

Information Technologies as the Base of Formation of the Information-Communicational Competence of the Future Ecologists

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Abstract: On the condition of educational modernization and joining the Republic of Kazakhstan to the Bologna process, H.A.Yasawi International Kazakh-Turkish University points out as one of its main problem the usage of information technologies in highly qualified training of the specialists of international level in the sphere of pedagogy and increasing the quality of their professional training, because the use of information technologies emphasizes practical-oriented education, its professional, pragmatic, subject-professional aspect. Including some elements of well-known approaches in pedagogical sciences such as systematic, personal-oriented and synergetic and others the significance of information technologies as one of necessary base of formation of information-communicational competence and professional training of future specialists is stated out. Because it has humanistic, professional, pragmatic and practical features, which show its integration and systematic advantages. Accepted as one of new scientific approach, the use of information technologies is one of the most effective means of developing methodological and creative thinking activity, professional and cultural norms of behavior, correction of oriented values on the base of educational system, changing activities based on principals of innovative approaches in teaching process of higher education. The results obtained by the use of the information technologies show improvements in formation of the information-communicational competence of the future specialists. The use of information technologies in teaching system shows an increase, which points to a significant improvement and higher achievement. The improvement is also represented in higher average grades of the experimental group and it shows the effectiveness of the use of information technologies in formation of the information-communicational competence of the future specialists..

Key words: Information-communicational competence • Information technologies

INTRODUCTION

During the modern period there is a formation of uniform world educational space by means of, in particular, harmonization of educational standards, approaches, curricula, qualifiers of specialties in the different countries of the world [1].

Kazakhstan has accurately defined a reference point on occurrence in world educational space and carries out modernisation of educational system in a context of the international requirements. The Republic of Kazakhstan has entered a strip of successful realization of principles of Bologna process and its adaptation to modern realities. The Bologna declaration regulates construction of uniform educational space in Europe on the basis of introduction of multilevel system of higher education and

credit-modular system of training and modernization of the state system of guarantees of quality management formation, working out of new formats of documents on formation and modernization of schemes of a financing of education.

In the condition of educational reformation and joining the Republic of Kazakhstan to the Bologna process, H.A.Yasawi International Kazakh-Turkish University points out as one of its main problem the usage of information technologies in formation of the communicative competence of the specialists of international level and increasing the quality of education, because the communicative competence emphasizes practical-oriented education, its pragmatic, subject-professional aspect. Including some elements of well-known approaches in pedagogic such as personal,

oriented and others the significance of competence-based approach as one of necessary base of formation of communicative competence of future ecologists is stated out. Because it has humanistic, pragmatic and practical features, which show its integration and systematic advantages. Accepted as one of new scientific approach, the use of information technologies on the base of competence is one of the most effective means of developing methodological thinking activity, cultural norms of behavior, correction of oriented values on the base of educational system, changing activities based on principals of innovation approaches in the process of teaching foreign language of higher education [2].

In modern conditions of modernization of educational system and joining of Republic Kazakhstan to Bologna process at H.A.Yasawi International Kazakh-Turkish University at credit system of teaching questions of training of highly skilled ecologists of the international level and formation of their communicative competence in the process of foreign language teaching with the use of information technologies gets a special urgency and is a subject of intensive scientific researches.

The research urgency is defined by the social order of a society on professionally competent person of the future specialist (in our research ecologist); necessity of creation of complete system of professional training of the future specialist; requirement of system of formation of the communicative competence of the future specialist, perfection of knowledge of a foreign language and working out of the maintenance, forms, methods and tutorials with application of information technologies.

Research objective is to provide process of formation of the communicative competence and improvement of quality of professional training of the future ecologists on the basis of theoretical and practical working out and experimental research of foreign language teaching of the future ecologists with means of information technologies.

The Purpose of the Research: The purpose of the research is to analyze a condition of a problem of formation of the communicative competence of the future ecologists in the course of teaching a foreign language with the use of information technologies in high school, to reveal degree of its theoretical and practical readiness on the basis of experimental work and analyses of the statistical results for the experimental and control groups of students of «Ecology and Chemistry» Department Engineering-Pedagogical Faculty of H.A.Yasawi International Kazakh-Turkish University, 5B060800 - Ecology specialty; to prove requirement and

necessity of formation of the communicative competence as a component of professional training of the future ecologists, to develop model of formation of the communicative competence by means of a foreign language and to prove efficiency of use of information technologies in educational process.

