PRE-SCHOOL TEACHERS' INFORMATICS AND INFORMATION LITERACY

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Abstract

The life and activities of every man in the period of transition from the second into the third millennium have been marked by epochal changes which appear as the consequence of scientific and technological revolution dominated by highly developed information and communication technology. Informatics and information education based on information and communication technologies is information society's basic trait and premise for technological education of all persons involved in the educational process. The work deals with the necessity of transformation of the present pre-school teachers' concept of informatics and information education subject to conditions of reformatory processes in higher education of the Republic of Croatia. Suggestions and possible solutions for the change of curriculum and pedagogical aspects of the realization of preschool teachers' education are provided.

Keywords: information literacy, informatics literacy, pre-school teachers, information and communication
technology

1. Introduction

The concept of "information literacy" emerged in early 1970s. It was used for the first time by Paul Zarevski in 1974. Information literate person is a person who has learned how to learn, how to find required information and particular knowledge and how to use them.

The 21_{st} century is known as "the century of knowledge" or "the society of knowledge". The number of information sources has been rapidly growing today. "If we compare any institution's information sources we will run across similar data about the number of media stored documents, which may amount to: $_4 10 * n$ of books, $_2 10 * n$ of magazines, $_1 10 * n$ of CD ROM, $_2 10 * n$ of floppies, $_9 10 * n$ of information on the web" (Težak, 2002).

Teachers' information and informatics literacy on all levels of education significantly influences the course and the quality of the teaching process; it marks its nature and character and therefore to a great extent defines the degree of contemporariness and functionality of the educational process (Mušanović, 2003).

Since the appearance of the information and communication technology (ICT), the tendency of introduction as much technological equipment as possible into the educational process has been present (Lowyek and Van den Berg, 1991). However, technology by itself cannot bring to the expected transformations in the educational process, unless we don't consider complex pedagogical conditions of its application (Spector and Davidsen, 2000).

Many domestic and foreign researches indicate that new ICT may be an important factor of modernization and rationalization of the educational process, increasing its quality, democracy

and successfulness but demand new instructional design, which will deliver certain positive effects and influence transformations in higher education. Formal transformations in the higher education of the Republic of Croatia based on the provisions of the Bologna Declaration are a real starting point for the introduction of changes into the Croatian pre-school teachers' higher education. The reforms of higher education do not only occur by means of the so called formal and centralized reforms, but they also occur influenced by continued socio-pedagogical, information and communication and technological changes in a real pedagogical environment. They are also defined by activities and characteristics of the subjects of the educational process as well as higher education teachers' epistemological points of view, that is the views of the nature of teaching and learning as well as the experience and professional training of higher education teachers (Mušanović, 2003), (Tatković, 2004).

2. Need for new competences

New media and the changes on the labour and education markets caused by information and communication technologies are far reaching. Their effect may be seen already today in the process of learning and teaching, therefore teacher training colleges and pre-school teachers' higher schools are invited to develop appropriate pre-school teachers' competences, which will be encouraged and continuously improved: individual learning, problem thinking, team skills, intercultural communicative skills, creative thinking, and skills of self-presentation and recognition of future business demands. Unfortunately, "in school and university education key qualifications, for example the development of individual learning and media competence, have an inferior role.
This is also true, even to a greater extent, for the education of teachers (Gehrmann, 2004).
In broad terms the concept of competence is the basis of human resources' education that will lead to quality changes on the individual as well as on the general plan. Therefore the questions arising from the point of view of information and informatics are as follows:

1) How to integrate the mentioned competences into pre-school teachers' education curriculum?
2) Which innovative methodical and didactical design is to be applied in the higher education teaching in the process of pre-school teachers' information and informatics education?
3) How to evaluate additional competences of pre-school teachers about the application of ICT in education, for the purpose of motivating pre-school teachers for lifelong learning?

3. Information and informatics education in the Republic of Croatia subject to conditions of reformatory changes

Regarding the reform of the higher education in the Republic of Croatia, based on the principles of the Bologna Declaration, it is necessary to design a curriculum for the education of pre-school teachers that will be orientated towards:

1) innovative application of ICT for the purpose of increasing motivation for studying, quality studying, acquiring professional knowledge and competences and skills for team work and lifelong learning
2) improving the quality of the educational environment
3) innovations in didactical and methodical designing of the higher education teaching practice
4) the improvement of communication student – teacher relations and emotional and social

interactions in the process of informatics and information education

5) the achievement of student's central position in the process of higher education

The experts of the *Bertelsmann and Heinz Nixdorf Foundations'* study warn that, for example in German higher education, the repulsive attitude towards reforms of the higher education may bring to the "out position" (Gehrmann, 2004). The same may occur in Croatia as well if the introduction of reformatory changes (the Bologna Process) doesn't lead to the improvement of the inner quality of pre-school teachers' education at teacher training colleges. It is important to mention that the changes concerning pre-school teachers' information and informatics education go beyond the framework of a teaching course. They should be developed within the framework of every course, in order to make up for the shortcomings demonstrated by students at the beginning of the study (Tatković and Ružić 2003).

