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## Revisiting the role of independence formation and organizing individual work of the student in the educational process of HEI

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### Abstract

This article considers one of the key problems of modern education, namely the formation of independence as a necessary quality of the student. The very organization of educational process should be built on the principles of independent student activity. It is necessary to reinforce an integral complex of independence in student's mind. To accomplish this, it is important to organize HEI educational process in such a way that independent work becomes a determining condition for the formation of student's independence as a subject of learning and activity. Independent work involves digestion, reinforcement and application of knowledge.

**Keywords:** Student, Independence, Activation of Independent Work, Competency-Based Approach, Higher Education Institutes (HEI).

# Revisando el papel de la formación independiente y organizando el trabajo individual del estudiante en el proceso educativo de la HEI

## Resumen

Este artículo considera uno de los problemas clave de la educación moderna, a saber, la formación de la independencia como una cualidad necesaria del estudiante. La misma organización del proceso educativo debe construirse sobre los principios de la actividad estudiantil independiente. Es necesario reforzar un complejo integral de independencia en la mente del estudiante. Para lograr esto, es importante organizar el proceso educativo de HEI de tal manera que el trabajo independiente se convierta en una condición determinante para la formación de la independencia del estudiante como un tema de aprendizaje y actividad. El trabajo independiente implica la digestión, el refuerzo y la aplicación del conocimiento.

**Palabras clave:** Estudiante, Independencia, Activación del Trabajo Independiente, Enfoque basado en la Competencia, Institutos de Educación Superior (HEI).

## 1. INTRODUCTION

It is unfortunate, but true, that some academics teach students without having much formal knowledge of how students learn. Many lecturers know how they learnt/learn best, but do not necessarily consider how their students learn and if the way they teach is predicated on enabling learning to happen. Nor do they necessarily have the concepts to understand, explain and articulate the process they sense is

happening in their students. The ongoing reform of higher education is essentially related to the transition from learning paradigm to education paradigm. In the new educational paradigm, a student from a passive consumer of knowledge must become an active subject who can properly formulate the problem, analyze possible solutions, find an optimal result and prove its correctness. In this perspective, independent work of students becomes not just an important form of the educational process, it becomes its basis (SKOBYLAKOVA and SEMENOVA, 2010). The realities of modern life are such that the graduate students in any field of training should be ready for regular independent professional educational activity. Dynamic change in the labor market, appearance of new information technologies, accumulation of huge databases requires not only knowledge, but an ability to respond to professional risks, operate large amounts of information, study related fields, and so on. In addition, a modern professional should be able to work in temporary project teams, collectives, one should be ready to the professional discussions and solving complex problems and issues (SEMENOVA, 2013). The modern world is characterized by a high rate of changes, which requires flexibility, mobility, ability to adapt to new conditions, work with different sources of information, and constant improvement of one's professional level. In connection with this, one of the goals of higher education is the formation of an active, creative, professionally trained personality whose mindset and style of thinking not only meet modern conditions but are also perspective-oriented. The correct organization of this activity stimulates students for active search, conscious overcoming of difficulties, that stand in the way of solving the tasks, and the formation of competencies necessary in their professional activities.

## **2. METHODOLOGY**

The strength and success of the university to some extent depends on the extent to which it can benefit from all its members through the appropriate culture of joint participation and decision-making. Long-term innovative planning and forward-thinking leaders are required to make changes. This research was conducted with the aim of studying a structure called "academic development" and identifying the factors and categories in it by qualitative method of exploratory type. To do this, at first glance, the knowledge of the university system and its examination from the point of view of system thinking and The complexity of the university system and different perspectives of development were considered, and with this approach, deep and exploratory interviews with knowledgeable and expert experts who have had profound experiences in the management, planning and policy of higher education and universities have been analyzed and analyzed. In the context of education development, independence as an integrative quality of the future specialist personality becomes very important. Independence is defined as one of the leading qualities of the individual, expressed in the ability to set certain goals and achieve them by using one's own resources. Philosophical approaches to independence were developed in the works of major psychologists such as (BOZHOVICH, 1968, PALINSCAR and BROWN, 1984, SOKAL, 2010). These scientists considered the issues of independence through the lens of the pivotal psychological problems such as personality, activity, work. They stressed that the social value of independence as a person's quality is determined by its orientation and person's activity level as a subject of activity and relations. BOZHOVICH (1968) and LURIA (1973) and others studied the formation and development features of the personality

