

СЕКЦІЯ 2  
ТЕОРІЯ І ПРАКТИКА НАВЧАННЯ

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**THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES  
IN IMPROVING THE QUALITY OF EDUCATION**Mehdiyeva Ruhyya Zahid gyzy,  
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У статті досліджуються питання створення нової моделі діяльності вчителя, а також його стосунки зі студентами, батьками, колегами та використання новітніх науково-технічних досягнень у сфері освіти. Розглянуто потенціал сучасних освітніх технологій у роботі керівників шкіл, учителів, студентів і батьків.

**Ключові слова:** сучасні технології в освіті, інтерактивне навчання, інформаційно-комунікаційні технології, електронні листи, чати, форуми.

В статье исследуются вопросы создания новой модели деятельности учителя, его отношения со студентами, родителями, коллегами и использование новейших научно-технических достижений в сфере образования. Раскрывается потенциал современных образовательных технологий в работе руководителей школ, учителей, студентов и родителей.

**Ключевые слова:** современные технологии в образовании, интерактивное обучение, информационно-коммуникационные технологии, электронные письма, чаты, форумы.

Mehdiyeva Ruhyya Zahid gyzy. THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN IMPROVING THE QUALITY OF EDUCATION

The Present Article studies the issue of creating a new model of the teacher's activities as well as his/her relations with students, parents, colleagues, and the use of the latest scientific and technological achievements in education. Also, it presents the potentials of modern educational technologies in the work of school management, teachers, students and parents.

**Key words:** modern technologies in education, interactive teaching, information and communication technologies, e-mails, chats, forums.

**Introduction.** The formation of information-oriented society and competitive economy with high technology has turned into the guideline of the state policy of some countries. In these countries the information and communication technologies (ICT) act as the most significant factor of development. Having an active impact on the political, economic and social activities of the states, this field preconditions the globalization of economy and social relations. At present the most vital questions are: How is the education system of information-oriented society built? What technologies are used in the modernization of education?

Now much attention is attached to the specialists' ability to work with information and communication technologies and the correct usage of them in all spheres in our Republic. The best way of profound acquisition of the ICT knowledge starts from the secondary school.

It should be noted that in general, the improvement of the education system on the

basis of ICT is one of the main characteristics of the information-oriented society.

For the last 20 years many fields have seen the intensive development historically unprecedented in the world, especially information resources and information industry develop in succession. This intensive development has a serious impact on many fields, first of all, education. Thus, the internal development dynamics of education must be faster than the general development dynamics of the world. Today's education is realized in the environment of "the Information-Education space". This state adds a new component – the component of "information culture" to the teacher's professional training, his/her methodological competence. Along with teaching his/her subject, the modern teacher should also organize the practical activities related to the ICT usage in the significant activity areas of the educational institution, coordinate and manage them effectively. In other words, the modern teacher, especially, ICT teacher should be the information technology man-



ager or information-technology administrator at school, along with his/her pedagogical activities.

**ICT opportunities.** The informationalization of education enriches education with new shades. The teacher is no longer the source of information for the student. The teacher's potentials to create feedback, and assess the student's knowledge get gradually restricted, part of these potentials (sometimes all of them) are transferred to ICT tools. In this situation the teacher carries rather the function of a facilitator-tutor. The teacher does not spend time on transferring information to his/her students. No time is spent on the transformation of educational data to the students and the reception of the acquired educational materials from them on an individual basis (checking up the tasks, asking the lesson, etc.). During the additionally saved time the students get the chance to solve other creative issues. Thus, the structure of the educational-informative correlation gradually changes, while the environment of information – education is being formed, possibilities for a new level information exchange among the teacher, learner and ICT tools are generated.

The main targets associated with the informationalization of the education system have already been defined and a considerable part of the intended activities have been carried out. One of the significant events is the fact that the Ministry of Education of the Republic of Azerbaijan announced 2010 as "the Year of ICT in Education", and conferences, seminars, different stimulating and promotional actions, competitions have been held within this ongoing campaign. It is noteworthy that different foundations, companies, firms take an active part in these actions. Schools are being successfully provided with ICT equipment including computers, notebooks, and interactive boards.

