

**Development of students' self-education under conditions of informatization of Education****Mirzayeva Aynura Tofik<sup>1</sup>**

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*Socio-economic and technological changes arising in connection with the transition to information society require the modernization of the existing education system and the revision of the attention given to self-education. Research in this area helps to clarify the theory of self-education, personal development, the use of information technology in the educational process. In the context of informatization of education, the development of students' self-education activities changes the structure and content of education, stimulates the formation and development of each individual's abilities, allows the individual to choose the path of learning. It is important to ensure the innovative self-learning environment of the university, the integration of pedagogical and information technologies combined with a single idea in the educational process, the organization of the educational process in the interests of graduates to form their own development and self-realization needs. In accordance with the set goal, the following main objectives of the study were identified: 1) to determine the degree of problem development and the socio-historical preconditions for the development of students' self-education activities in the context of informatization of education; 2) to determine the conditions of pedagogical expediency of the use of information technology tools, as well as the regularities affecting the development of self-education activities of students; 3) to theoretically substantiate the motivation- and activity-driven approach that determines the development strategy of students' self-education activities in the context of informatization of education; 4) to develop and theoretically substantiate the pedagogical concept on the development of students' self-education activities in the context of informatization of education; 5) to develop a model for the development of students' self-education activities in the context of informatization of education, to identify examples and to substantiate the technology; 6) to discover the opportunities of an innovative self-education environment at the university and create optimal conditions for the development of students' self-education. Informatization of education, without changing the nature of self-education activities, enriches the teaching process with the methodology of optimal use of information technology, changes the methods and ways to achieve the ultimate goal and helps to create favorable conditions for successful individual development. The development of students' self-education takes place under the influence of a specially organized innovative self-education environment, which ensures the formation of necessary knowledge and self-education skills related to the self-development motivation, forms and methods of self-education and self-education. In our research work, these issues have been broadly interpreted. The main objective of the study is to examine the role of ICT in the development of self-education of students.*

**Keywords:** student, self-education, informatization of education, modern technology, distance education.

**Introduction.** The rapid processes of integration, globalisation and integration into the world lead to significant changes in all spheres of modern society, increasing the role of man as a key factor of the successful development of the state. Changes in the education system, especially in higher education, have highlighted the need for competitive professionals who can meet the needs of society and the state, as well as the issue of informatization of education, along with the issue of their self-education.

It is no coincidence that the national leader Heydar Aliyev adopted the document "National strategy on information and communication technologies for the development of the Republic of Azerbaijan" (2003–2012) in connection with the application of ICT in various spheres of society until 2012 (Национальная Стратегия, 2003). As a continuation of this, the announcement of 2013 by the Head of the state Mr. Ilham Aliyev as the "Year of Information and communication technologies" in the Republic of Azerbaijan, the establishment of the University of Information Technology are the most successful steps aimed at ensuring the formation of high personnel training in the direction of building an information society.

Azerbaijan's experience in the field of informatization of education was presented at the "ITU World Telecom 2009" held in Geneva on October 5-9, 2009. During the events held within the framework of the forum, the representatives of different countries were informed about the establishment of Azerbaijan Education Network (AZEDONET), information and Resource Center, "E-School", as well as various

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components of the National Educational Program, and the country's leading experience in the application of Information Technologies was demonstrated at the National stand of Azerbaijan at the forum (Azerbaijan's experience, 2009:1).

In modern conditions, young staff should not only master their professional knowledge but also the latest achievements of science and technology, they should be able to use ICT tools and seek a new source of information to improve themselves every day. An irrefutable fact is that without self-education it is impossible to become a modern competitive specialist and train others.

The issue of self-education has been the focus of many philosopher-thinkers since the past to the present. One of the prominent philosophers and thinkers of the East, Nosiri Khirasova, tried to present a self-education program in the "Know Yourself" section of the book "On Enlightenment". Many European philosophers living in the Middle Ages also emphasized the role of self-education in the life of each person. Thomas More (1478-1535) noted the role of libraries and museums in self-development. The attempt to discover the methodological basis of self-education is also reflected in the works of Pestalozzi (1746-1827). He believed that the teacher's main task was "not to fill the student's brain with ready-made knowledge like a pot" (Жаринов, 2004: 138-141). E. A. Shuklina defined self-education through the subjective manifestations of the categories "I" and "Myself" as follows: Self-education seems to be a completely complex category and represents "education" through self-development. It acts as a form that allows expanding the essence and content of the category "education" as well as generating personality quality. Self-education is a conscious process involving self-knowledge, self-reflection, self-development and self-affirmation. There is individualization in self-education. An individual, as a subject of self-education, has a certain degree of individuality, but at the same time, is in society and participates in it (Шуклина, 2000: 116-129).

