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# MODERN APPROACHES TO THE DEVELOPMENT OF STUDENTS' INDEPENDENT COGNITIVE ACTIVITY

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**Annotation**
In the article, the analysis of systems based on the use of new information technologies can become an effective means of forming students' cognitive independence through their further development and synthesis with humanistic approaches. and that their use is especially relevant in the context of significant educational reforms within the Bologna Process educational credit system about data illuminated.

**Keywords:** Humanization, humanization, fundamentalization, person-oriented, dialogic, modular, reflexive, creative, algorithmic mastering, analytical training, developmental training.

# СОВРЕМЕННЫЕ ПОДХОДЫ К РАЗВИТИЮ САМОСТОЯТЕЛЬНОЙ ПОЗНАВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ СТУДЕНТОВ

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**Аннотация**
В статье подчеркивается тот факт, что анализ систем на основе использования новых информационных технологий может стать эффективным инструментом формирования познавательной самостоятельности учащихся за счет их дальнейшего развития и синтеза с гуманистическими подходами, а также то, что их использование особенно актуально в контексте значительных реформ образования в рамках кредитной системы Болонского процесса.

**Ключевые слова:** Гуманизация, гуманитаризация, фундаментализация, личностно-ориентированный, диалогический, модульный, рефлексивный,

творческий, алгоритмическое освоение, аналитическое обучение, развивающее обучение.

## Introduction

The problem of developing students' independent cognitive activity in the second half of the 20th century was also addressed by SI Arkhangelsky, PA Zaychenko, II Kobylyasky, NV Kuzmina, PI Pidkasistiy, VA Slastenin and others. comprehensively studied by Vocational education specialists began to pay special attention to the problem of developing students' cognitive independence. We will dwell in more detail on higher professional education, because this is the area of our scientific interests.

The difference between education in a higher educational institution and education in primary and secondary vocational schools is that the student rises to a new, higher level in his educational activities - the teacher's guidance and passes from studying under supervision to independent assimilation of the scientific landscape of the world, learns methods of teaching and independent learning. The success of this process depends on the level of cognitive independence of students.

In the late 1970s and early 1980s, MI Makhmutov and I.Ya. After the publication of Lerner [1]'s books on problem-based learning, interest in the formation of students' cognitive independence has increased significantly. One of the main ideas of problem-based education related to the fact that knowledge should not be given to students in a ready-made form, but should be acquired by them "... in the process of independent cognitive activity in a problem situation" [2, p. 124-125] science and in the conditions of the rapid development of technology, it turned out to be in high demand in the training of specialists.

In the last decades of the last century, the efforts to activate the process of development of cognitive independence of higher education students were very diverse. First of all, there were various options for combining the traditional structure of this lecture with lectures and discussions [3; 4 and others]. These methods of interaction between the teacher and students are not considered as an informational monologue, but as an active dialogue with a group of interlocutors. A special feature of a scientific debate, for example, different from a dispute, is that in order to clarify the truth, it is necessary to study different points of view on the problem, a dialogue is needed in which the opponents communicate, and they do not achieve verbal victory, but through the analysis and synthesis of ideas. they strive for agreement and mutual understanding.

In the period under review, it is possible to include specially organized seminars and practical training as more effective means of forming students' cognitive

independence, which are not to deliver a certain amount of educational information to students, but to arm them with reasonable methods and tools. aims. As an example, we can cite different options for implementing the method of systematic formation of mental actions and concepts in higher education (II Ilyasov, AI Podolsky, ZA Reshetova, NF Talizina, etc.). The specific features of using the method are as follows:
- can be significantly reduced . However, this does not apply to the formation of fundamentally new actions or skills, since the omission of stages can negatively affect the parameters of the action, such as generalization, mastery and consistency;
- realization of professional interests of students, inclusion of the formed task in the content of future professional activity is important in forming the motivation of action;
- usually, the highest types of construction of the guiding basis of action (or teaching types) are used when the student independently discovers the guiding principle. This is possible due to the high level of generalization of knowledge, skills and competences that serve the orientation process itself, as a result of which it is almost never required to build the orientation base from scratch;
- A very important part of your work in training in higher education is a meaningful analysis of the material to highlight invariants that will allow you to significantly reduce the amount of information to be learned in a certain field of knowledge [5].
Despite the serious financial difficulties experienced by the country's higher educational institutions, the role of laboratory work as the most important method of independent work and scientific research during the study period of students was not only preserved, but also strengthened.
In the 90s of the last century, the innovative activities of higher education institutions on the problem of forming independence of knowledge became significantly more active, which became a natural and necessary condition for changing higher education in accordance with the requirements of the time [2; 75 and others]. The main goals of the innovative initiatives of that time are: humanization, humanitarianization, fundamentalization of the educational process, orientation to independence and self-realization. Innovative technologies of teaching: person-oriented, dialogic, modular, reflexive, creative, information-computer, etc. development has begun. In each of them, great attention was paid to the independence of knowledge.
From the point of view of our research, the technologies using computing techniques that allow to speed up and facilitate the process of formation of cognitive independence as much as possible are of interest. For example, as a result of my research, the Engineering Education platform is being developed at the Bukhara

Institute of Engineering and Technology. The platform consists of forming the informational and methodological support for the development of the individual educational trajectory of future engineers, in which future engineers increase their personal competencies by collecting appropriate points for the courses. Another advantage of the platform is that it determines the level of competence of engineers. The Engineering Education platform allows the student to use the following forms of education:

- Teaching with a glossary, which involves independent study of the system of concepts and categories of the educational module or subject;
- Algorithmic acquisition of skills based on individual learning of methods of performing actions provided by a set of methods and operations;
- Educational environment , where virtual didactic tools are used to allow students to "immerse" in the studied material ;
- Analytical teaching based on the presentation of historical, analytical and other materials on a specific educational module or the entire subject ;
- Developmental training as a technological method designed to ensure independent learning and personal growth of students, readiness to solve non-standard problems and formation of other qualifications and skills ;
- Total control of knowledge, which consists in determining the level of mastery of knowledge and mastery of skills on the entire spectrum of studied science problems [ 6 ].

Chelyabinsk State Pedagogical University professor D.Sh. Sailor; The work carried out under his leadership is also important for our research.

B. Blum, LS Vygotsky, A.Ya. Based on the work of scientists such as Lerner, NF Talizina, MA Kholodnaya in the field of formation of cognitive independence, this team developed an educational technology aimed at the intellectual development of students and schoolchildren based on the personalization of teaching . In addition to the cognitive functions (providing social experience), this technology allows to implement the psychological function (creating conditions for the formation of the inner subjective world of the individual, taking into account the uniqueness, value and unpredictability of the psychological capabilities of each student).

The use of unique electronic textbooks developed by the team of authors, the "Engineering Education" program allows the teacher to be freed from his main task (showing social experience) and the individual intellectual development of each student. allows to act as a designer, consultant, diagnostician, etc. of development.

D.Sh. Matros presents the following sequence of actions: goal formation; clarifying the goal; creating a pedagogical system of control; creating a psychological control system; creation of monitoring pedagogical system; creating a monitoring psychological system; determining the student's initial condition (pedagogical and psychological); develop a forecast for the student (pedagogical trajectory and psychological trajectory); forming a goal for the student (pedagogical and psychological); analysis of the obtained results of the educational process; Clarify goal setting and activities at all levels.

Since the features of these reforms are widely covered in the literature [7], we will not dwell on their analysis in detail, but nevertheless, we will note the changes in the educational process that predetermine the need for the purposeful formation of students' cognitive independence.

First of all, it is necessary to note significant changes in traditional forms of education in higher education institutions. In many cases, the student no longer writes a synopsis in the traditional sense, it is given in the "active handout" (FTM) that is mandatory in the credit education system. Instead, the student is *offered to* independently study the cases, write an analytical essay on the studied material and prepare for the examination. Control work has also undergone significant changes in the conditions of the credit system of education. Control of educational achievements has become more strict, total, in many cases does not take into account the human factor.

**Role-Playing-** this in technique participants to play for roles they get These roles usually from those who played difference does It 's interesting element adds and innovative ideas to get help gives An example for , you customers role you play and own your expectations and work released of products what that you want discussion to do can. This is the approach you good to ideas to lead take coming can. Specially organized supervised "student independent work" (STU) is designed to alleviate the situation where the student has to learn a large part of the information independently [ 9 ]. Usually TMI includes extracurricular time with the participation of the teacher (according to the approved schedule) and extracurricular time without the participation of the teacher according to the proposed list of tasks.

The total amount of independent work hours of full-time undergraduate students is about 70% of the total hours in the subject, up to half of which is allocated to independent work with the participation of the teacher. In the part-time department of education, the volume of independent work of students should be at least 80% of the total volume of allocated credits.

The characteristics of students' independent work are determined by the concept of science, the level of preliminary preparation of students, the teacher's qualifications, the technical capabilities of higher education institutions, the educational and methodological support of libraries and many other factors, and this process itself and its result as a probable event. allows review.

**Brainwriting -** This in methodology one group students own thoughts on paper they write Writing for defined time from the end then paper _ another to the individual is given

Now this students received on paper thoughts reads and on paper own thoughts adds _ This is har who own thoughts all to papers until written continue is enough and from that after , har one the idea according to discussion take will go

Figure 1: Brainwriting methodology through ideas exchange scheme

In addition, the generalization of the experience of the teachers of the universities of Kazakhstan and Russia (where the experiment has been going on for four years) shows that the new educational system can be effective only if the initial level of the student's cognitive independence is sufficiently high. (unfortunately, our tests show that the percentage of such students is at most 20%). Therefore, it is difficult to overestimate the role of the teacher as an accelerator of independent work, because "... it is through his personal influence that he activates the motivational mechanisms that play a key role in forming the readiness of students to work independently" [10]. Thus, at the initial stage of education, starting motivational mechanisms of students' cognitive independence and forming instrumental preparation for independent work on acquiring knowledge not only ensures success in the credit education system, but also helps future professionals to acquire knowledge and use it throughout life. allows to complete, develop, improve, self-realization.

## Conclusion

In conclusion to this article, it should be noted that various aspects of cognitive independence are sufficiently covered in the psychological and pedagogical literature, but the problem of forming cognitive independence in the credit education system has not yet been sufficiently studied: the didactic conditions that ensure its effective solution have not been identified. , the structure of knowledge independence, level content of its components, criteria for formation of readiness for independent knowledge activity have not been developed . All this shows the importance and relevance of the chosen research topic.

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