SOME EXAMPLES OF USING E-LEARNING FOR IMPROVING STUDENTS' KEY COMPETENCIES IN INITIAL TEACHER TRAINING (ITT)

Andrea Kubalíková, Jana Trabalíková
University of Žilina, Faculty of Humanities
Department of Educational Studies
Univerzitná 8215/1, 010 26 Žilina, Slovak Republic
andrea.kubalikova@fhv.uniza.sk, jana.trabalikova@fhv.uniza.sk

Abstract: *In this paper we would like to achieve a better understanding of approaches to students' competencies and curriculum requirements in initial teacher training at Zilina University. We would use this information to evaluate competencies and students' skills with introducing information and communication technology via an e-learning platform, LMS Moodle. Some results of this paper would identify and share some examples of good and effective practices.*

Keywords: e-learning, students' competencies, information competencies, information education, information and communication technologies

INTRODUCTION

According to Zacharová and Bomba (2011: 216) the school loses its monopoly on information. As the traditional role of teacher is changing, the way of education is also changing and this happens just under the influence of penetration of ICT. Education is starting to move away from the traditional way which was the specific location, time, age, and class-clock system etc. So this method is becoming obsolete and is gradually replaced for example by e-learning.

We can say that terms such as information and communication technology (ICT), e-learning, virtual environment and online learning is now a standard part of the dictionary, not only in professional educational environments, but often used in the dictionary of pupils in low secondary education. Also, the facilities of ICT are an important part of the terms of the educational technology. For many authors, this educational discipline is perceived as "more progressive and the younger sister of the theory of instruction". According to Průcha (2006) we need to identify and summarize all the pedagogical aspects of applied and used ICT tools. Therefore, the

educational technology should not be seen only as a guideline for the application of ICT into teaching and learning.

Many authors have subscribed to the most current issue of applying new educational strategies – it is the question of evaluation of the impact of ICT on methods of learning, teaching, learning styles of students, the teaching style of the teacher, the quality of education, and the competencies of students and teachers. Certainly the educators have an active role to identify and develop students' information competences regarding their ability to find, define context, and create a non-linear relationship with this mass of information. It seems that this would be a good way to integrate modern technologies and utilize the traditional educational environments currently existing in our schools. The roles as well as the types of activities are changing. According to the Association for Educational Communications and Technology, the information literate student has basic skills to work with the computer as a didactic teaching tool, but computer literate students are not necessarily information - competent. Interesting question states Zacharová (2011). She asks: "Do teachers accept this situation in general or is there only a small group of enthusiasts, "e-teachers" who can accept it? According to Trabalíková (2012) we stress that if our schools are supposed to face innovations, they should be systemic and premeditated; they should be intermingled with all the teaching subjects. From our personal experience we know, that for students just the lack of information literacy devalue cognitive processes and learning outcomes themselves as computer literacy.

1. DEFINITION OF THE CORE TERMS

As we mentioned in the introduction, the area of development of the capabilities to search relevant information and to work with them effectively, to learn the methods of their processing and applications become key to change the paradigm of education. In this respect, the professional field meets terms of information and media literacy, meaning all skills needed for life in the information society. We mean the ability to search, evaluate and use information from various sources and also a disposition to work with various forms of media (text, images, animation, movies, etc.) as carriers of information (Smith 2003). In general, the information literate person is able to:

- use the opportunities of the information society,
- obtain the necessary information, which is essential for solving problems and for making the right decisions,
- identify potential sources of information,
- improve the strategies for seeking information in book and electronic form,
- disclose information using information and communication technologies,

- evaluate information and organize it systematically for application in specific situations,
- integrate new information into conceptual structures,
- form special, individual style in effective interaction with the world of information (cited by the American Library Association).

According to Müllers (2001) it is the way the learner processes, analyzes and selects the information part of the innate cognitive style, in which he/she explores the world and acquires the access to the results of human cognition and interconnection of information resources. Fig. 1 indicates the degree of suggestibility of components of student learning styles, which include the above mentioned cognitive style, the process of information processing, social and emotional processes, entering "into play" in teaching and learning for scholars, and last but not least, there are also instructional pupils' preferences.