**Development of the problem.** Referring to the scientific and pedagogical literature and research, it can be noted that the majority of students are not able to carry out self-education or are not interested in self-education activities. Mostly get ready-made lectures and are satisfied with it. Most importantly, many of them study to prepare for exams and do not systematically engage in training subjects and courses. The main reason for this is that they are not systematically involved in self-education activities in secondary school, and their self-education skills are not properly formed. Great responsibility lies with the teachers of both secondary and higher schools. When giving an assignment, a teacher should not give the students ready-made materials or explain how to work on them, otherwise, a teacher should gradually instill in them an interest in self-education activities.

Thus, the wide application of computer technology in education in recent years has facilitated the organization of self-education of students.

Information and computer technologies optimize the educational process, self-education, self-management activities, learning foreign languages, independent training, in-depth study of professional knowledge, teaching process. The use of information technology allows students to be actively involved in work, to acquire knowledge, to increase the level of self-education and professionalism. Self-education ability develops as an independent activity in search of information and works with information sources as an ability determined by the psychological and intellectual indicators of each student.

In the information society, knowledge and intellect facilitate the development of people's professional and personal creativity, advancement and stimulate the ability to acquire and process knowledge. Thus, the establishment of ICT-based educational environment leads to drastic change in attitude towards education system. The experience of highly developed countries shows that directing the main material resources to education and training of personnel possessing ICT skills and literacy has a significant impact on the training of professionals. Based on this, the intensive development of ICT-based education in the whole country is one of the national priorities.

As practice shows, the development of ICT-based education plays an important role in solving a number of the issues as follows:

- increasing knowledge and experience for pupils and students to live and work in modern society;
- the use of new forms and methods of education which improves the quality of education;
- the opportunity to increase people's education regardless of age.

In e-education, the Internet is one of the main tools. E-education provides high quality education in these directions and content-related issues:

- it creates conditions for the study of information at the required level;
- it creates new opportunities for the teaching staff (increasing their qualification, passing attestation, studying the experience of colleagues, etc.);

- it allows higher schools to work with more students (learn new technological materials, participate in regular exam session, etc.);
- it provides access to knowledge at all hours of the day;
- it provides high productivity and at the same time there is no limit to the number of users who work;
- it provides for students' increasing interest in self-education activities.

Along with the work done, there are very serious problems in the field of higher education that have not yet been resolved. One of them is the non-application of distance education in the field of higher education which is indicated in the law "On education" as a form of education. For example, the spread of the coronavirus pandemic, one of the important problems of the current year, once again has proved that there is a huge gap in our educational system. Several teachers tried to take online classes with the help of the programs such as "Teams", "Zoom", and "Ekurs.az", but did not achieve the desired results. Because many of the students did not have an Internet connection or a computer at home, many of them did not attend classes willingly, and others were embarrassed to attend classes and treated their classes with laughter. The main reason for this is the lack of material and technical base in higher education institutions, not every student has a computer or the Internet at home and, most importantly, they are hardly psychologically prepared for online classes in our country. For this reason, the first goal and task of all higher education institutions is to make virtual lessons as meaningful and high-quality as face-to-face lessons.

Students who complete distance education demonstrate their educational skills and abilities, organize and define independent learning activities, define appropriate tasks according to educational needs, rationally organize self-education and self-management activities, analyze, repeat, compare, synthesize, summarize, have the ability to select types of reference materials, catalogues in libraries, work on them, make bibliographic notes and compile lists, determine the chronological sequence of facts (Sagitova, 2014: 275).