of children and teenagers. Today the study of the independence problem is conducted in various aspects. The essence of independence and its nature are studied (ALEKSEEV and YUDIN, 1971, ALEKSEEV, 2002); structure and correlation of independence components; stages, conditions and methods of independence development, the relationship of independence with various mental. Analysis of the literature shows that the problem of independence has attracted attention of philosophers, psychologists and educators for a long time. The importance of practical solution of the independence development problem, its insufficient theoretical study, the importance for personal development and the need to develop a justified technology for organizing independent work in the current conditions of education have determined its relevance and determined the choice of the research topic devoted to the organization of students independent work in educational process of Higher Education Institutions (HEI). The situation in the education system shows that psychological and pedagogical support for this problem is not fully understood. The goal of independence formation is declared in the programs of education and higher education, but in practice, students have no knowledge and practical skills for its formation. Therefore, the importance of creating pedagogical conditions for the independent work of students acquires great importance.

**The problem of the study** was the search for ways of forming students' independence at HEI stage of professional training.

**The goal** of our study was the development of the system and diagnosis of the independence formation for a future specialist through the organization of independent work in HEI.

**-The Main Part:** Independence provides person's responsible attitude to his behavior, an ability to act consciously and proactively not only in familiar surroundings, but also in new conditions, including those requiring non-standard solutions. Considering independence as a person's quality, modern researchers emphasize that its integrative role is expressed in unification of other personal manifestations by a general orientation towards internal mobilization of all forces, resources and means for implementation of the chosen program without exterior help. It should be noted that the attitude of psychologists to the "independence" phenomenon is ambiguous. On the one hand, almost all researchers who study developmental features of children emphasize an enormous role of independence in the development of personality as a whole, on the other hand, in many cases they do not provide either a meaningful or semantic description of this concept. The term "independence" is given in four different meanings in the dictionary of (OZHEGOV, 1964):

- Existing apart from others, autonomous;
- Beyond control of the others, chief; decisive, capable of independent action, with initiative; free from extraneous influences, help;
- Produced by one's own efforts;
- Original.

Such an interpretation of independence, in our opinion, is legitimate because each of them emphasizes a certain degree of independence from other people, from extraneous influences. Content analysis allows us to discover the presence of independence scientific characteristics:

Table 1. Analysis of theoretical approaches to the concept of "independence"

Author	Definition of independence
L.V. Zharova	Independence is a remarkable human ability; the result of education and self-education. It is also the most important condition for self-realization of any individual and its creative possibilities (OMELYAN-SKYRTA, 2014).
D.N. Bogoyavlenskaya, P.Ya. Galperin, L.S. Vygotsky, E.N. Kabanova-Meller, N.A. Menchinskaya, S.L. Rubinstein and others	The necessity of involving students in a creative search in education process is justified in the works of these scientists. The works also revealed the decisive role of independent cognitive activity in the development of the children thinking. In addition, psychologists note that teacher should take into account the increasing sensitive periods to certain influences. It is right to talk about the age-related prerequisites for the development of cognitive independence (ALEKSEEV, 2002).
V. Kudryvtsev, Ya.A. Ponomarev	The staged formation theories of mental actions, education of students to the methods of mental activity, organization of cognitive activity management, the idea of studying creativity as a mechanism for the development of personality are justified.
M.A. Danilov, I.Ya. Lerner, M.I. Makhmutov, I.T. Ogorodnikov, P.I. Pikdasisty, M.N. Skatkin and others	Independence is a method of increasing the awareness and effectiveness of the studied material, the result of an effective organization of the learning process, an indicator of mental development of students.
N.G. Alekseev	Independence as a human ability, characterized by the following interrelated factors: the totality of the methods, knowledge, skills and abilities that a person possesses, and its relation to the process of activity, its results and conditions of implementation, as well as to the developing connections with other people. Thus, in the tasks of the independence formation, the researcher includes not only the improvement of knowledge, skills and abilities, but also the development of appropriate motives.
S.Yu. Golovin	Independence as a "generalized personality ability, manifested in initiative, criticality, adequate self-esteem and a sense of personal responsibility for one's activity and behavior" is associated with active work of thought, feelings and the will of students. In this bilateral process, the development of mental and emotional-volitional processes is a prerequisite for the formation of independent judgments and actions of the student. The judgments and actions that develop in the course of independent activity strengthen and form the ability not only to take consciously motivated actions, but also to achieve successful implementation of the decisions taken despite the difficulties.
I.S. Kon	Includes three interrelated qualities in the concept of "independence": 1) independence as an ability to make and implement decisions without external advice, 2) responsibility, readiness to face the consequences of one's actions and 3) belief in real social possibility and moral correctness of such behavior.
K.K. Platonov	The phenomenon of independence is related with the volitional powers that manifest themselves in an ability to "systematize, plan, regulate and actively carry out their activities without constant guidance and practical assistance from the outside".