Research, education and professional training are the most important immaterial investments in all developed countries today, especially in the European Union. Because of the great importance of education for the national development of every country, it is evident that all state institutions (Croatian as well) put great effort in designing various information development strategies. According to research, Europe lags behind modern ICT trends in comparison to the rest of the world.

Social demands for joining the European Union and the tendency of the Republic of Croatia to enter the society of knowledge as soon as possible have brought to intensified activities in the field of designing of various proposals of development regarding the technological development of Croatia, namely: The Proposal of the Strategy of the Development of the Republic of Croatia "Croatia in the 21st century", *e-Croatia* – the Proposal of the Croatian Information Strategy, the Elements of the Strategy of the Creation of the Information Society in Croatia as an appendix to the Strategy of the Development of the Republic of Croatia "Croatia in the 21st century", the Programme of the Croatian Technological Development, Croatian National Educational Standard.

"The project envisages that the employees (45.000 – 50.000 persons) acquire information knowledge and obtain a certificate by the end of 2006 and the deadline will depend on the amount of financial resources that will be invested in this aspect of today indispensable knowledge and skills. In the majority of European countries similar projects are completed or brought to a close" (MZOS, 2004).

The strategies of "e-development" of the Republic of Croatia should be improved by making the strategy of "pre-school e-education", which would include: informatics and information training of pre-school teachers.

Contemporary information and informatics pre-school teachers' education curriculum should contain the qualities of openness, democracy, inclusiveness and standardisation. Its openness would be reflected in higher education teachers' possibility to be autonomous in presenting the contents as well as in the possibility to adapt a part of the curriculum to the specific needs of the environment. Democracy of the curriculum would enable tolerance and the cooperation between students and teachers not only in its application but in the process of planning of the course and contents of information and informatics education as well. Inclusiveness would include the recognition of educational interest of all the participants in the educational process. Since the curriculum deals with the education of the personnel who will work with pre-school children, its trait "standardisation" additionally gains importance because it would enable the balanced presence of educational activities.

The nine existing pre-school teacher studies in the Republic of Croatia, educating future preschool teachers to use the computer in the educational process explicitly with pre-school children have the curriculum which mainly includes: courses in Informatics or the Basis of Informatics. It is achieved through two lectures per week, during one or two semesters in the academic year. We think that the information contents should be realized during the whole course of study and in integration and correlation with all other teaching courses.

The introduction of innovations into the higher education practice such as: the use of quality applications for immediate work, the insurance of material means for the purchase of new equipment adequate for pre-schoolers, pre-school institutions' networking for the purpose of high quality communication with other educational institutions in the Republic of Croatia, would lead to qualitative changes indispensable for the pre-school educational system of the Republic of Croatia. When the concrete pedagogical practice is the subject of analysis, a few paradoxes emerge:

1) the majority of pre-school teachers are information illiterate. Organized and constant training in the field of application of new technologies in pre-school education are insufficient.
2) the equipment is outdated, which the installation of multimedia applications renders impossible
3) pre-school teachers' education is more oriented towards acquiring vocational competences than towards the methodical questions of the use of information and technological and communication knowledge and skills in the immediate work with pre-school children
4) software applications intended for pre-school children are rare at the Croatian market
5) the equipment is not ergonomically adapted to children
6) the majority of computers are intended for adults

Traditional literacy in today's conditions is insufficient and competitiveness of Croatia will depend on nation's literacy for the 21st century because "the tools of the digital age have increased the possibilities of our muscles and extended capacities of our brains" (Gates, 1999).

4. Conclusion

Summarising the knowledge so far about pre-school teachers' information and informatics education in the higher education of the Republic of Croatia as well as the reformatory processes in the higher education of the EU, we can state that the pre-school teachers' education must undergo the transformation. It should contain innovative potential due to the evident dynamic of pedagogical and information and informatics changes in the modern society. It implies the need and necessity of searching for new didactic guidelines. In Croatia, as this is the case with the countries of the EU, the changes in the pre-school teachers' education should take into consideration the changes in the sphere of work (in the context of globalisation) in order to formulate national interests for human resources' education in the extended Europe.

5. Literature

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