Distance education is especially important in higher education. These are listed below:

- a) It meets the lifelong learning needs of modern student against the background of changes and developments that contribute to developed and developing countries.
- b) It allows individuals to learn independently throughout their life and allows them to develop in the field they want.
- c) It offers flexibility and diversity in terms of environment and methods in the teaching process.
- d) The cost of the system is a cheap training application when viewed in terms of benefits.
- e) It allows individuals to continue their education without leaving their jobs and at the same time without the risk of losing their wages.
- f) It is extremely useful in the upbringing of the people who need special education.
- g) It allows students to study in the highest quality universities.
- h) Equal opportunities are offered to those living outside the city.

Training tools also play an important role in increasing the effectiveness of distance learning. They are the technologies that the teacher uses in teaching, the learner in the learning process. The service of training tools such as training methods is great. The method answers the question "how to do it work?" and the tool answers the question "what to do work with?"

The use of traditional means of training in the distance learning system is not excluded. However, it is more preferable to use the following typical training tools in the distance learning system:

- textbooks; paper and electronic textbooks, teaching aids, information booklets, etc.
- teaching-methodological means;
- teaching computer system;
- audio and video teaching-information materials;
- laboratory practical exercises from a distance;
- simulators with remote access;
- databases and knowledge with remote access;
- electronic libraries with remote access;
- training tools from expert training systems;
- training tools from geoinformation systems;
- real virtual-based learning tools.

As a result of the study of teaching-methodological materials intended for distance learning, textbooks and teaching aids on subjects should be prepared in the plan as follows:

1. Introduction to the subject (history, subject, relevance, location and interaction with other disciplines, specialty program);

2. Subject program;
3. Purpose and objectives of studying the subject;
4. Methodological recommendations for independent study of the course;
5. Content;
6. Main content by sections;
7. Tests by sections, questions, answers for training;
8. Final test;
9. Practical exercises for independent work;
10. Topics for small scale scientific research;
11. Explanatory dictionary of concepts;
12. List of words with abbreviations and capital letters;
13. Conclusion;
14. References (basic, additional, optional);
15. Selected fragments from the literary works on the subject;
16. Appedices (documents, tables);
17. Brief biography of the author (Фарзана, 2011: 324).

In connection with the pandemic, the introduction of online lessons has been accelerated. But there are things to be considered here that remain in the background. For example, the attendance and exam results of many students attending classes via Skype are not satisfactory at all. The reason for this is that four elements – “individual conversation”, “discussion forum”, “test”, “digital portfolio” – are not applied during the online lesson. Without these four elements, Skype, Zoom, Google Meet and so on. classes organized through these applications are not online, but only “Skype lesson”, “Zoom lesson”, “Google Meet lesson” because the listed applications are not part of the online lesson itself, but simply an integral part of it.

*Element 1.* Individual conversation. Most of the time, students can not write what they want in discussion forums for certain reasons or do not want everyone to know if they have any problems. In this case, it is important to allow the student to be able to write directly to you or your group mates. To do this, the student can be offered either an email, a personal chat section of the email, a voice video call via applications such as Skype, Zoom, Viber, Hangout, or any online platform that is convenient for both the teacher and the student.

*Element 2.* Discussion forum. The discussion forum is an important element for knowing what the student has learned from the lesson, what they have difficulty understanding, and what needs to be explained in more detail. Online discussions help students better understand daily or weekly lessons, learn from each other, and find new resources.

*Element 3.* Test. In 2018, Deniz Gokcora and Daniel DePaulo found that the organization of tests in the classroom increases the student's self-confidence and stimulates participation in class activities. In particular, it helps them to pass the main exam successfully, memorize the lessons for a longer time. But the number of tests in the lesson should not be too high.

*Element 4.* Digital portfolio. Digital portfolio corresponds to students' achievements, learning outcomes. The portfolio includes presentations prepared by students during the course, student's analysis, thoughts about the writing, academic success. Teachers-trainers can analyze how deeply the student has mastered the lesson on the basis of portfolio, whether the lesson has reached the learning goals. Because in order to create a digital portfolio, the student must be aware of the course materials (Мамедова, 2020).

Let's group the role of distance education in the development of students' self-education as follows

1. *Motivation.* Distant education creates a desire for learning. The student acquires a more perfect knowledge by applying what he / she has learned in daily life;

2. *Adding new learnings to existing knowledge.* Distance education allows students to compare what they have just learned with previous knowledge.

