Botagul Altayevna Turganbayeva, Altynbek Moshkalov

THE IMPACT OF ICT ON THE PERSONAL SELF-DEVELOPMENT OF STUDENTS

Abstract. The article focuses on the impact of information and communication technologies on the students' self-development, analysis of the degree of the development, and attempts to identify controversy in the system of higher education today. The results of experiment are shown in the paper. Self-development, in our understanding, is a purposeful activity of the individual aimed at improving the quality of their skills and abilities, that is, self-improvement.

Keywords: self-development, self-knowledge, self-improvement, information and communication technologies

Introduction

The State Program of Education of the Republic of Kazakhstan for the period of 2011–2020 was designed with the aim to develop human capital through giving quality education, which, in its turn, can result in sustainable economic growth [30]. In this regard, the priority in the country now is to train future professionals in higher education and schooling competitive people in the labor market, able to fulfill themselves creatively and continuously self-develop.

Modern educational process is unimaginable without the extensive use of information - communication technologies (ICT). Internet resources are used in the classroom at school, higher education institutions practice distance learning. ICT as a powerful learning tool, can greatly improve its efficiency, in the informational-educational environment self-learning and personal development of the learner is taking place. The problem of self-identity is based on the philosophical ideas of self-knowledge and self-improvement of Kant, Berdyaev, on the ideas of formation of "passionary personalities" of Gumilev [5; 10; 13].

The theoretical base for the study are the self-identity views of representatives of humanistic psychology (A. Maslow, C. Rogers, etc.), who believe that each individual is not limited to the ability to develop under the influence of external factors, but also possess the inner capacity for self-development and self-improvement [19; 26].

The basis of the study of personal self-development of students in higher education were the ideas of V. Vygotsky that learning shapes the human

and does keep his development at the same place, but creates a new special form of conscious activity [33]; Ananyeva, who gave an analysis of such basic activities as knowledge, work, communication, which generate an integrative property of the person, his activity, independence, responsibility, interests, aptitudes [3]; approaches to developing a positive "self-concept" taking place in the works of K. Abulkhanova-Slavska, A. N. Leontyev, A. Petrovsky et.al, which emphasizes the importance of self-knowledge for self-development, examines the role of self-esteem, self-control, self-regulation, self-correction in the formation of social, moral character and high moral sense, unsatisfying need "to be an individual" [1; 17; 23].

In the pedagogical literature, general and specific questions of self-knowledge, self-awareness, self-assessment, self-regulation, are covered in the works of G. Metelsky, L. N. Kulikova et al. [15; 21].

The problem of the use of information and communication technologies in the training of future teachers was considered in the works of E. S. Polat et al. [6; 22; 24].

However, it should be noted that the analysis of the scientific literature suggests a lack of a degree of development problems of influence of information – communication technologies on personal self-development of the student, which makes the relevance of the study.

On the issues dealt in this paper, we are driven by the contradictions that happen between:

– urgent need in the community for a free, mobile, highly capable of self-development, creative specialist and the weak level of the students' desire for the personal self-development;

– the practice of teaching of disciplines at the university, focused on giving the students knowledge and skills, and the need for creating educational environment, conducive to the most active acquisition of skills of personal self-development skills.

Based on the identified conflicts **the purpose** of our study is defined, which is the theoretical and experimental justification of the effectiveness of the self-identity of the student in the educational environment at university on the basis of information and communication technologies.

The objectives of the study are:

– Analyze the ideas of personal self-development in various academic sources,

– Identify opportunities for information – communication technologies in addressing the problem;

– Work out a model of students' personal self-development through the use of ICT, the backbone link of which is a special course "Basics of self-development";

– Test the effectiveness of the model through experiment.

Methods

To achieve the objectives of the study a complex of methods was used:

theoretical analysis of the philosophical, psychological, educational and methodological literature on research, educational experiment which used questionnaires and self-assessment, statistical analysis of the results obtained in the experiment. The study involved 172 students of the Kazakh National Pedagogical University named after Abai. Of these 86 students were in the experimental group (EG), and 86 students were in the control group (CG). Homogeneity criteria for the groups were: the ratio of students of the psycho-pedagogical and physical-mathematical faculty, experience of using a computer, the Internet, the level of readiness for self-development. To assess the level of formation of the components of personal self-development of students the following techniques were used: self-rating, method by H. Eysenck, volitional self-regulation – the method by A. Vysotsky, own productivity – Method by Y. Orlov, the value of the profession and the need for self-development by L. N. Berezhnova.