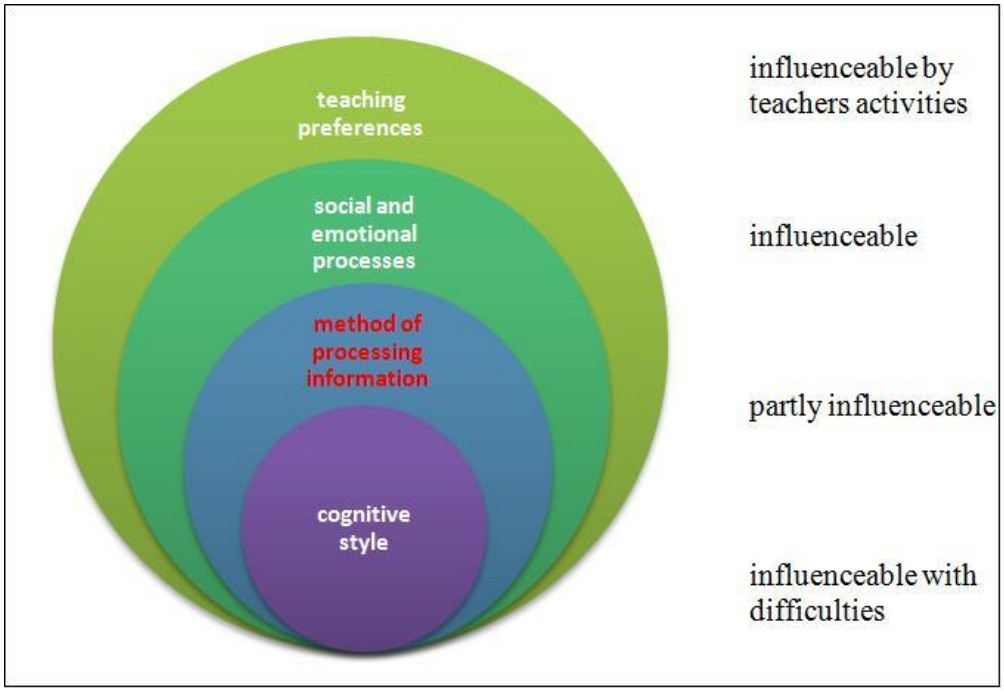

Figure 1. Schematic folders learning styles of pupils/students, which is a way of processing information given as one of the partly influenced factors, which is based on cognitive style

Source: Own elaboration based on: Mareš, 1998 in Müller, 2001: 52

As the author states, in the figure is shown very clear that the deepest layer (congenital basis, personal cognitive style of the pupil) is the most stable, and very difficult influenced by external influences. The layer comprising the processes by

which a student processes information is based on cognitive style, but is only partly influenced by external interventions - through submitted new information is the student encouraged to their processing and acquisition. Another layer comprising social, motivational and emotional processes is more susceptible to external conditions (teachers, parents and educators or life situations). Student preferences are viewed as processes, methods and forms that the student prefers the most in the learning and the teaching process, which suits him/her the best. According to this scheme these are influenced by the educational action of the teacher. We believe that by changing the paradigm of education the scope for influencing the information processing strategy is shown to be much greater than is stated in Figure 1. As stated by Kosová (2002: 6) the major teacher role in today's information society becomes: "a diagnostic role, facilitator and guide of the development of each pupil or effective teaching situations manager, reflective professional and innovator, creator of the stimulating and emotionally safe class-or group- climate. Vančíková (2011: 162) in this spirit, very aptly quotes the words of Professor Umberto Eco, whose article on what is the meaning of the teaching profession nowadays and what are its key tasks write, " a student provoked his teacher with the following question: "Sorry, why are you here, when we have the Internet …?" The response to the student was an interesting teacher's observation: "student gave only half of the truth, because the teacher has to inform but also form simultaneously."