3. *Grouping data.* Distance education allows you to group new information with other information. In this case, the student can achieve a more perfect result.

4. *More profitable learning methods.* Through computer-based education, the student acquires new learning methods (revision, learning through images, schemes, drawing a line from the bottom of the main ideas in the text, combining what was learned before with the new learning material, making notes, thinking, etc.).

**Objectives of the study.** In the context of informatization of education, it is important to determine the purpose of students' self-education. Let's pay attention to what the goal consists of. It mainly covers the areas as follows:

1. To meet students' personal needs and individual requirements.
2. To increase the number of activities.
3. To be able to adapt to any situation.
4. To be able to overcome uncertainty, to make decisions.
5. To formalize a sense of competition.
6. To understand responsibility.
7. To be able to use the potential completely.

**Main part.** Research shows that computer-based education is superior to traditional education, this system allows students to read the lesson independently, corresponding to their own methods. Taking all this into account, we considered it expedient to conduct a survey on this topic in some universities of Baku City of the Republic of Azerbaijan. The determining experiment was conducted in 2018–2020 among students of ASPU, BGU, ATMU, BSU, NSU, UNEC, AUL, AZTU, APA, ASOIU, MSU, ASAFA, ASPC, BHC, BCMT, Baku Medical College No.1. 200 students participated in the experiment.

Here are the students' answers to one of the questions in the questionnaire, “*The most commonly used tools in the development of self-education*” (see Table 1).

Table 1.

Answers	Students
	What tool do you use in the development of self-education?
Work on a book	24,3%
Performing tasks	10,8 %
By working on a test	13,5%
By working on a project	21,6%
Through research work	16,2%
With ICT	10,8%

The answers to the question “*What do you think is missing for the successful organization of students' self-study activities?*” are given in the table below.

Table 2.

Answers	Students
Modern advanced experience	29.7%
Technical means	8,1%
An explanation of modern types of independent work	16,2
E-learning programs	2,7%
Stimulus	24,3%
Attention to students	2,7%
Psychological training of students	2,7%
An environment where students can work independently	2,7%
Other	10,9% (attending classes, cultivation of self-education, the right of the student to choose the teacher he/she wants to work with)

Below, there are the answers given by the students to the questions on the topic.

Table 3.

Group	Number of students	Questions	Answers					
			full	percent	incomplete	percent	wrong	percent
ASPU 1904B/1902B	35	What is the informatization of education?	7	20%	11	31%	17	49%
		What is self-education?	18	51%	8	23%	9	26%
		What is learning to learn?	16	53%	14	30%	5	17%



		Do they create an interest to self-education at the university?	21	60%	10	29%	4	11%
		What is distance education?	24	69%	7	20%	4	11%
BSU SSP,167 8a/1164	36	What is the informatization of education?	12	33%	16	45%	8	22%
		What is self-education?	22	61%	11	31%	3	8%
		What is learning to learn?	14	41%	17	50%	5	9%
		Do they create an interest to self-education at the university?	30	83%	4	11%	2	6%
		What is distance education?	28	78%	8	22%	-	0

Some students could not correctly answer the questions because they did not understand the concepts of “self-education”, “learning to learn”.

Students' answers to the question “Are you satisfied with online education during the pandemic period?”.

Table 4.

Answers	Students
Yes	4%
No	96%

**Conclusion.** In recent years, there has been a tendency to self-education in connection with increasing career success. Under such conditions, the requirements to university graduates are also increasing. With this in mind, universities should prepare graduates who have certain knowledge, skills and habits, who constantly educate themselves and ready to develop themselves throughout their lives. Our study shows that more than 48.6% of the students majoring in various fields want to continue their education after graduation, while more than 8.2% of them want to improve themselves both by working and by self-education.

At the same time, according to the survey conducted among the students, many students do not have information about the concepts of “education”, “self-education”, “self-education plan”.

Taking into account the increasing need for students' self-education, we believe that the development of self-education within the educational process should be considered as one of the priorities not only of the teacher, but also of the entire university.