Discussion

K. Vazina states that a man, being spiritual and the natural self-developing system, not only constantly gains the experience of his predecessors, but also continually develops new ways of vital activity in rapidly changing situations. This ability provides a person the freedom to live happily, creatively, to be the measure of all things [32].

However, self-development does not occur spontaneously. It begins with an understanding of oneself and one's place in the world, the values accepted in the world, finding the differences between these values and inherent personality characteristics and qualities. For this reason the first step on the way to self-improvement is self-knowledge.

Self-knowledge – is the study of the individual's own mental and physical features, understanding of himself. It begins in infancy and continues throughout life. It is formed gradually as a reflection of the external world and knowledge of himself.

Self-development of humanity is the core process of its formation, the mechanism of finding his nature by a man. A man capable of self-development, not only initiates the process, but also the human community. In psychology personal self-development acts as a psychological mechanism "human-formation" and in pedagogy is the main task of education. Bondarevskaya, who is developing a problem of education a person of culture, notes that humanistic education provides a space for free self-development, and the task of the teacher is to teach us how to use this freedom as a blessing [8].

In her works E. Shiyanova reveals cultural and humanistic functions of education, and mentions a need in higher education system for conditions for self-realization and personal self-development of future professionals. The personal self-development allows to overcome differences and strive for the spiritual and physical harmony [29]. G. A. Tsukerman argues that the process of self-development is always associated with the opening of the "I", his self, which are inherent in any person. In his work G. A. Tsukerman notes that the purpose of higher education is the development of the individual identity of the future expert, based on reflection and self-development, which will create conditions for students to be competitive and competent in their future profession [34].

Our study of the personal self-development of students with the use of ICT was conducted from the standpoint of the following **methodological approaches**:

 – **A systematic approach**, which is based on the consideration of the object as a system: a holistic set of interrelated elements [7].

 – **Active approach**, asserting that through activities and by doing one becomes oneself, his self-development and self-actualization of his personality takes place [9; 17; 27].

– **A student-centered approach**, which is based on the consideration of the specific characteristics of the individual, which has its own characteristics, aptitudes and interests [12; 28].

– Synergistic approach accepting the ability of different systems to self-development not only by the flow of energy, the information and matter from the outside, but also through the use of their internal resources [11; 14].

Self-development in our understanding is an active work to transform the personality of their intellectual, spiritual and creative potentials.

Means of self-development of the individual student in our study is the information – communications space in which it is located. This is a developing space, where it creates, works, in which there is a process of self-improvement, self-education, the influence of personality on itself.

Many researchers believe that scientists D. Bella, A. Toffler, J. Masud were the first ideologues of the concept of the information society as a natural stage of civilization. The idea of post-industrial society was launched in the 60s by an American sociologist D. Bellom in his book "The advent of post-industrial society. The experience of social prognosis," published in 1973 [4].

In the works of the American sociologist and futurist Alvin Toffler E., and Japanese sociologist and futurologist I. Massoud held thesis that humanity is moving towards a new technological revolution [31; 35].

Digitalizing of education, training activities in terms of innovation and educational environment of the university were described in the works of Lapchik. Meanwhile, scientist Alexander Rakitov, developmental approach to information society as socio-technological revolution [16; 20].

A. Ahayan notes feature of communication in a network environment in that while communicating in person it is not common to expect help from the outside, you have to rely on your experience and knowledge to navigate in an artificial environment that requires a huge effort for self-presentation [25].

Revealing features of the implementation possibilities of ICT in teaching mathematics, Martirosyan sees them as actively developing tools that allow students to prepare for the realities of their future career in the conditions of information and mass communication of the modern society [2].

Use of information – communication technologies in education allows the student to carry out an indirect communication with the teacher at a convenient time, using the forum, chat, e-mail. In addition, ICT can more fully implement the principles of accounting of student-centered education, such as the principle of self-worth of the individual, the principle of determining the student as an active subject of knowledge, the principle of focus on self-development, self-learning, self-learner principle of reliance on the subjective experience of the trainee, the principle of regarding the individual learner's psycho-physiological features.

A way to enable these processes in our study is the introduction of a special course in the educational process for the students of the experimental group "Fundamentals of self-development", designed for 2 credits, which is divided into sections: "Introduction to the personality", "Personality and self-development", "Personality and professionalism". In the study of the special course of ICT such methods as creating email audio-video chat, interactive media-technology (video, online conference), and the electronic portfolio were used.