Methods of the Research: The basic methods of research are theoretical analysis and synthesis, comparison and concluding statistical data, modeling, research of the experience of professional activity, the observation. In scientific work for the decision of tasks and verification of assumptions the following methods of research were mainly used: logical methods and techniques (the analysis of psychological, pedagogical, legal and other literature on the problems of professional education, synthesis, abstraction, generalization, analogy, structural-functional method and probabilistic-statistical methods; methods of theoretical knowledge (theory, formalization, deduction, the ascent from the abstract to the concrete); methods of empirical research: (observation, interviews, questionnaires and bibliographic method; the experiment under natural conditions, comparison, description, monitoring, measurement); the system approach to the pedagogical and logical analysis, generalization and analysis of pedagogical experience; modeling of pedagogical processes; pedagogical design, used for the development of regulatory and program-technological support. A methodology of experimental work was developed; indicators and criteria for evaluating the effectiveness of the identified conditions were refined; pedagogical experiment was conducted; the educational-methodical support of educational process of professional preparation of future ecologists, aimed at formation of professional abilities and competences of the graduates was developed.

The theoretical and practical importance: the complex of the organizational-pedagogical, psychological-pedagogical, didactic-methodical conditions promoting efficiency of formation of the communicative competence and improvement of quality of professional training of the future ecologists in the process of teaching a foreign language by means of information technologies is revealed and proved. The system of exercises and the tasks, intended for the organization of a practical training on ecology in English and ingredients of formation of the communicative competence of the future ecologists in the process of teaching a foreign language of the future ecologists is developed by means of information technologies.

Research Problem: The conducted analysis of research work has shown efficiency and necessity of the use of information technologies for formation of the communicative competence of the future ecologists in the process of foreign language teaching, for the decision of educational problems, formation of the professional specialist with the critical and creative thinking, capable effectively to act in changing conditions of professional work.

Nowadays one of the actual problems of training of highly skilled specialists on the international level and increase the efficiency of educational process at credit-modular teaching system at H.A.Yasawi International Kazak - Turkish University is information of education and use of information-communicational technologies in professional activity of the future specialists on the basis of competence approach.

Information of educational system is considered as strategically important paradigm of the Governmental program of educational development of the Republic of Kazakhstan for 2011-2020, confirmed by the President of Kazakhstan, at transition to electronic training the prime problem-maintenance of an education system by highly-skilled personnel [3].

According to a new Kazakhstan educational paradigm education should be directed on interests of personal development adequate to modern tendencies of social development and to solve following problems:

- To harmonize relations of the person with the nature through development of a modern scientific picture of the world;
- To stimulate intellectual development and thinking enrichment through development of modern methods of scientific knowledge;
- Recognizing that the person lives in a society, to achieve its successful socialization through immersing cultural existence, including technogenic and computerized, environment;
- Considering that the modern person lives in conditions of the sated and active information environment, to teach the person to live in its stream, to create preconditions and conditions for continuous self-education;
- In view of integration tendencies of development of a science and techniques, requirement for new level of scientific literacy to create conditions for acquisition of the wide base formation allowing quickly enough to be switched to adjacent areas of professional activity.

One of the basic advantages of the competence approach is that learner is perceived not as passive object of educational influence, but as the active subject getting formation. The teacher does not impose to students' personal understanding of a material and stimulates their independent activity on mastering. Characteristic for new model of training, cooperation lies on the basis of educational activity [4].

The traditional educational paradigm basically leads to formation dependent learner as the teacher according to the program gives out the planned material focused on the average learner. Learners are not informed on main objectives and have no control over educational process and access to all material that is taught, guided only by instructions of the teacher and the textbook maintenance, studies in the set rate. It is obvious that educational process cannot generate the specialist with creative skills, professional and critical thinking which will be claimed in a modern society [5].