Furthermore, the student also stated, that information from the Internet is the "great mother of all encyclopedias," and are much broader and often deeper than those controlled by the teacher, but he forgot one thing: The internet tells him "almost everything", but does not tell him how to search, filter, select, accept and reject information. Therefore, anyone can gather new information, just good memory is needed. But to decide which ones are worth remembering and which are not, is an art ... The teacher should also serve as an example of someone who is trying to give individual knowledge into systematic relationships (Eco 2007 in Vančíková 2011: 162-163). The following perceived conception and integration of educational and didactic aspects of e-learning in the context of education is often present in the literature by using the term "Information Education".

The terminological lexicon of new information - communication technologies and their implementations (Katuščák 1998) the term is defined as "a comprehensive systematic formative process of acquiring skills and knowledge from fields and disciplines dealing with the collection, processing, storage, disclosure and use of various types of professional information and resources." In a broader definition of informational education we understand it as the implementation of "rational education and training of the human for the use and creation of knowledge in order to acquire a comprehensive system of knowledge, skills and habits in the cognitive process." Information education as a process leading to a targeted and deliberate processing and efficient use of information is very current concept in today's information society. Sakalová (1998) understands information education as an integral component of the educational process, which is aimed at creating adequate

models of information behavior of pupils and students. According to Horváth and Švejda (2006) information education doesn't accept only control of the information and communication technologies. Its major objective is to contribute, together with other subjects to the development of pupils' and students' as well as adults' cognitive skills in lifelong learning system. Actually, the work with information itself such claims Chupáč (2007) is one of the creative methods of teaching process – it learns autonomy, analytical thinking, concentration, attention and "in-depth learning style". Also, in the creative - humanistic conception of education (KEMSAK) one of the strategies leading to the cognitivism of personality is the method of working with information funds, which, as claims Zelina (1996) should teach student to collect, store, systematize and share information and lead him to create his own information system, linked to various information sources (electronic, library, etc.).

2. SUPPORT OF INFORMATION COMPETENCIES IN THE FRAMEWORK OF CURRICULUM CONTENT FOR SELECTED LEVELS OF EDUCATION

In the Slovak Republic after 2008, we adopted a two-tiered National educational curriculum, which consists of a framework of state educational program and is applied to the specific schools through school educational programs. For all levels of education within the learner graduate profile there are defined and classified competencies which become a part of the educational model of education graduate level. Classification and characterization of core pupils' competencies is adjusted according to the recommendations of the European Parliament and the Council from 2006 about key competences for lifelong learning. Already in pre-primary education, information competences are a natural part of child core competency models. This set of competencies serves for teachers to know where to direct their educational activities through purposeful, meaningful development, appropriate to the children. Due to the fact that learners gain specific capabilities, especially fundamental change in both the content and educational strategies is desirable. The national curriculum (ISCED 0, Ministry of Education, 2008/2009), information competencies defined in this spirit:

- child manifests the pleasure from self-obtained information,
- use different sources for obtaining and collecting information beyond kindergarten (from people in the environment, from childrens' books, magazines and encyclopedias, through information and communication technologies, from various media).

From our own experience as university teachers we can confirm that many university students have limited ability to find the required special information, process them, or by selection determine their importance and to interpret this information in appropriate ways. Their low level of information - communication

competencies is also reflected in the findings, that many students can pass the required 5-6 pages of continuous scientific text, i.e. information obtained in the field, but they can not explain, reproduce, prepare hierarchical structure of important and less important information, ask questions on the subject, work with graphs and diagrams, etc.. Empirical experiences of Sakalová and Matthaeidesová (1999) confirmed that many of the current high school graduates who are seeking a university education, do not know the basics of self-study methodology, do not know to make notes, to work with text, do not know how to excerpt, quote, do not create the need for tasks information security, do not know the practice of creating the professional expression, and do not know to organize personal information.

It follows that the contents of undergraduate educational teacher training should not be acquiring skills only for computing and information and communication technologies (promotion of computer literacy), but mainly to effectively work with information in book or electronic form. This area should be an essential part of a teacher's preparation of professional standards, respectively the process of professionalization of teacher education. This is why we try to develop the ability to search, evaluate and use information from various sources with students of teaching study programs to the Faculty of Humanities, University of Zilina from the beginning of their university study in many subjects. This would then become part of the information education of students in initiating teacher education.

