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Gabriela Kierzkowska

Nicolaus Copernicus University, Toruń, Poland

e-mail: gabikierzkowska@op.pl

Information Technology and Teacher Professional Skills in Early School Education

Abstract. The text attempts to connect information technology with professional competence of a teacher in early school education. The subject is presented by polish scholars and foreign authors who publish in polish literature. On the basis of general, existing deliberations concerning the issue, I pay particular attention to the role of the competence of an early school education teacher in the process of human development. There is a discrepancy in teachers information technology skills and needs and challenges of the knowledge society what is proved by a fragment of my research presented in this article.

Keywords: information technologies (IT), information and communication technologies (ICT), teacher's competences in early school education, role of a teacher, qualifications of a teacher in early stages of primary school.

Introduction

A dynamic development in technique and information technology has caused a breakthrough in existing methods and means of education on every stage of education and particularly in fundamental, early school education. Current *information technology* gives numerous possibilities of obtaining information and passing the knowledge.

The term *information technology* derives from the analysis of the *term of technology* which is an applied science. It refers to the process

of creation from the output materials and follows the rule that human rational productive activity is accompanied by three questions: What? What is it made of? How? (Juszczak, 2008, p. 16–17). A detailed analysis of *technology* proves the necessity of addressing *information technology* in two ways, i.e.:

- *informatics technologies* – the overall of technological activities connected with architecture design, creating technical means in IT, e.g. integrated circuits, processors and computers and developing system software and utility software.
- *information technologies (IT)* – the overall of methods and tools to process information, including methods of searching, selecting, gathering, saving, storing, sending and deleting.

In reference books we may find an alternative definition of the term *information technology*, i.e. “a set of modern devices used in communication process” (Skrzypczak, 1999).

The connection of *information technologies* with the notion of *communication* has resulted in the development of *information and communication technologies (ICT)* which influence significantly a proper human functioning. Within ICT various scientific disciplines are integrated, contributing to interdisciplinarity and transdisciplinarity of notions connected with processing and perception of information and to information globalization (Juszczak, 2008, p. 16–17).

The mentioned above definitions of *information technologies* confirm my opinion that this discipline can be widely implemented into various fields of science and social life. It can be observed in every step of human everyday life.

The education is one of such spheres of life. Modern *information technology* has a great influence on changes in the process of learning and upbringing, and on new challenges and directions in school education, including early school education. The education should aim at considering the conditions in which it takes place. In order to prepare next generations of conscious recipients and users of the technology, it should also include the technical conditions of society's life. The new vision of education highlights the need of supporting and redirecting human individual development and not concentrating on passing the greatest possible amount of ready materials. Modern teaching should be creative

and innovative, concentrated on stimulation, activation and development of cognitive activities, both of a student and a teacher.

In reference literature there is a great interest in the issue of both polish education system and the teachers development. Searching new, precise solutions concerning teacher's role models is still up to date and is in the scope of interest of appreciated polish pedagogues, i.e.: M. Cywińska (Cywińska, 2013), K. Denek (Denek, 2012, 2013a, 2013b), J. Szempruch (Szempruch, 2011).

Modern civilization influences reforms in the system of education, modifying tasks and activities of teachers.

The most important ones are:

1. Organization of students teaching process, with teacher's managing and supportive role. The aim is to stimulate multifaceted activity, directed to formulation and realization of education strategy: *Understanding the world – directing yourself*;
2. Organization of the upbringing process at school and environment, influencing the social activities of young people, participating in shaping their characters. The teachers are also supposed to teach youngsters coexistence within communities, the autonomy development and realization of child's rights;
3. Care of young people, diagnosis of situations and needs, socialization and resocialization, acting against social pathologies. Cooperation with family and social environment, developing an enhanced dialogue between all educational entities, concerning a child, a school, a family and an environment;
4. Orientation and support of young people in their life and education plans, in case of changes that originate from the process of system transformation, the needs of *job market*, crucial influence (not always positive) of social mass media on the young people. Teachers are aware that it is inevitable to search for new solutions, to learn and to develop professional skills. (Kuźma, 2011).

