The use of Information Technologies (IT) in the Formation, Development and Improvement of the Competence of Higher Education Teachers

Rymshash Kameshovna Toleubekova, Galiya Bayzhumaevna Sarzhanova, Sokolova Margaryta Georgyevna, Sarzhanov Dauren Kazhabergenovich and Balabaev Oyum Temirgalievich

The L.N. Gumilyov Eurasian National University, Central Kazakhstan Academy, Kazakhstan; dauren78@mail.ru, galiya008@mail.ru, cpk-kru@mail.ru, sarzhanov_dk@enu.kz, balabaev.ot@mail.ru

Abstract

The article examines the tendencies defining requirements for the level of IT competence of a modern teacher. The results of the study show that the IT competence of a modern teacher is one of the key indicators of the success of his/her activity and at the same time – the necessary precondition for the further improvement of his/her professional competence that determines the significance of developing the system of modern teacher’s advanced training focused in systematic practice of IT. The advanced training models described in the article allow to solve some problems of raising the level of IT competence of the modern teacher, however, they have a number of disadvantages which do not allow to solve fully the problem of the active use of IT by teacher in his/her professional activity. It shows the need to develop a model of advanced training of teachers, based on the idea of integration of the models and personalized demands of the modern teacher.

Keywords: Competence, Education, Improvement, Model, Qualification, Quality, Teacher

The problem of formation, development and improvement of IT competence of higher education teachers is current for the modern higher education.

Despite of the implementation of targeted programs and the project of the World Bank “IT development of Education System”, the level of IT practice by subject-teachers still remains low. By 2013 in Kazakhstan no less than 800 pedagogical specialists had passed the training on IT competence. Herein, 125 teachers were trained on programs of forming IT competence under ISO project. At the same time, in Russia according to the results of study, done in RSPU named after A.I. Herzen, by the year of 2013 65% of teachers (the study covered teachers from regions who participated in ISO project on testing digital educational resources which are combined in unified collection www.sc.edu.ru), have been actively using IT in their professional teaching activity, and sufficiently great percent of teachers (47%) have skills of informative active interaction in educational net in Internet (they are active participants of Internet events, members of net communities).

These are all the results of implementation in Russia the state program “Digital education” 2011-2012 oriented to prepare schools to be transmitted to a new FSES in a framework of which there were trained approximately 1500 tutors-counselors and 65 thousand teachers-tutors by the program of using new IT and most advanced digital educational resources and open educational resources (www.fcior.edu.ru) in academic process together with practicing e-learning (about 10-25 representatives of innovative teachers on different subjects, including teachers of primary schools from each municipal school from 75% of all regions of country)3.

Certain changes of the current situation related to the formation and implementation of a National system of monitoring and certification of computer literacy and IT competence in system of Russian continuous education,
as well as the definition of requirements for training in the field of IT in the Unified Qualification reference book on job positions of managers, specialists and officials of Russia, in which the information competence of teachers is considered as “quality of employee's actions, ensuring effective search and structuring of information, its adaptation to the peculiarities of the pedagogical process and didactic requirements, formulation of academic problems by various information and communication means, qualified to work with a variety of information resources, professional tools, ready-made software and methodological complexes, which allow to design a solution of pedagogical problems and practical problems, the use of automated workplaces of the teacher in the educational process; regular independent cognitive activity, readiness to conduct distance education activities, the use of computer and multimedia technology, digital educational resources in educational process, management of school documentation on electronic media”.

Requirements for practicing IT technologies for the subject teacher includes the following:

- to carry out a conscious choice of educational technologies, including information ones, as well as to carry out a choice of digital educational resources;
- to execute and a control and evaluation activities in the educational process using modern evaluation methods in conditions of information and communication technologies (maintaining digital form of documentation, including the electronic journal and record books of students);
- to know the basic operations with the word processors, spreadsheets, e-mail and browsers, and the multimedia equipment.

Therefore, for the effective implementation of information technology (IT) to the formation, development and improvement of competence of higher education teachers in Kazakhstan there should be developed and adopted based on the relevant national standards of training and retraining of teachers in the IT field.

As a conceptual framework for the development of such standards may be considered “Standards of IT competence of teachers: modules of competence standards” proposed by UNESCO, in which the emphasis shifted not only to the need of the formation the IT competence of teachers, but also to the focus on the update based on the IT implemented the traditional techniques, methods and learning technologies. After developing and an official launch of multilingual versions of “Framework recommendations on structure of IT competence of teachers” (UNESCO ICT Competency Framework for Teachers (ICT-CFT)) in 2011-2012 that particular document nowadays is a base for developing of national (regional) standards on IT competence of teachers. At the same time, proposals of UNESCO should be considered as guidelines and adapted to the specificities of national, including Kazakh, educational system, specificities of the process of IT development, ethno-national culture, traditions and etc.

Further, let us consider the tendencies, defining the requirements to the level of IT competence of the modern teacher.

The first of such basic tendencies is a shift of emphasis from the tasks of technological level (related to possession of the certain tools, certain software products) to the pedagogical one. The information and educational environment should include digital educational resources, “electronic” record book and journal, school web site, environment for electronic portfolio of students and teacher and etc.