M.V. Gamazo, I. A. Domashenko	The main qualities that characterize independence are the orienting and evaluative actions of a person, which stipulate "an ability not to be influenced by various factors that can distract from the goal, critically evaluate the advice and suggestions of others, act on the basis of their views and beliefs.
I.V. Grebennikov and L.V. Kovinko	The activity side of independence is emphasized, defining it as "one of the leading qualities of the individual, expressed in the ability to set a specific goal; persistently seek its fulfillment by using one's own resources; responsibly treat one's activities.
E. Ilyenkov, L. I. Antsyferova	Human as a person, knows how to "independently determine the path of his life, his place in it, his business, interesting and important for everyone, including himself." Human "always independently ploughs a unique individual way".
L.I. Bozhkovich	Children's independence is most often understood as an ability to act without the help of adult. The child becomes independent, after mastering certain content, methods and ways of action. A distinctive feature of the children independence in primary school is organization. The initiative of the students is already directed to act in their own way, i.e. contrary to the requirements of adults. Children of this age are able to direct their initiative to better and faster perform the task entrusted to them or conceived by them in accordance with the requirements of the adults. According to psychologists, children in primary school show independence in imitative activities.

Independence is the student's ability to independent actions, judgments, possession of initiative, determination. In pedagogy this is a volition personality. This ability allows to avoid the influence of various factors, act on the basis of their views and motivations.

Table 2. Pedagogical conditions for the formation of independence among HEI students

	Pedagogical conditions	Stimulating effect
1	Constructing of situations that motivate students to make independent decisions and actions: to free choice of tasks, to search for various ways of solving tasks, to creative activity, to self-examination and self-analysis, to possibility of expressing one's judgments.	Development of staged independent activity and independence as an attribute of an individual.
2	The use of role-play games in educational and independent activities of students, writing of start-up projects, reports on practice, term projects, diploma works, scientific articles and theses,	Encourage the solution of practical problems, contribute to the accumulation of life and professional experience, stimulate activity.

3	Creation of case-studies, where student determines the goals of his actions: "Why am I doing it? What do I want to know? What should happen? etc."	Increase the level of aspiration, stimulate the process of understanding of its activities.
4	Various instructions, reminders, schemes, samples of reasoning in the organization of students' independent activity.	Contribute to the ability to carry out goal-setting, to plan its activities by mastering a new method of obtaining knowledge, and stimulating independent actions.
5	Inclusion of students in productive independent activity through the use of the following techniques: group structure of education, system of differentiated tasks, analysis of practical problems, actualization of experience, joint resolution of problem situations.	Forms an ability to control the activities; such qualities of independent activity as Responsibility and organization.

Taking into account the above mentioned it is necessary to create conditions in HEI for a full-fledged educational activity, in which a complex of various competences of the future specialist is formed. We shall emphasize only the main groups of skills that students, through the formation of independence, must systematically master during the entire period of study at HEI:

The future specialist should do the following:

- master an ability to integrate knowledge in various and related areas of scientific research and solve problems that require abstract, creative thinking and originality in the development of conceptual aspects of research projects.

- work effectively and independently as a team member on interdisciplinary subjects, to be a leader in a team, to advise on the design of scientific research, and also to be ready for pedagogical activity;

- use the creative approach for development of new original ideas and methods of research in the field of computer science; - have the skills to acquire new knowledge that is necessary for daily professional work and continue education in doctoral studies; - understand the need for self-study and professional development during the entire period of professional activity;
- show profound natural-science, mathematical professional knowledge in conducting research in promising areas of professional activity;
- process, analyze and summarize scientific and technical information, advanced local and foreign experience in professional activities, present results of scientific research;

As is known in recent years, the problem of integrating scientific knowledge in the learning process, teaching students to common methods of independent activity, became very urgent. There is a good reason that close attention of scientists and teachers is taken by interdisciplinary skills. These are computational, graphic skills, an ability to establish cause-effect relationships, use knowledge from different academic disciplines to solve the learning problem.