Teacher Professional Skills

A teacher, as a professional, and not only a person performing an educational occupation on a diverse job market (e.g. teacher in kindergarden,

in primary school, or further education), can be scrutinised thoroughly, e.g. from the perspective of pedeutology (Wenta, 2001, p. 74–82). On the grounds of pedeutology, which is a subdiscipline of pedagogy, the teacher (pedagogue) is still a subject of research for many recognized polish scholars (psychologists and pedagogues), such as Jan Władysław Dawid, Ludwik Bandura, Maria Grzegorzewska, Stanisław Baley, Zdzisław Mysłakowski or Wincenty Okoń.

The subject of a modern teacher may be discussed both in reference to scientific and sociological aspects. On the one hand it is hard to question the claim that the teacher of the future should be rather a support for the development of his or her students (pupils) (Denek, 2005, p. 213–222) than a person who passes all the knowledge, especially that all information is now available outside the school. On the other hand, however, the society has growing requirements towards the teachers and demands responsibility, creative and active attitude and *professional skills* gained in the process of professional preparation and practical experience.

A modern teacher in European school is a “creator with comprehensive activities, inspiring to action and search, teaching an openness to other person, an initiator of educational life” (Kucharska, 2005, p. 214).

A. I. Brzezińska attempts to describe a role of a modern teacher in the cited fragment:

“The role of the teacher is one of the most difficult of all professional roles. On the one hand his task is to play, in front of changing generations of students, a role of a guard of the tradition, the source of basic, or even classical, knowledge, an instructor of skills from the area of *sin qua non*, i.e. somebody who shows the duration and cares for continuity. On the other hand, independently of how old is the teacher, how long he works and what is his factual preparation to the role of a teacher of a particular subject, he is expected to introduce children to the changing world. He is also expected to equip children with necessary skills and to work on crucial competences (whatever it means), to prepare children to manage in constantly changing world. This world is open for new spheres, more mobile and harder to predict. What is important – in the world where for children, youngsters and young adults, the reality becomes as important as virtual reality” (Brzezińska, 2008, p. 35).

R. Sadowska (Sadowska, 2004, p. 5–6) highlights that teachers in the process of education have to play certain functions: manager, observer,

diagnostic, educator, organizer, decision maker, presenter, facilitator, motivator, advisor and reviewer.

In order to fulfill all the functions effectively, J. Kostek states that the teacher is obliged to improve constantly (Kostek, 1979, p. 464). The functions of ongoing education are as follows:

1. Adaptation – introducing the candidate into the profession;
2. Recycling – broadening the education obtained so far and updating one’s knowledge in reference to new scholar achievements;
3. Specialization – enables the teacher to apply for managerial positions and to obtain qualifications;
4. Innovation – preparing teachers to changes that are introduced gradually in didactic and developmental work.

The requirements for the tutors refer to the areas of effective knowledge transfer and application of learned material. In other words it means acquiring the practical skill of applying the knowledge to everyday life of the students. We are aware that teachers, and in particular the early school education teachers, play an important role in shaping students personalities and advancing interpersonal and communicative skills. Due to the characteristics of developmental periods, early school education age is a particularly significant stage in the acquisition process. This is the reason why professional skills of modern teacher are so vital. The reference books enumerate some of them: individual talent, abilities, system of knowledge, experience, attitude, professional activity and features of an individual person. All the mentioned above elements influence performance and effectiveness of actions performed in order to fulfill specified standards.

So what does the term *teacher professional competences* (with highlight on early school education) refer to?

The analysis of the term *competences* allows us to understand better the entity of the notion of teacher professional skills.

Following the most general perspective of PWN Encyclopedia (1999, p. 367), *competence* is “a picture of capacity, ability, skills, habits and routines. The word derives from the Latin term *competentia* and is understood as having the knowledge which enables one to make a judgement; expressing authoritative opinion. The person may assess the issue due to information and experience he or she has. In this sense, a full person is the one that has a proper preparation to certain activities”.

In pedagogical literature the term *competences* appears in various contexts.

New pedagogical dictionary (Okoń, 1996, p. 129) explains the term as: the ability to perform a certain scope of tasks; is a result of the learning process.

According to M. Czerepaniak-Walczak (Czerepaniak-Walczak, 1997, p. 89) the definition of *competence* includes:

- the ability to set appropriate and socially adequate standards of behavior,
- the awareness of needs and results of certain behaviors,
- responsibility for the decisions made and the consequences of behavior.

