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**PRIMARY EDUCATION TEACHERS' PROFESSIONAL
PREPARATION IN THE FIELD OF INFORMATION
TECHNOLOGIES**

*Teacher should take into consideration
the diverse ways aiming at opening minds
and using them adequately to the circumstances.*

Jan Amos Komensky

In the contemporary world there are made strategic changes in the field of technologies of education. They are determined by introducing modern informational and communicational technologies to the system of education. The technologies aim at interdisciplinary and systemic depiction of many educational issues. They force also using a new form of methodology of teaching at all levels of education.

In Poland we start to see exemplifications of these processes. Technical progress, observed at school, strongly influence the process of education and its participants, namely students and their parents, as well as teachers. Computer, considered as an educational phenomenon, has become a carrier of changes enabling the revision of the dogma saying that school offers the students optimal conditions for education. It has become a carrier of a change and herald of educational reforms that constantly modifies the process of teaching and learning¹.

From the moment of introducing computers to education, training teachers «for the future» has become a necessity. New information technology, as M.M. Sysło emphasizes, enriches knowledge and abilities of teachers in three different fields: own professional preparation, possibilities of teaching and possibilities of learners. There are three characteristic levels of education connected to these spheres. These are: planning (the way information technology might be used in teaching and self education of learners); organization (the way to include IT tools to the process of education); and evaluation (the level in which IT influences the improvement of effectiveness of teaching and learning)².

In the sphere of education assisted by computers the most important are four elements:

1. computer hardware (computer with peripheral devices and an internet connection);
2. software;
3. web infrastructure;
4. well prepared teachers³.

¹ S. Juszczyk, Technologia informacyjna w procesie kształcenia, doksztalcania i samodoskonalenia, (w:) B. Siemieniecki (red.), Pedagogika medialna, Warszawa 2008.

² M.M. Sysło, Szkoła początkiem profesjonalnego przygotowania przyszłych nauczycieli w zakresie technologii informacyjnej, (w:) J. Migdalek, B. Kędziarska (red.), Informatyczne przygotowanie nauczycieli w okresie zmian i transformacji, Kraków 2002.

³ www.wsp.krakow.pl/konspekt/13/morbit13.html [20.08.2010].

Until recently, computers' and internet connections' accessibility was considered the main barrier making the use of information technologies in the didactic work of a teacher difficult. Yet, on the basis of researches lead on the territory of Poland it may be said that computers are undeniably present in a contemporary school. Outer condition and possibility to act has been assured. But the situation in the sphere of inner possibility to act is much worse, and these are teacher's abilities and his will to work using computer⁴. There are only few teachers prepared to use computer methods and techniques in the classroom, and even fewer uses modern technologies in teaching. Application of computer technology in the character of a didactic mean is often a coincident, occasional act, done without appropriate knowledge. In this situation the effectiveness of taking such actions is really insignificant.

It is thus necessary to make preparations to use information and communication technologies, both when working by yourself and while didactic work with students. Such preparation should include information and abilities form the following spheres (which simultaneously determine groups of standards)⁵:

1. basis of using of the terms (terminology), means (hardware), tools (software), and the methods of information technology;
2. information technology as an element of teacher's workbench;
3. the role and usage of information technology in the domain taught by the teacher;
4. adequate usage of information technology as a didactic mean in the domain taught and at the stage of teaching – planning and designing the environment of teaching, evaluation of advantages;
5. humanistic, ethical-law and social aspects, connected to the access to information technology and making a use of it.

The most important thing in standards is that they concern all teachers equally. They do not confine to definition of competence, that teachers should have when teaching certain information subjects, but concern requirements that schools and teachers have to meet according to programmatic standards of education included in Teaching Curriculum [by Ministry Of Education in Poland – *translator's note*], in the range where IT is used in teaching in different domains, they precise how all teachers should be prepared in this field. All of the issues, excluding those from point 4, constitute standards of education of all graduates of universities to use IT. Point 1 and 2 concern an information education of teachers (obviously, properly adjusted to a domain taught), point 3 concerns the knowledge of how to use IT in the domain taught, point 4 concerns information technology as a technology of teaching, and point 5 is a reference to a social aspect, connected with the technology and being common to all groups of teachers.

With reference to the teacher of a subject different from IT subject it is a

⁴ W. Zaczyński, O dwojakich warunkach wykorzystania komputera w nauczaniu, (w:) materiały 13 Ogólnopolskiego Sympozjum Naukowego «Komputer w edukacji», J. Morbitzer (red.), Kraków 2003.

⁵ M.M. Sysło, Standardy przygotowania nauczycieli w zakresie technologii informacyjnej i informatyki, «Komputer w szkole», nr 2/2003.

standard that: he is «a teacher of information and communication technology in the same sense as being a teacher of reading, writing, or counting»⁶. Competence of the teacher of IT is an extension of competence that each teacher should have in the scope of information technology, with the competence necessary to teach the IT subject at school. Additionally his competence should include: knowledge and ability in the IT field, workbench of an IT teacher, methodology of teaching of the usage of computers and IT, using the information technology while learning other domains. The analysis of Teaching Curriculum for information subjects on different levels of education shows that these are aimed at improving spirally developed abilities and knowledge within information technology, taking into consideration the students' needs, emerging from their intellectual development, the level of education and growing range of possible usages of information technology in the process of education.

