: none"> <li>1. Ability to see the problem, formulate goals and objectives.</li> <li>2. The ability to find the best ways to search for information, to analyze.</li> <li>3. The ability to plan your work and organize your thoughts.</li> <li>4. The ability to formulate independent judgments, taking into account various sources of information.</li> <li>5. The ability to reflect on the course and results of activities in order to timely identify the wrong directions of thinking.</li> <li>6. Ability to search for compromise solutions.</li> <li>7. The ability to exercise an evaluative, balanced judgment and draw appropriate conclusions</li> </ol>	All technology tricks

Critical thinking is an important factor in the successful search for knowledge. The future specialist more effectively assimilates knowledge about the objective world if they have a personal value character for him and can ensure successful professional development. All this indicates the effectiveness of the application of critical thinking techniques in the educational process of the university, which contribute to the formation of information and cognitive independence in all of the above components: epistemological, praxeological, axiological, prognostic.

The results of the study made it possible to single out the signs of information and cognitive independence in accordance with the goals of education and make sure that the methods of critical thinking development technology are used effectively.

In conclusion, it should be noted that the technology for the development of critical thinking works towards the successful professional development of future specialists in an information-saturated and dynamically changing modern world. This technology, which is based on three stages and a set of teaching techniques, allows you to activate information and cognitive activity and independence of students. Having mastered the work with the techniques of critical thinking development technology, the student shows a desire for productive mental activity, focuses on the independent assimilation of new knowledge and the search for effective ways of working, shows a critical approach to judging others and the independence of his own judgments.

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## ПЕРЕДОВЫЕ ТЕХНОЛОГИИ РАЗВИТИЯ КРИТИЧЕСКОГО МЫШЛЕНИЯ ПРИ ФОРМИРОВАНИИ ИНФОРМАЦИОННО-ПОЗНАВАТЕЛЬНОЙ АКТИВНОСТИ СТУДЕНТОВ (ОБЪЕКТ ИССЛЕДОВАНИЯ НИУ "ТИИМСХ")

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*Аннотация.* В данной статье рассматривается процесс реформирования системы образования в Узбекистане. Автор предприняла попытку обобщить наиболее важные и заслуживающие внимания подходы к модернизации образовательной политики, кроме того, она проанализировала педагогические условия формирования компетентного, информационно грамотного, активного, конкурентоспособного, интеллектуально развитого, социально ответственного, творческого профессионала, потенциал образовательной личностно-развивающей технологии для развития критического мышления в формировании информационной и познавательной самостоятельности студентов университета. Технология развития критического мышления, представляющая собой систему образовательных стратегий, методов и приемов, предполагает активную субъективную позицию личности по отношению к собственному развитию, расширяет границы его самообразования, направлена на развитие способности ориентироваться в информационном пространстве и осуществлять рефлексивный и оценочный анализ собственной деятельности и обеспечивает профессиональное развитие будущего специалиста.

*Ключевые слова:* национальная модель образования, модернизация, принципы системы образования, система образования.