The author defines *competences* as a harmonized composition of knowledge, skillfulness, understanding and desire. Dynamics is a characteristic feature, i.e. new information and experience can be introduced to already existing structures or it is repeated in various contexts.

W. Andrukowicz (Andrukowicz, 2001, p. 33) is of the opinion that *competences* can be juxtaposed with human thinking and than they mean “the knowledge about thinking processes, skills and the manner of valuation of certain types of human thinking during taming the world”.

As K. Paćławska presents the issue (Paćławska, 1995, p. 195), *competences* are referents (physical object that reflects the name) of instrumentalisation of a pragmatic sense of human activity, and in practice “creative and skillfull application of best solutions that create certain didactic situations with an openness for a change”.

Numerous pedagoges mention the issue of *teacher professional competences* because of the characteristics of the profession. Let me remind that S. Wołoszyn (Wołoszyn, 1993, p. 439): “The teacher profession is characterized by the fact that only well prepared specialists, used to didactic and teaching work in educational institutions may perform this job in educational units, i.e. nurseries (children 1–3 years old), kindergardens, schools and other courses. Historically speaking the term ‘teacher’ and ‘teaching profession’ included private and family and private ‘janitors’, mentors, government nannies, coaches. And currently we metaphorically refer to ‘teacher’ as various means of cultural impact (mass media), e.g. a book, a magazine, theatre, film and television”.

Due to the technical and technological development and a need for constant education, and pedagogical literature provides a lot of information on the level of education, qualifications, tasks and functions of teachers, didactic work conditions, styles of work and social prestige (Banach, 1994, p. 435).

So, what competences and features of a modern teacher are demanded *teacher professional competences*.

Competences discussed above have a set of characteristic features, i.e.:

- they have a subjective character, as they always belong to somebody;
- they are gradable and measurable, they differ in level and score;
- there is a possibility of operationalization and establishing a scale to assess them;
- they enable effective realization of tasks on a certain level;
- they are connected with a specific situation, they are directed in a certain way, they refer to something;
- they constitute a closed system, as they refer to a particular area of content (depending on the situation). Because of that fact they can be analyzed in reference to distinguished areas in education;
- competences are always a manifestation of human potential, reflected in the form of motivational acts, not only in task situations but also always in reference to somebody;
- gaining competences is a continuous process, that occurs in specified didactic, life and productive situations;
- it can be pointed to what extent the competences were mastered, It is gradable, it is related to standard levels;
- competences have dynamic and situational character;
- the positive transfer is characteristic for these competences. They have possibilities to move to different task situations. Optimum professional development of a person relies on the reorganization and integration of all competences gathered during life. Most of the competences include the ability to generate creatively new behaviors and to combine acquired elements (Furmanek, 2007, p. 14–15).

On the basis of analysis of various available publications the term *teacher professional competences* can be discussed from various perspectives.

Analysing English literature, S. Dylak differentiates three groups of *teacher professional competences* (1995, p. 38–39):

- *basic competences*, that include: interpersonal competences (they describe activities proper for a given situation), autocreative (the teacher as a creator of his own pedagogical knowledge) and realisational;
- *necessary competences*, they include realisational skills, i.e. a teacher fulfills educational tasks within the objective to which activity is directed, the progress of the organizing process and a general scheme of an action;
- *required competences*, although they are not inevitable in the teaching profession, these skills may prove to be extremely useful (e.g. hobbies and skills related to sport, music, art, theatre, etc.)

A detailed description of *an early school teacher professional competences* in a reformed school was provided by P. Kowalik (Kowalik, 2003). He mentions three following types of competences:

- *essential (specialist)* – a qualified teacher knows what he does not know, but is able, if it is necessary, to say it to children and this is the situation that stimulates children to express their own doubts;
- *didactic* (the ability to create educational opportunities, which foster discovering and becoming familiar with particular fields of science and also enable to choose material for classes in a thoughtful and organized way);
- *psychological* (the ability to motivate students to learning, organization of didactic situations, diagnosis of the pupils, a skillful communication);
- *moral and spiritual* (developing predispositions and talents of students, care for the development in agreement with the idea of humanity).