To live, study and work successfully in the modern society which is constantly getting complicated and characterized with the great volume of information, students and teachers should know how to use the ICT effectively<sup>1</sup>. In the logically organized educational environment the students will be able to:

- use the potentials of information technologies effectively;
- find the information, analyse and assess it;
- solve the problems and make decisions;
- use efficiently the means increasing the work capacity;
- participate in the communication process, cooperate, develop and place information;

– become well-informed, active and responsible citizens.

ICT generate great possibilities for the teachers to provide innovative teaching and learning opportunities, enable the students to obtain, select, and explain the information, to model, predict and promote statements, to assess their knowledge and skills, and develop their creative potentials<sup>2</sup>. Also, they play a significant role in the organization of effective school management.

There are the following information and communication technologies in education: Internet, e-mail, forum, video-conference, chat, messenger, web resources, catalogues, electronic textbooks and libraries, search systems, projects, competitions, distant education, news and advertisements, news links, online tests, reference booklets, questionnaires, presentation, animation, multimedia, projects, drawings, diagrams, schemes, maps, electronic textbook.

There are the following ICT implementations for school administration, teachers, students and parents:

**The ICT Implementations for School Administration:** Methodological support; Re-training and In-service training, Information exchange; Communication, Effective Management; Exchange of experience and knowledge; Search for partners; Drawing non-budget means; Improvement of education quality; Improvement of the quality of educational and developmental activities; Marketing; Maintenance of contacts with the graduates.

**The ICT Implementations for Teachers:** Methodological support; Re-training and in-service training; Operational efficiency of analysis and monitoring; Convenience of developing and presenting the educational-developmental materials; Improvement of education quality and students' interest; Access to modern educational methods; Exchange of experience and knowledge with local and foreign colleagues; Publications; Search for new colleagues and partners; Communication; Improvement and constant updating of teaching materials.

**The ICT Implementations for Students:** Access to teaching and methodological materials; Presence of conditions for language learning; Orthographic rules; Individuality; Professional choice; Access to re-training, The search, analysis, processing and presentation of data; Acquisition of practical skills and experience; Development of search,

<sup>1</sup> Mehrabov A. Democratization of Education: Problems, Obligations / A. Mehrabov // Education, Culture and Art. – Baku, 2001. – № 4.

<sup>2</sup> Aliguliyev R.M. The Formation and Development of Internet-media: Guidelines and Characteristics (express-information) / R.M. Aliguliyev, R.Sh. Mahmudov. – Baku : Information Technologies, 2012. – 58 p.



analysis and creative skills and experience; Development of communicative skills; Search for friends and resources.

The ICT Implementations for Parents: Access to educational-methodological materials; Providing technical and methodological conveniences for students; Re-training; Access to the analysis and monitoring of students' performance and development; Improvement of education quality and students' interests; Interaction among the school management, teachers and parents; Finding out the children's areas of interests; Exchange of experience with parents and students.

**II. The advantages of the integration of ICT in education.** The international practice shows that the modern education model built by using the ICT raises new requirements and obligations before the pedagogical staff of school. It becomes vital for the teachers to get re-trained not only in their selected fundamental subjects, in pedagogy and psychology, but also in information area. The new generation of teachers are already required to select and use the technologies corresponding to the structural content and goal of the subjects they teach, taking into account the individual characteristics of children, facilitating the harmonic development of students<sup>3</sup>.