The educational environment simulated by means of information-communication technologies, allows changing of the situation. The teacher puts the purposes, forms the informational environment creating conditions for individual work. Presence of means for realization of the purposes and problems of educational process, knowledge of ways of the organization of teaching system and control devices are making components of the computer informational educational environment, which forms independent learner [6].

Educational system of the Republic of Kazakhstan is focused on occurrence in world educational space, therefore the quality of education is considered in the context of conformity of level of received educational services by the world standard and norms. Nowadays the priority is achievement of such quality of training of specialists which gives them the chance to compete on the international laboratory. In the conditions of market relations and complicated requirements to the education, ways of the organization of educational process searches of new reserves of improvement of quality and efficiency of preparation of the future specialists are necessary. Changes in social sphere of a society, information of social processes made a paradigm of formation which was replaced on competence the approach in formation [7].

One of actual problems in system of the Kazakhstan educational process in the course of professional training of the future specialists is formation of communicative competence. The suggested system of teaching helps to recognize ecology as an interdisciplinary science which is

a necessary prerequisite for observing problem from the different angles and it also allows students to apply knowledge of ecology in everyday life [8].

The organization of educational process with application of informational technology of training, an optimum combination of information technologies and traditional approaches demands the decision of some psychology-pedagogical, methodical and other problems and carrying out of corresponding researches. Having analyzed the literature on research subjects, we have allocated following actual directions of using information technologies in educational process:

- Working out of a technique of use of information-communication technologies in teaching system to various disciplines;
- Creation of corresponding methodical maintenance;
- An estimation of efficiency of application of informational technology of teaching,
- Creation of the unique complex scientifically-methodical approach to a solution of a problem of the usage of information-communication technologies in educational process,
- Preparation of the pedagogical staff, capable to carry out training in new conditions and to solve the above-stated problems and tasks.

The urgency of a considered problem is defined, first, by the usage of information-communication technologies assumes presence at the modern, highly skilled expert of new knowledge, abilities, creative style of thinking which will provide necessary social adaptation to changes and guarantee its competitiveness on a labor market; secondly, necessity of perfection of the organization of professional activity of the future specialists in the conditions of information; thirdly, objective requirement of a modern society for preparation of the specialists, capable to be integrated into world information field; fourthly, tendencies of a national educational policy [9].

RESULTS AND DISCUSSION

In order to calculate the effectiveness of use of information technologies in formation of the communicative competence of the future ecologists in the process of foreign language, the results of students who were taking part in experimental group and results of students, taking part in control group were compared.

Table 1: Means on Each Group of the Average Grade and the Standard Deviation

Numerical characteristics	1 st sample (Control group)	2 nd sample (Experimental group)
N (Quantity of students)	42	44
M (Average grade)	3,14	3,8
σ (A standard deviation)	0,61	0,32

For the proof of degree of formation of the communicative competence of the future ecologists in the process of foreign language with the use of information technologies it is necessary to show that experimental and control samples have significant distinctions on the chosen indicator – to ability independently to analyze the task, to correlate it with professional work practice. For processing of results of experiment Student's t-criterion was used to establish similarities and distinctions of two empirical distributions.

The mathematical package «STATISTICA» was used. By means of Descriptive statistics mode Basics Statistics/Tables of this software were the hypothesis about conformity of samples to normal distribution which was checked up [10].

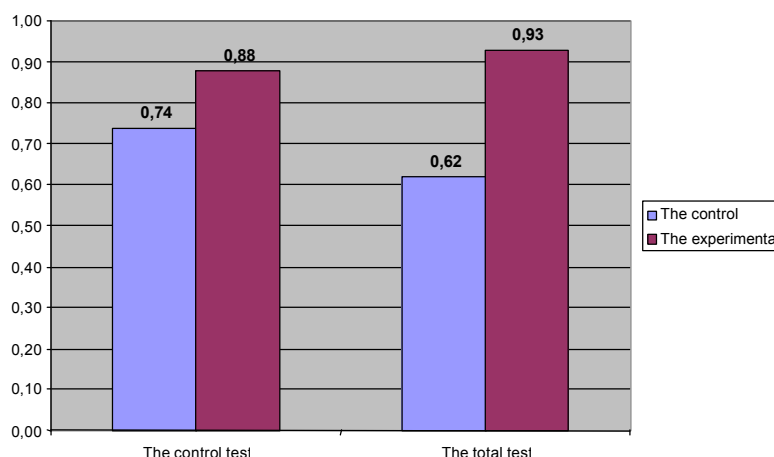
On these values for each group the mean score and a standard deviation (Table 1) have been calculated.