A similar situation is observed in the higher school level, where there is a transformation of all processes within the framework of the State program of development of Kazakhstan education. On the other hand, the circumstances connected with the technological provision of the educational process are constantly changing. It shows that teachers and students, in case of self-education, become fully responsible on choosing the available IT tools.

The second important tendency is a spread of “cloud technologies” and global academic platforms (educational environment) in which the significant role is given to distributed resources, created by cooperation of authors. Web-technologies combined all existing solutions (starting from e-mail ending by archive files) by universal interface; and based on speed lines there was created a multimedia platform for the cooperative solution of IT tasks.

The development of individual local offline products (lesson presentations, individual work calendars and others,) lost its meaning as a decent sample of any product is found in the web, and it is irrational to spend the effort to create something like the existing versions of products, it is more rational to improve and develop the existing products. For example, instead of writing the own article in the wiki resource it is more logical to improve
and supplement the existing article (which may require more in-depth study of the material). The second trend is the transition to the joint work in the space of collective authors, where social interaction skills, educational process management, presentation creation are gaining more importance.

The third tendency can be attributed to a reflective competence. Changes in the nature and form of tasks make ineffective the traditional methods of monitoring and evaluation. From the control of clearance of the definite answer there is a transmission to control of versions, to the monitoring of chronological changes in the product, which is the result of joint efforts. Evaluated not only the correspondence of the result with any norms (except, of course, in cases where the subject of study is a standard, normative document), but the proportion of the active participation of the individual in a group project and his/her willingness to reflection on the results achieved. On the physical level, the electronic portfolio as author’s site, blog, forum is result of reflection and the IT tool at the same time. It comes a time when the teacher loses the ability to evaluate objectively the technologies themselves, because they change too often, so that the teacher ceases to be an expert. The third tendency defines that in teaching of IT is more important to gain general pedagogical competence, i.e. skills on organizing the academic process in educational environment, skills of tutor rather than technological skills of programmer or designer.

All of the above-mentioned defines the requirements for the necessity of implementation of innovative models of advanced training of teachers. However, in spite of, the innovative models of advanced training based on IT and e-learning were developed and tested, they are not practiced for the massive usage. The existing prevailing model of qualification development is a course linear model, while the demanded ones are:

- personified model of qualification development with the practice of Internet and e-learning technologies;
- corporative model of qualification development (company training) is a training held at a workplace in an educational institution, taking into account not only the level of saturated formed IT environment of a particular educational institution, but also satisfies the professional pedagogical needs of each individual listener and the whole educational institution.

Herewith, the necessary condition is an accumulative system of qualification development in an environment of continuous education, which considers the constant updating its content to the level of development of as IT itself as modern educational technologies based on IT.

An analysis of training programs at academies and institutions of professional development, which are initiative and implemented in the framework of educational initiatives, bus most of them do not have programs or modules aimed at training in modern educational technologies based on IT, there are not fully introduced the programs focused on training of moderators, tutors, facilitators and also programs for preparing teachers to professional pedagogical cooperation through Internet, which can help to teacher to learn all possibilities for self-education, co-authorship in developing Internet pedagogical communities, and also programs on modern developing models of digital learning (mobile learning, adaptive learning and etc.)

It is reasonable to design the content for teacher training programs on usage of IT in the professional activity considering the regularities of formation of IT competence formation.

While forming IT competence it is necessary to use the following general strategies for task solution: 1) problematic approach; 2) definition of information needs; 3) tactics of information collection; 4) ability to work with information sources; 5) ability to synthesize information received from different sources; 6) creative approach to the task solution; 7) criticality of thinking.

In order to form the necessary skills and abilities it is reasonable to use such thinking techniques as: 1) problem vision; 2) formulation of hypotheses; 3) anticipation; 4) definition of the main point; 5) analysis, assessment, interpretation and fixation of ideas; 6) flexibility in approaches; 7) use of heuristics; 8) understanding of difficult relations; 9) use of the general models; 10) transfer of solution ways to the new situations.

It is necessary to select the contents and the methods of training, promoting formation of such qualities of a personality as: 1) independence; 2) discipline; 3) consistency; 4) motivation; 5) reflection; 6) flexibility; 7) creativity.

The program on increasing the level of IT competence it is necessary to prepare based on didactic principles: 1) real context; 2) feasibility of tasks; 3) avoiding of routine tasks; 4) continuous control; 5) logical partitioning of the material; 6) integration of knowledge, skills and abilities; 7) creative role of a teacher; 8) collectivism; 9) spirit of innovation.
Therefore, the results of the analysis of the modern approaches to investigation of professional activity of a modern teacher in aspect of his interaction with IT allow conclude the following:

IT competence of a modern teacher is one of the most important indicators of success of his/her activity and at the same time it is the necessary precondition for the further improvement of his/her professional competence that determines the significance of developing the system of modern teacher's advanced training focused in systematic practice of IT.

The advanced training models described in the article allow to solve some problems of raising the level of IT competence of the modern teacher, however, they have a number of disadvantages which do not allow to solve fully the problem of the active use of IT by teacher in his/her professional activity. It shows the need to develop a model of advanced training of teachers, based on the idea of integration of the models and personalized demands of the modern teacher.

1. References