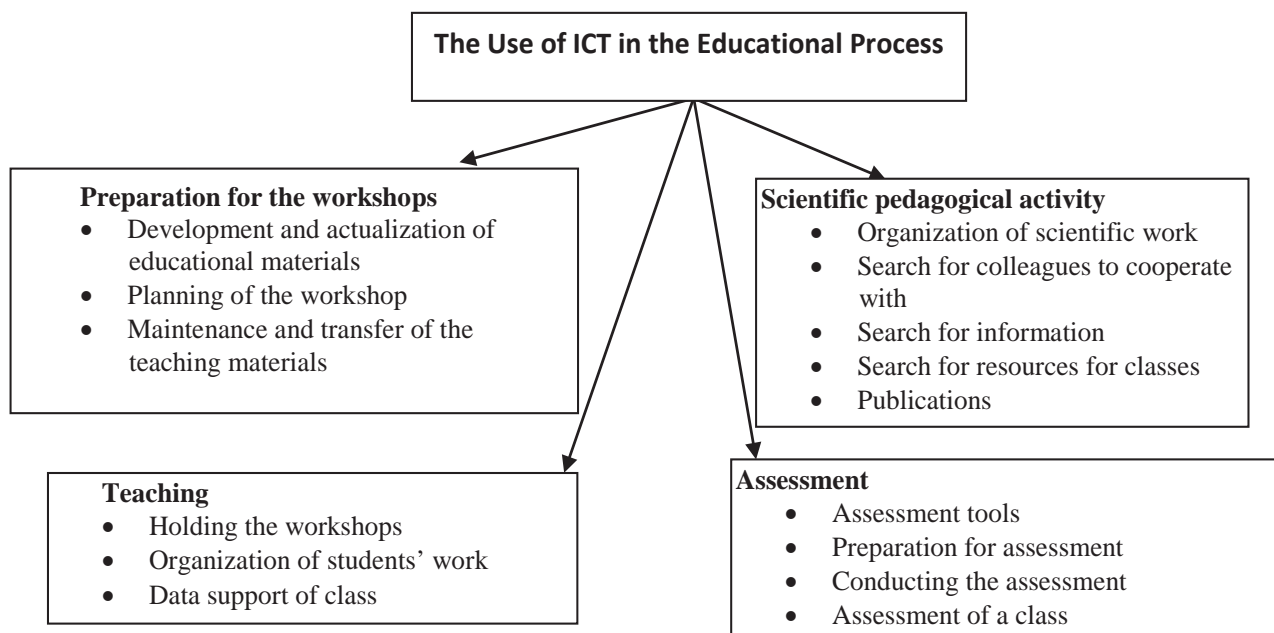
The use of ICT in educational activities can be considered the best example of interactive teaching. The computer tools in teaching

are considered interactive, because they "answer" the student's activity.

The following scheme presents the ICT implementations in the educational process by the teachers (pic. 1):

Through their wide potentials ICT means make the educational process considerably more simple, dynamic and flexible. The addition of a computer to the teaching model "Teacher – student – textbook" enables to organize the teaching process on the basis of individual programs, stimulate the child's interest in class and his/her intention. The computer-aided classes are very attractive and impressive for children. Multimedia devices, automated teaching systems, computer educational programs, animation graphics, colourful illustrations have a positive impact on children's cognitive activity, and consequently, the quality of students' performances in Olympiads and various intellectual competitions grows significantly<sup>3</sup>.

The use of interactive board in the teaching process guarantees one of the key principles of a class, its visibility. By slightly touching the sensitive surface of the electronic board with a special pen or finger, one can perform on it the operations possible on the computer in an interactive regime. "The smart" board can receive the visions which can also be obtained from the microscope, scanner, digital camera, video-camera attached to the comput-



**Pic. 1.**

<sup>3</sup> Mehrabov A. The Technology of Developing the Personality-oriented Education Standards / A. Mehrabov // The Azerbaijani School. – Baku, 2005. – № 4 (596).

<sup>4</sup> Sadigov I. Information Studies: The textbook for the 11th grade of secondary schools / I. Sadigov, R. Mahmudzadeh, N. Isayeva. – Baku : Bakunashr, 2010. – 127 p.



er and other devices through the over-head projector which is of great importance in the organization of virtual laboratories in schools. Students can watch on the screen the explanation and video records of any chemical reactions, physical, biological, geographical processes, the operational principles of different devices, tools, and technical means on the "magic" screen. This animates the teaching considerably by integrating the students' theoretical and methodological knowledge, practical skills and experiences, further increases the children's ability of creative approach, thinking, proactivity, profound understanding of the educational material. One should also underline one more advantage of the "Smart" board that it is possible to store all the operations carried out on it, the course of the lesson, the prepared clichés in the hard disc of the computer and use them repeatedly. These options are of particular importance for the students missing classes or lagging behind for different reasons. Since, the student can later familiarize himself/herself with the electronic version of the class he/she couldn't attend or those who lag behind can watch the same material in the computer repeatedly until they completely master it.