Students in the process of education and independent work must master the following special competencies in the field of:

1. **Ethical and professional standards**, including questions of world and national standards on information technologies, information protection, scientific ethics, copyright, risk

management, problems of studying the subject field of computer science;

2. **Software engineering** is the structure of software life cycle, processes and tasks solved at different stages of life cycle, adaptation of software to possible changes in operating conditions, software upgrading and development;

3. **Fundamentals of intelligent programming** (knowledge base, built-in knowledge, intellectual programming tools, logical equation, knowledge debugging, synthesis of programs).

4. **Modeling of information processes** (methods and means for implementing modeling and processing results of computational experiments, working with modern modeling tools);

5.1 **IT-management** (Service Strategy, Service Design, Service Transition, Service Operation, Continual Service Improvement.)

5.2 **System analysis** (system analysis of structural links between software elements, programming principles, etc.);

6. **Methodology of graduate preparation** (Knowledge and in-depth understanding of the methodology for summarizing the results obtained in the context of previously accumulated knowledge.)

Student's cooperation with teachers (SCT) is a necessary condition for mastering skills as the most important component of independence. The availability of knowledge and skills determines students' readiness for

independent action, as well as emotional state when performing tasks. Many students experience anxiety and discomfort because they are lacking knowledge and skills.

In psychology and pedagogy, the following skills, formed through independent work are distinguished:

1. General educational skills (correctly read the text, find an answer to the question, plan of the text, theses, abstract, tables, plan the activities and monitor the performed actions).

2. General knowledge (highlight the main thing, make a comparison, prove, draw conclusions and formulate questions).

3. Subject (special) skills, reflecting the specificity of individual academic disciplines (read a map, perform exercises, write essays, solve problems, etc.).

4. Communicative skills (conduct a dialogue with a teacher, with friends, take part in joint activities, establish contacts for performing tasks outside the school, etc.).

Underestimation of independence as an attribute of an individual leads to the fact that in difficult life situations, students do not know how to use the knowledge they have gained. They do not possess basic but extremely important skills: set goals and strive to achieve them, plan work, own modern means of labor, establish cooperation, etc. With the purpose of revealing the value orientations and self-understanding structure as a structural element of students' independence, an ascertaining experiment with the first year students has been conducted. The method

of direct ranking of values (M. Rokich method) was used to reveal the individual hierarchical system of value orientations. The respondents filled two lists of values (terminal and instrumental, with 18 points in each list) on sheets of paper in alphabetical order (AMINOV, et al., 2010). In these lists, an experiment subject assigned each value with a rank number. The experiment subjects had been acquainted with the instructions before the experiment. We compiled a table of criteria distribution for the attractiveness of the future profession.

Table 3. Distribution of students' choice criteria for the attractiveness of the profession

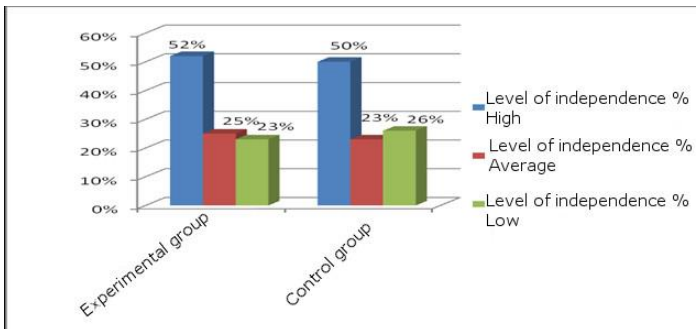
№	Criteria	%
1.	High financial security	75.0
2.	Contacts with people	58.3
3.	An ability to make a career quickly	58.3
4.	The process of work activity	50.0
5.	Usefulness of the results	41.7
6.	Independency	33.3
7.	High degree of responsibility	33.3
8.	Working conditions	25.0
9.	Independent decision-making	25.0
10.	The complexity of the profession	16.7
11.	Work with a lot of moving	16.7
12.	Quiet work	16.7
13.	Frequent business trips	8.3
14.	Proximity to the place of living	8.3
15.	An ability to create something with your own hands	0
16.	Working outside	0
17.	Romanticism	0

As it turned out from the interview with the students, all respondents are oriented to study at the university for the purpose of further employment. However, this is not "any university in a local city", but an institution that prepares specialists for a particular profession. 60% of the respondents indicated independence of choice, 20% indicated parents' help, 20% indicated the help of friends and acquaintances. For the

students of low self-understanding level the high value of such notions as "high demands", "independence", "material well-being" was usual. The beauty of nature and art, entertainment, happiness of others, creativity were included in the value list of the lowest status. For the students belonging to the second group (an average level of self-understanding) priority was given to "sense of duty", "honesty", "efficiency in matters", "criticality." Among the values of the average status, there were life wisdom, cognition, productive life, development. For the third group students (high level) , priority was given to "discipline", "independence", "criticality", "sense of duty", "self-control", "productive life", "active life position". As we see, independence is one of the characteristics of self-understanding. Thus, according to the results of our study, all participants in the experiment were divided into three levels of independence. In total, 100 students participated in the experiment (50 in the experimental and control groups).