The main criteria for the development of personality, which determine the success of the development of self-education, can be listed as follows: - first, the importance of the knowledge and skills (competencies) acquired within the development of self-education activities aimed at students' personal and professional advancement; - secondly, during self-education activities, the student develops the methods of mastering the knowledge gained and provides individual education style; - thirdly, the process of developing the student's self-education is accompanied by a conscious, individual and conscious synthesis of experience acquired in certain situations close to reality, which require conscious independent choice, determine ways of solving problems and achieve goals, evaluate the final result; - fourth, in the process of developing self-education, the student consciously perceives and organizes social interaction with the environment.

**Proposal.** It is necessary not only to equip students with knowledge or develop their certain skills but also to formulate a certain active life position aimed at modern development. For this reason, based on Plutarch's principle, “The mind is not a vessel to be filled, but a fire to be kindled”, all our efforts must be directed to the formation and maintenance of motivation for learning and the development of self-study and active living. It was determined that the main solution in the development of self-education activities in the context of informatization of education is automated educational complexes, the university's integrated innovative self-learning environment.

This is our position on the solution of the above-mentioned issues: 1) the application of developed models of an innovative self-education environment, the study of the opportunities of teaching and material computer base of universities in accordance with the interests of students' self-education development, the organization of students' independent work; 2) the formation of specialized computerised audiences for the implementation of the announced methods, the installation of specialized programs that implement ECM algorithms; 3) the revision of curricula, structuring of modular teaching technology; 4) the preparation of

materials for conducting classes, including additional sources of information (libraries) for students; 5) the organization of training seminars by the Administrative board for the teaching and technical staff and university students.

In connection with the pandemic, psychoprophylactic measures and psychological education are very important for students to become familiar with the situation because every student should be prepared for the period of postpandemia and the problems to be experienced at that moment should be prevented.

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## Розвиток самоосвіти студентів в умовах інформатизації освіти

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Соціально-економічні і технологічні зміни, що виникають через перехід до інформаційного суспільства, вимагають модернізації існуючої системи освіти і перегляду уваги, що приділяється самоосвіті. Дослідження в цій галузі допомагають уточнити теорію самоосвіти, розвитку особистості, використання інформаційних технологій в освітньому процесі. В умовах інформатизації освіти розвиток самоосвітньої діяльності студентів змінює структуру і зміст навчання, стимулює формування і розвиток здібностей кожної людини, дозволяє людині обирати шлях навчання. Важливо забезпечити інноваційне середовище самонавчання ЗВО, інтеграцію педагогічних і інформаційних технологій, поєднаних з єдиною ідеєю в освітньому процесі, організацію освітнього процесу в інтересах випускників для формування власного розвитку і самореалізації – реалізації потреби. Відповідно до поставленої мети були визначені такі основні завдання дослідження: 1. Визначити ступінь розвитку проблеми і соціально-історичні передумови розвитку самоосвітньої діяльності студентів в умовах інформатизації освіти. 2. Визначити умови педагогічної доцільності використання засобів інформаційних технологій, а також закономірності, що впливають на розвиток самоосвітньої діяльності студентів. 3. Теоретично обґрунтувати мотиваційно-дієвий підхід, що визначає стратегію розвитку самоосвітньої діяльності студентів в умовах інформатизації освіти. 4. Розробити і теоретично обґрунтувати педагогічну концепцію розвитку самоосвітньої діяльності студентів в умовах інформатизації освіти. 5. Розробити модель розвитку самоосвітньої діяльності студентів в умовах інформатизації освіти, виявити приклади і обґрунтувати технологію. 6. Розкрити можливості інноваційного середовища самоосвіти у ЗВО і створити оптимальні умови для розвитку самоосвіти студентів. Інформатизація освіти, не міняючи характеру самоосвітньої діяльності, збагачує освітній процес методологією оптимального використання інформаційних технологій, змінює методи і способи досягнення кінцевої мети і сприяє створенню сприятливих умов для успішного індивідуального розвитку. Розвиток самоосвіти студентів відбувається під впливом спеціально організованого інноваційного середовища

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самоосвіти, що забезпечує формування необхідних знань і навичок самоосвіти про мотивацію саморозвиток, форми і методи самоосвіти і освіти. У дослідницькій роботі такі питання отримали широке потлумачення. Основна мета дослідження – вивчити роль ІКТ у розвитку самоосвіти студентів.

**Ключові слова:** студент, самоосвіта, інформатизація освіти, сучасні технології, дистанційна освіта.

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*Accepted: November 15, 2021*