3. SELECTED ASPECTS OF THE SUPPORT OF THE INFORMATION COMPETENCIES AND INFORMATION EDUCATION OF STUDENTS OF TEACHING STUDY PROGRAMS AT THE FACULTY OF HUMANITIES, ZU

3.1 Implementation of forms of e-learning vs. blended-learning in tertiary education

According to Zounek (2006: 338) there is no clear definition of a direct understanding of the concept of e-learning. Maybe it is why we note the differences not only between authors, but also in interpretations between countries. For example, in the U.S.A, the concept of e-learning overlaps with a broader term "technology-based training "(technology-assisted learning). So e-learning is seen here as a wide set of the most advanced ICT and also "traditional" technologies (computers, virtual classrooms, radio, TV, websites)" . The European definition is different, more precisely focuses on the modern technology, for example the European Commission (www.elearningeuropa.com) defines e-learning as "the use of modern multimedia technologies and the Internet to improve the quality of education, in particular by facilitating access to resources, services, information exchange and distant cooperation." We agree with the author mentioned above who defines e-learning as "any learning process with varying degrees of intentionality, in which ICT are used when working with data in electronic forms. The method of use of ICT is dependent primarily on educational objectives and content, the nature of

the learning environment, needs and opportunities of all factors of the educational process." (Zounek 2006: 340). According to Singh (2003: 52) application of e-learning forms has gone through two stages in recent years. The first meant digitization of traditional "classroom-based courses" to the environment of the Internet and forms of online learning. Experience has shown many advantages and disadvantages. E-learning education and study provided on-line disclosure of information, communication, and more attractive learning processes, checked the progress of the educational process through online tests, supported the possibility of individual learning and finally developed information, computer and media competencies of students and teachers. On the other hand, it supported the lack of social contacts and interactions, often in the literature described as "being lost“ in the oversized information content and irrelevant information. Rapidly emerging field of study which started in the late 1980s is Computer-supported collaborative learning (CSCL). Arranging students to work collaboratively at the computer reaps the benefits both of the use of computer simulation as an exploratory tool and of peer collaboration (Tao, Gunstone 1999: 43). In the second wave of e-learning many teachers, tutors, and educators began experimenting with interesting and even promising alternatives in ICT-assisted learning with "blended learning". It is sort of "hybrid learning" (Zounek 2006: 340), which links the present forms of teaching with e-learning. Thus, according to Singh (2003: 53) blended learning is a combination of: a) face-to-face teaching (contact, full-time course) with traditional teaching instructions, b) asynchronous teaching (off-line teaching) different forms of student self-study or participants in training courses and modules, c) practical training of sensomotoric skills (especially in professional education). Hrušecký (2005) characterizes the on-line education and "blended" learning by using an approximate quantification of the course content.

The Department of Educational Studies, Faculty of Humanities, University of Žilina in undergraduate (initiating) teaching programs provides guidelines for the education roles and the obligation to convey the curriculum to students clearly, interestingly and attractively. It is the combination of the presence of traditional and electronic forms of study via LMS Moodle (Learning Management System), which support us in those efforts. Our experience with these forms of education are based on a number of methodological assumptions for creating e-learning materials. Like stated by Drozdová (2007) didactic support for the development of students' information and media competencies in computer-assisted instruction should be well designed study material in an interactive, preferably multimedia electronic form. When applying forms of "blended learning" in undergraduate education it was based on the following methodological principles:

3.1.1 The contents of study materials and image processing - clarity, accuracy, technical terms actuality, understandable clarification and disclosure of new concepts. Not insignificant is gradation of awarded tasks and activities difficulty. We also respect the fact that scientism and professionalism of teaching material presented in the e-form is not directly related to the disproportionate number of

specialized words and the complexity of expressive language. Teaching material available to our students in an electronic learning environment contains definitions of the key concepts of certain teaching subject, classification from different perspectives and serves the basic orientation in the topic. It is a support and working material for students. Students can make additional notes in it, put illustrative examples, diagrams and links to further literature on the lecture (during contact teaching). Thus, during the contact (presence, face-to-face) more focus can be placed on the actual interpretation of the university teachers and the specifics of the issue presented, and can perceive more details if needed. Within the graphic design of study materials we focus on an efficient linking of hyperlinks, adequate font size, variety of colours in the academic text (examples, summaries, links to key and new concepts), appropriate integration of suitable plans, diagrams, etc.