However, developing standards does not guarantee reaching the goals aimed. It is necessary to create a system of training for teachers based on the standards.

The process of preparing teachers to gain competence enumerated in the standards should be considered on two levels:

1. IT education for the teachers-to-be during their studies;
2. additional training of active teachers at methodical training, courses and workshops⁷.

Currently teaching of future teachers in the field of using information technology is formally accepted element of education at universities and at pedagogical schools. But it should be taken into consideration that the considerable number of economically active teachers graduated in times when the ability to use a computer was not so important. What is more, information technology is a fast developing branch of engineering, thus there is a necessity of constant development and actualization of knowledge and abilities in the scope of computer assistance in education.

The issues presented have become a reason to conduct a research on competence of teachers of a primary education in the scope of information technology. The population examined was chosen randomly. For it is a fact, that IT based education should begin at the level of primary education during its first three years, so it is important to become acquainted with the level of primary teachers education to realize this goal.

Research was made at the turn of March and April 2010 on a group of 53 teachers. The most numerous group were the respondents with a Master's Degree (88,7 %). Almost a half of the interviewees (41,5 %) has a diploma in two specialties. Postgraduate training in the field of Information Technology was done by 11,3 % of teachers. Training, courses, seminars concerning the use of IT were attended to by 43,4 % of questioned teachers, and 18,9 % took part in methodological workshops that dealt with issues of their interest. A part of the

⁶ M.M. Sysło, Szkoła początkiem profesjonalnego przygotowania przyszłych nauczycieli ..., op. cit.

⁷ G. Kiedrowicz, Teoria i praktyka informatycznego przygotowania nauczycieli, Radom 2000.

respondents (9,4 %) has done more than one form of self development. Among the interviewees were people who never attended any forms of additional training (35,8 %). However, it should be said that a part of them graduated in times when higher education schools and universities had introduced a compulsory program of teaching IT.

At this stage we come up to a problem whether participation in training is connected with gaining abilities in using various technical means and computer programs, and also what is the level of IT competence of teachers. As to get the most unprejudiced and comparable results, some detailed abilities enumerated by A. Bartoszewski⁸, being the indicators of competence under research, were used:

1. low level of competence: using tools and means of IT in a very limited degree, familiarity with the basic knowledge of how to use an operating system and software to edit a text, ability to use the WWW services to open internet websites at a given address;

2. medium level of competence: the ability to install and uninstall software taking into consideration the needs and aims, work with text editor and spreadsheet, using electronic mail and the WWW to search for desired information on various websites;

3. high level of competence: using a computer with its peripheral devices, using various types of utility software, creating own presentations in special programs; using various sources when searching for information made available by IT, using electronic mail and discussion groups, creating simple websites.

The majority of questioned teachers can use a computer (90,6 %). Only 9,4 % of respondents, namely 4 people, are complete ignoramuses in the field of using the appliance. But 8 people (16,3 %) claims that their process of information literacy in IT is highly advanced. They estimated their own abilities very well. They are teachers, who graduated from IT specialty studies (6 people) and those who described themselves as computer hotheads (2 people). Medium level of abilities was declared by 12 (24,5 %), and a low level by 29 interviewees (59,2 %).

The data obtained show that many teachers see themselves ready to undertake educational actions that are based on computer technology. It is interesting how declarations of being prepared to use modern media tools in didactic work are realized in practice. As it has been proved, most of the interviewees (73,6 %) uses press and video at work with students, almost a half (43,4 %) uses a cassette or CD player and television set, and 11,3 % uses computer in the classroom. It shows the lack of such utensils at school, because 37,7 % of teachers claimed that when they prepare oneself to a lesson, they use the possibilities that the utensils provide, and 43,4 % enriches their classes with information found on the Internet. Almost 87 % of interviewees has a Personal Computer at home, and 66 % of them has a possibility to use the internet resources.

Declaration of being willing to use technical achievements in the process of teaching is not always equivalent to a possibility of a practical usage of mod-

⁸ A. Bartoszewski, Przygotowanie informatyczne nauczycieli fizyki, Materiały konferencji «Informatyka w szkole», Wrocław 2004.

ern didactic tools. Within the interviewed group there is a high conscience of necessity to support the didactic process with new technology (88,7 %). Teachers emphasize that students take part in classes, where media are used as a didactic help, really willingly. The teachers also show a high level of effectiveness of using such methods of teaching. Information Technology provides with methods and means due to which it is possible to view the contents of teaching more fully, and what is more, it enables to get to know important information, which could not be understood without computers.

From the data presented in the research we can depict a dominant situation in the process of primary education. Despite the fact that children are interested in modern forms of presenting information, traditionalism in teaching is still lingering. A proper education of teachers could change this situation. It is therefore important that teachers should work with knowledge, new technologies and information, feel the need of constant improvement of their qualification and requirements. It will enable them to keep up with technical achievements and also their students.

There came a time when teachers are conscious that «information technology are an engine of development and that it is unstoppable. Nation which wouldn't buy their children first class tickets for that train, condemn itself for vegetation on the periphery of 21st century civilization»⁹, must treat information technology as a fundamental component of education and teaching. Accomplishment of this goal is difficult, but not impossible.

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⁹ M. Kąkolewicz, Komputer dla berbecia, «Edukacja Medialna», nr 2, 1997.