Table 4. Table of the independence level in the process of ascertaining experiment

№	Group	Level of independence %		
		High	Average	Low
1	Experimental group	52 %	25 %	23 %
2	Control group	50 %	23 %	26 %



Students with a high level of independence have a high intensity of independent activity in the process of which the self-monitoring is constantly carried out. Students with a high level of independence have such traits as "discipline", "independence", "criticality", "sense of duty", "self-control", "productive life", "active life position". They are self-confident, independent of external opinions; they have a tendency to rely on oneself in difficult situations. They are students with high self-esteem. The average level of independence was assigned to those students who have rationality in everything. The teacher puts the goal of the work or the teaching task forward, but the student can plan its decision independently. These students are successfully carrying out mutual control, and self-control, but mostly after the completion of work. The very process of activity is poorly controlled. For such students the priority is given to "sense of duty", "honesty", "and efficiency in matters criticality." These students are free and independent in the choice of activities to realize their capabilities. Such qualities as excitability and equanimity and an ability to make independent decisions are strongly expressed. Students who had a superficial understanding of themselves were assigned to a low level. These students have an emotional attitude toward themselves. This group of students is dependent on the opinions of others; they have no freedom in expressing their feelings. They lack the ability to manage themselves and their time. For such students the priority is given to "high demands", "independence", "and material well-being". Students of this group are not able to make decisions independently and be responsible for their actions. They are waiting for the help from others, because they cannot rely only on their own strength. In the monograph by V. M. Bayluk "The systemic nature of the student's independent activity is the basis of professional self-realization" it is indicated that HEI teachers have a determining role



in creating conditions for the formation of professional and personal subjectivity of students. The author gives a decisive role to the independent activity of students in the process of creation, the production of subjectivity. AMINOV et al. (2010) believes that today independent activity of students in higher educational institutes is one of the weak points in the practice of higher education and one of the least studied problems of pedagogical theory, especially in relation to the current educational situation. Thus, independence is defined as one of the leading qualities of the individual, expressed in the ability to set certain goals and achieve them by using one's own resources. Therefore, it is necessary to study and develop more thoroughly the problems of independent activity in HEI as conditions for the formation of future specialists' independence.

### **3. CONCLUSION**

The change and transformation in the dynamic system of the university and its balanced and systematic development require planning and management thinking and adaptation to the internal environment and the external environment of the university in order to meet the needs of society in various social, economic and cultural dimensions. From different points of view, one can talk about "university development" and excellent education. Therefore, the study of factors affecting the process of academic development can illustrate an explanation of these explanations. Independence provides responsible attitude to the person's behavior, the ability to act consciously and proactively not only in familiar surroundings, but also in new conditions, including those requiring non-standard solutions. The desire to act independently is more often

expressed in those children who have skills, motivational force mobilizes the volition; on the other hand, if a student shows volition and perseverance, the quality of knowledge and skills increases. It is not a coincidence that psychologists and educators see independence as a core property of a person. This property is closely related to such qualities as activity and responsibility. It is the interrelation of all these qualities determines the attitude of a person to oneself, to his own labor, to other people, to spiritual values. Our research will continue with the development of a holistic methodology and a program for the formation of students' independence in HEI. Nevertheless, we express our gratitude to the faculty and the first-year students of Pavlodar State University named after AMINOV et al. (2010), as well as to academic adviser. The results showed a positive and significant relationship between metacognitive strategies with self-directed learning and its subscales. Based on research findings, a higher education system is suggested escaping from banking education and parrot learning and institutionalizing the process of learning to meaningful learning and educating thought-provoking, self-reflective and self-evaluating learners should consider the mechanisms by which learners learn how to learn so that the rate Undoubtedly, one of the most important of these mechanisms lies in metacognitive strategies. It is also recommended that professors, using formal and informal education, take active teaching methods to improve metacognitive strategies of students. And in addition, in developing their own skills, being guided by students, they should strive to enable learners to become help lifelong learners.

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