Results

During the experimental work, we registered changes in the development of the components of self-development. At the beginning of the experiment self-evaluation ratio was 37 %, then in the end there was a significant increase in the average of 68 %, but a manifestation of self-willed ranged from 33 to 65 %, and own performance from 36 to 54 % (Table 1).

Table 1

The manifestation of the individual components of self-development in the experimental group after forming experiment

Stages	Self-as-sess-ment	Voli-tional self-re-gulation	Own produc-tivity
Beginning of the ex-periment	37 %	33 %	36 %
End of the experiment	68 %	65 %	54 %

To determine the validity and reliability Page criterion was applied, the hypothesis of the study: H_0 – selected groups do not have significant differences in changes in the development of self-development components.

H_1 – selected group differences matter changes in the development of components of self-development. This check revealed the following:

Table 2

#	Groups	Self-assess-ment		Volitional self-regulation		Own pro-ductivity	
		As-sess-ment	Rank	As-sess-ment	Rank	As-sess-ment	Rank
1	Experi-mental	37%	2	33%	2	36%	1
2	Control	36%	1	29%	1	37%	2
	Total	-	3	-	3	-	3

Changing levels of demand for personal self-development during the formative experiment

Stages	Groups	Number of people	Low	Middle	High
Beginning	Control	86	18	68	–
			20	72	–
	Experimental	86	23	73	–
			24	76	–
End	Control	86	25	68	–
			28	71	–
	Experimental	86	–	73	23
			–	76	24

$$L_{emp} = 3 \cdot 1 + 3 \cdot 2 + 3 \cdot 3 = 18$$

$$L_{cr}(0,01; 86; 3) = 4$$

$$L_{cr} = 4 < 18 = L_{emp}$$

According to the analysis result H_0 hypothesis is rejected, i.e. selected groups have significant differences in the change of the components of self-development.

To detect changes in levels of demand for personal self-development we applied t – t-test revealed that the experimental group, the level of demand for personal self-development increased substantially (Table 2).

The table shows that the students in the experimental group significantly actualized the need for personal self-development. Most of the students have realized the need of personal self-development and by the end of the experiment, as can be seen from the table, there was not a single student with a low level of demand for personal self-development.

The reliability of the results obtained to verify the criteria of Student, aimed to assess the difference in the middle and the two samples X and Y

H_0 – there is a difference in the change in the levels of personal self-development needs in the form of an experiment.

H_1 – there is no difference in the change in the levels of personal self-development needs in the form of an experiment.

exp.g. = n1 = 86 (X)

cont.g. = n2 = 86 (Y)

$W_{\frac{1}{2}}$	X Groups		Y Groups		Deviations from the average		Squares	
					$\sum(x_i - \bar{x})$	$\sum(y_i - \bar{y})$	$\sum(x_i - \bar{x})^2$	$\sum(y_i - \bar{y})^2$
1	Beginning of experiment	23	Control (beginning of exp)	20	3	– 3	9	9
2	End of experiment	-50	Control (end of exp)	28	– 78	– 22	6084	484
	Total	73		48	0	0	6093	493
	Average	36,5		24				

Average of the arithmetic in the experimental group makes:

$$\frac{6093}{86} = 70,8 \; ;\frac{6093}{86} = 70,8 \; ; \text{ in control group}$$

$$\frac{493}{86} = 5,7 \frac{493}{86} = 5,7 \; .$$

The difference in magnitude between the average makes: 70,8-5,7=65,1.

Calculation of expression

$$Sd = \sqrt{\frac{6093+493}{9+9-2}} \cdot \frac{9+9}{9 \cdot 9} = 20,2 \cdot 0,2 = 4,04.$$

$$t_{\text{эмп}} = 4,04$$

Number of degrees of freedom
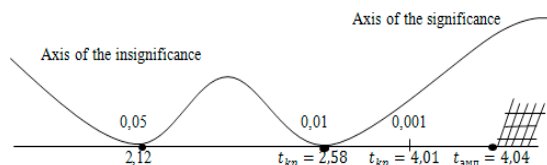
$$k = 9 + 9 - 2 = 16$$

$$t_k:$$

$$p \leq 0,05 = 2,12$$

$$p \leq 0,01 = 2,58$$

$$p \leq 0,01 = 4,01$$

«The axis of the significance»:

Result analysis: The data reject the hypothesis H_1 (no difference), the hypothesis H_0, there are differences as $t_{emp} > t_{cr}$, i.e. It can be noted that the results obtained are reliable and statistically significant.