For the given quantity are trained $\delta f = 44 + 42 = 86$. The received empirical value of t-criterion equal $t = 3,376$ exceeds critical for $\rho = 0,01$ ($t = 2,639$), but it appears less critical for $\rho = 0,001$ ($t = 3,416$), hence, it is possible to draw a conclusion on statistically significant distinction of average arithmetic values in two samples and about advantages of the second (experimental) methodical system of teaching.

The total test spent with students of control and experimental group, is aimed on revealing of efficiency of formation of the communicative competence of the future ecologists in the process of teaching foreign language with the use of information technologies. The concept of factor **K** relative total mastering of knowledge by students of one group is entered. The factor **K** relative total mastering of knowledge by students of one group is calculated under the formula

$$K = \frac{1 \times N_5 + 0,9 \times N_4 + 0,6 \times N_3 + 0,3 \times N_2}{N}$$

where **K** - mastering factor, N_5, N_4, N_3, N_2 – the quantity of the students, whose answers are estimated accordingly on “5” - 90-100 points, “4” - 70-90 points, “3” - 50-70 points and N – total of students in group. The result was estimated on the average by the



Pic 2: The Generalized Comparative Results of Examination of Students According to Two Tests

Table 2: The Generalized Comparative Results of Examination of Students According to Two Tests

Groups	K	
	The control test	The total test
The control	0.74	0.62
The experimental	0.88	0.93

following parities: "excellent", at $0.9 \leq K \leq 1$; "good", at $0.7 \leq K \leq 0.9$; "satisfactory", at $0.5 \leq K \leq 0.7$; "unsatisfactorily", at $K < 0.5$;

Results of experiment were processed and tabulated for comparison.

From the received results reflected in (Table 2) and the histogram (Picture 1) and also the obtained results, it is possible to draw a conclusion that experimental work confirmed effectiveness of the process of formation of the communicative competence of the future ecologists in the process of foreign language teaching with the use of information technologies.

Students of experimental group have received high scores in total tests:

- Improvements were observed at students who experienced difficulties in mastering of a material with the use of traditional approaches;
- Quantity of students, who mastered the material of foreign language on base of information technologies and used this knowledge on other disciplines raised and it influenced on the success of the group as a whole;
- Students' results of experimental group were higher, than the results of control group students that proves the effectiveness of the usage of information technologies in educational process;

- The usage of information technologies in educational process improved the progress of forming communicative competence the future ecologists;

CONCLUSION

The carried out analysis of works of many researchers show that the use of information technologies in formation of the communicative competence of the future ecologists in the process of foreign language teaching for the decision of educational problems, training of the specialists with the critical and creative thinking, capable to function effectively in changing conditions of professional work, becomes the integral component of modern education. In modern educational system the tendency of displacement of accents from mastering of knowledge trained on ability to use the information is traced, to receive it by means of information technologies.

Therefore formation of the communicative competence of the future ecologists in the process of foreign language and training of specialists should include system to use of the given technologies in the future professional work, especially in a context of information of a modern society.

In the conclusion it is necessary to notice that now in the world consecutive and steady movement to construction of an information society which urged to create the best conditions for the maximum self-realization of each person is observed. The bases for such process are intensive development of information technologies and creation of the developed information-educational environment.

Studying and the analysis of a current state of a problem of their use in an educational sphere, has shown that there are the numerous works considering possibilities, properties, functions, potential of information technology without an accurate substantiation on the basis of the fact sheet received as a result of practical activities, during experiments. The obvious lack of the researches representing theoretically well-founded methodical recommendations and pedagogical working out on their application is traced. The questions connected with development and influence of information-communication technologies on efficiency of educational process is insufficiently worked. There are no the long and extensive researches showing degree of efficiency and expediency of support of various courses at integration of disciplines through the Internet by means of telecommunication technologies.

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