3.1.2 Interactivity and obtaining feedback on work with the electronic system of education - to achieve effective communication it is necessary that study materials in electronic form should contain enough interactive elements. After ensuring this condition, the student is not in the role of a passive observer. The most value is when the material provides effective feedback and students are encouraged to other activities by this feedback (e.g., use a dictionary of basic concepts, manual, links to other print and electronic resources, contacts, forum, etc.). To provide questionnaires for students continuously is also beneficial. We obtain feedback on practices and forms of e-learning. We have chosen a few sample questions from the formative evaluation questionnaire for the purpose of this paper:

1. How do you work with a virtual learning environment LMS Moodle.

2. If you see the positives in the study with LMS Moodle, which are they?

3. If you see the negatives in the study with LMS Moodle, which are they?

3.1.3 Application of other aspects of teaching in blended learning - after several years of experience as university teachers, we find that through blended learning the following options and elements can be applied:

a) Fostering the creativity and independence of students (especially for future teachers their development is a part of their future professional competencies)

b) The presence of feedback tasks that constantly give students the answer, if they follow when learning properly and thus achieve a predetermined teaching goal

c) Flexibility and complexity in the processing of assigned tasks and issues with the use of multiple sources of information, visual and graphic aspects

d) The diversity and uniqueness of the sources of knowledge

e) Teaching in blended learning and e-learning is a less dominant source of information, but rather a guide in building adequate conceptual structures within the taught topic subject.

In this sense we try not only to explain to students, but also practically lead in the use of conceptual mapping methods.

Finally, students are encouraged to use a wide variety of sources and materials, but also are led to learn how to evaluate and compare the quality and reliability of sources, which is an advantage especially in development of critical thinking. Based on our own teaching experience, we consider this a control and summative or formative evaluation of the course results, which is based on face-to-face communication between students and teachers.

Table 1.

An example of activating task from the instructional material for supporting students of teachers' program information competencies in the initiating stage of education

Task
Situation: At the beginning of their teaching practice teachers may encounter the situation where the appropriate workbook for this subject is not available. In other words, there is no "support teaching material" which pupils/students need to work with. How you can solve this situation? Your task: Please prepare a suitable teaching material, one chapter of a textbook (at least 4 pages, title page is not counted, the line spacing 1.5 and standard page margins) for chosen age group (any grade at primary or secondary school) for your teaching subject. Try to maintain the methodological principles of clarity of the information presented, the adequacy of the terms and its explanation for a selected group of students. Use: - A suitable topic for study material and choose a grade of primary or secondary school to which the material will be directed; - Selection of an appropriate text and images from the Internet; - How to differentiate colours according to the relevance of the information (to distinguish important from less important terms) create an appropriate structure of the text according to cognitive abilities of students, and of course, use headings and subheadings; - The toolbar with drawing or sketchbook to create diagrams; - Form of columns, tables, framing the text; - Modify the cover page of teaching material (use header and numbers of pages); - At the end of the study material devise tasks (questions) to identify the level of knowledge gained from the teaching material created by you.

Source: Own elaboration: Kubalíková 2007

CONCLUSION

This article deals with clarifying e-learning, blended-learning and information education as an integral component of the educational process, which is aimed at creating adequate models of information behavior of students via an e-learning platform LMS Moodle. It deals with didactic aspects of the use of ICT in the educational environment, not only at the level of the guideline for application of ICT into teaching and learning, but also with the aim to progressively systematize these aspects. It is based on the pedagogical principles of teaching and learning which should be respected in design of e-content. Also this method can support the development of university students' abilities to analyze, sort, select, interconnect and integrate information with an emphasis on developing their information competence. This indicates that currently when teaching university students, it is possible to seek and find sufficient space for influencing the way and strategies of information processing through the implementation of information and communication technologies.

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