The results of the formative experiment showed that under favorable conditions, the psychological and pedagogical value attitude to the profession is manifested in the transformation of the structural components of professionalism as a personality trait in personality (Table 4).

Table 4

Results of the study of the profession value

State the importance of values chosen profession	Groups			
	Experimental		Control	
	Before experiment	After experiment	Before experiment	After experiment
Recognized as a leading value	38 %	78 %	37 %	41 %
Poorly understood as the value	25 %	15 %	24 %	21 %
Is not recognized as a leading value	37 %	–	38 %	37 %

As the table shows, the recognition of a future profession as a leading value increased from 38 to 78 % of the students in the experimental group and a control group of students, respectively – from 37 to 41 %.

To determine the validity and reliability of the results we used the Wilcoxon pairs test matched, which showed the following

$$H_0: \; p(x < y) = \frac{1}{2} ; p(x < y) = \frac{1}{2} ;$$

Где xx – random number, distributed as the elements of the first, а y – the second.

$$n_1 = 86 \qquad\qquad n_2 = 86.$$

Range the results before the experiment

$$W_1 = 38 + 25 + 32 = 95$$

$$W_2 = 37 + 24 + 38 = 99$$

Range the results after the experiment

$$W_1 = 78 + 15 = 93$$

$$W_2 = 41 + 21 + 37 = 99$$

$$W_- = 95 - 93 = 2$$

$$W_+ = 99 - 99 = 0$$

$$P(x < y) = \frac{2}{0} = 0$$

Result analysis shows that there is a random value between the distributions of the first and second samples.

Conclusions

The resulting formative experiment suggests that the study of a special course "Fundamentals of self" through the use of ICT among students in the experimental group significantly intensified the need for personal self-development, there was an increase in the level of formation of personal self-development. Summing up the results of theoretical and experimental studies, we can draw the following conclusions:

– The methodological foundations of the study self-development of students in the application process of higher education are systemic, activity, person-centered and synergy that suggest the presence of representations of the image of "I", the ability to overcome internal and external difficulties in the consistent implementation of their abilities and sekf-organization internal capabilities on the way of the future profession;

– The effectiveness of self-development will ensure implementation of the model involves the study of a special course on the basis of the use of ICT in the university, which activates the volitional self-regulation, own productivity, stabilizes the inner world, is developing the capacity for adequate self-assessment of future profession as a leading value, contributes to the further empowerment of the individual.

– Found out that methods as ICT, the creation of an e-mail audio and video chat, interactive media technology (video, online conference), the electronic portfolio for their systematic proper use in the educational process of the university have great potential for self-development and implementation of student creativity.

– In general, this study has made it possible in theory to justify and almost pushed us to confirm the assumptions inherent in the hypothesis of the study the basic laws and principles, psycho-pedagogical conditions of the process of self-development and technology students in the university.

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Santrauka

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IKT ĮTAKA STUDENTO ASMENYBĖS SAVIRAIDAI

Šiandien vienu iš aukštojo mokslo būsimų specialistų rengimo prioritetinių uždavinių tampa konkurencingo darbo rinkoje žmogaus, kuris geba laisvai gyventi, kūrybiškai save išreikšti, kryptingai veikti ir nuolatos ugdytis, išugdymas. Dėl to tampa aktuali studentų asmeninės saviraidos fenomeno problema.

Straipsnyje nagrinėjama informacinių komunikacinių technologijų (IKT) įtaka studentų saviraidai. Mokslinių šaltinių analizės pagrindu apibrėžti teoriniai asmenybės saviraidos pagrindai, įvardyti būsimų pedagogų rengimo sistemoje susiklostę prieštaravimai ir metodologinės prieigos: sisteminė, asmenybiškai orientuota, veiklos ir sinerginė.

Pristatyti tiriamojo eksperimentinio darbo rezultatai, kurie įrodo, kad studento asmenybės saviraidos efektyvumas įmanomas taikant informacines komunikacines technologijas, kurios aktyvina valios savireguliaciją, asmeninį produktyvumą; stabilizuoja vidinį pasaulį; ugdo gebėjimą adekvačiai įsivertinti būsimą profesiją kaip esminę vertybę, padeda tolesnei asmenybės saviraidai.

Kazachijos nacionalinis Abajaus universitetas
Įteikta 2013 m. gegužės mėn.