The interactive classes provide the students' role as the central figure. The teacher mainly acts as a consultant who assesses the students' competence and original ability, and encourages them to be active, independent and pioneer<sup>5</sup>. In electronic training all the children become enthusiastic to go to the board and perform all the tasks given by the teacher. The classes taught in interactive regime create favourable conditions for all the children including the passive, shy ones, and the ones with physical or psychological disabilities to join the educational process actively. Given that the primary school children have strong, visual, artistic, live thinking, the use of the methods involving the children's visual and auditory perceptions, emotions and imaginations in their classes is of great significance. Conducting the classes in an interactive regime is very fruitful.

The use of ICT enables the teacher to carry out the following, – To make use of textbooks, ways and means in order to encourage the students to activities (for instance, reading, working with the computer, doing exercises, doing researches, preparing for presentations, solving equations, making up graphics, maps and drawings, writing texts, songs, pro-

jects and programs, drawing pictures, making objects, etc.), increase their independent analytical, creative and research abilities.

- The students and teachers' use of computers, internet facilitates the development of their knowledge, skills and abilities.

- The effective use of class time. To structure a class, develop and present teaching and methodological guides, optimize and automate the teaching activity. To govern and change the teaching process.

- Make use of interactive and conversational teaching process. The ICT have a capacity to react to the students' and teacher's activities, to enter into a dialogue with them which constitute its main characteristics. To take into account the student's individual needs, by creating favourable conditions for a convenient, independent handling of the computer.

- To integrate effectively the students' independent and group works. That is, one can select the difficulty level of the tasks.

- To follow the students' performances efficiently, obtain a general view of all the students' acquisition level of the taught material and detect the student's achievements and the problems he/she encounters, search for untraditional teaching forms and methods which also provides the teacher's professional development.

- To show to the student objectively the outcomes of testing by pointing out the mistakes.

Thus, the use of the ICT helps the student to get, acquire and transfer the data for better acquisition. It also plays an important part in the strengthening of the student's cognitive activities.

When preparing for a class with the ICT, the teacher should develop a plan in accordance with the objective of the class and follow the key didactic principles in the choice of the teaching material: **systematicity and consistency, availability, differential approach, scientificity, etc.**

Thus, ICT play an important role in the improvement of the quality in education. At present one of the guidelines of development of modern society is computerization and informationalization of all the spheres of social life.

That is why, as one of the eight Development Goals of the Third Millennium adopted by all the UN-member states, the guideline for the development of the global partnership states that there should be an opportunity to benefit from the ICT. The ICT are dynamically applied in all the spheres of social and economic life, as it has a serious impact on the development of society and economy.

<sup>5</sup> Aliguliyev R.M. The Formation and Development of Internet-media: Guidelines and Characteristics (express-information) / R.M. Aliguliyev, R.Sh. Mahmudov. – Baku : Information Technologies, 2012. – 58 p.





**Conclusion.** The history of education with the ICT is very young in Azerbaijan. Nevertheless, certain actions have been taken and successes achieved in this field. It should also be noted that ICT means considerably simplify the education process, make it dynamic and flexible.

In general, the improvement of the education system based on the ICT is one of the key characteristics of information-oriented society.

So, the use of information and communication technologies in teaching process generates great possibilities for the teachers to provide innovative teaching and learning potentials, and they also play a significant role in the organization of efficient school management. It also has a positive impact on the relations between the teacher and students, generate favourable conditions for the extensive relations and students' independent work. The educational, developmental and disciplinary functions of learning are manifested more vividly. It enriches the class, discovers talented students, creates necessary conditions for their development, makes it possible to bring visibility to the explanation of the topic, to form the students' world-outlook and raises the quality in education, develops

the students' knowledge and intellectual level. We can achieve successful outcomes by building Azerbaijan's education model using the modern ICT based on the world experience, meanwhile taking into account also the national interest and characteristics of our nation.

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