When professional competences of teachers are mentioned, it is also important to list general rules defining *teacher professional competences*, based on a report from 2006, concerning elementary education and its situation (Zalecenie..., 2006, p. 91). In the documents connected with education, European Union differentiates three common rules describing generally *teachers professional skills*. So the teacher should be able to:

- use modern information technologies and varied sources of knowledge;
- cooperation with various groups occupying the sphere of education (students, colleague teachers, parents, local council and other partners);
- cooperation with a society and within the society – on the local, national, european and global level.

It is worth adding that the report mentioned does not form standards and does not mention the factors leading the tutorial development. Nevertheless they constitute one common element of many national programs addressed to teacher development and preparation.

Research Results

As a part of my Ph.D. programme on Information Technology supported educational classes in early school education, in 2014–2015 I carried out questionnaire research among teachers in chosen schools in villages and in cities. The research included schools from Pomeranian and West Pomeranian provinces, 239 teachers participated (97% women). One of the questions asked referred to education of respondents and the first chart presents results of this question.

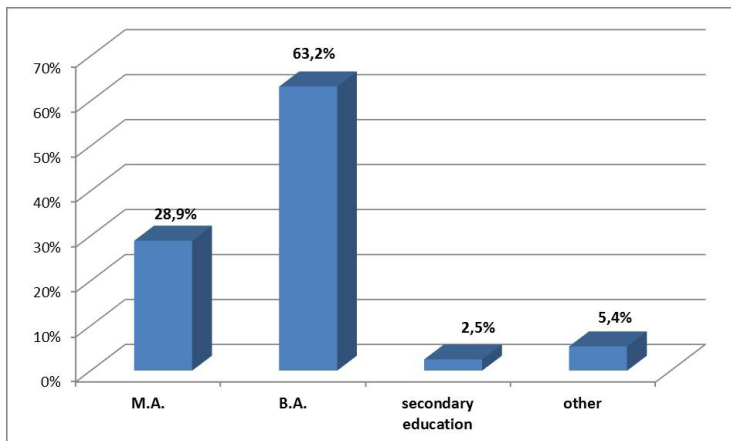


Chart 1. Education

Source: own materials

As the chart illustrates, most of the teachers had a B.A. – 63,2% (151people), every third person had an M.A. (69 respondents).

The next important piece of information was the one referring to computer education. But it was not optimistic and further analysis. The results are presented in the Chart no. 2.

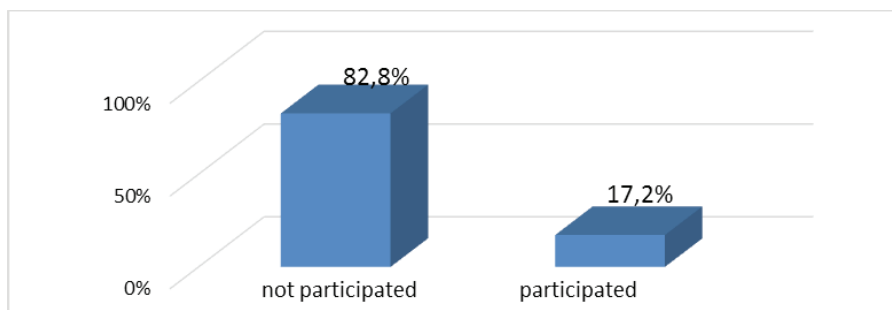


Chart 2. Participation in computer trainings

Source: own materials

82,8% (198 respondents) of questioned teachers has not participated in any computer trainings.

The data I have presented suggest the need for constant development and improvement of teachers – a driving force of the idea of modern education. If a person wants to achieve something, he or she has to use power to obtain it. In case of a teacher, knowledge, skills and commitment are a driving force in effective didactic work.

In both polish and foreign literature *teacher professional competences* are a subject of a vivid discussion of numerous scholars, ie. R. Arends, Ch. Kyriacou, J. Prucha, R. Fisher, G. Mietzel, R. Kwaśnica or W. Strykowski. It is hard to mention all the names of pedagogues and teachers inspired by an issue of *teacher professional competences*.

To conclude the considerations on information technology and teacher professional skills in early school education, an early school education teacher should be definitely a professional and a reflexive practitioner performing well his didactic work. His gained experience has to be well grunted in various fields of science, i.e. psychology, pedagogy and the knowledge of needs of the modern knowledge society.

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