



# Didactic-Information Innovations in Educational Technology

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**Abstract:** The main factor in the development of human resources is knowledge and modern knowledge, through the application of which the individual and the company survive as competitive on the market. We acquire knowledge both during the formal educational process and through non-formal learning, in schools and colleges, and later in companies, in a traditional and online environment. Today, in science, great attention is paid to e-learning (e-learning) and e-education (e-education) using modern information and communication technologies. Nowadays, with the daily expansion of scientific knowledge there is also a huge progression of technology. In parallel, they developed technology in the field of education. Unfortunately, in our area this development and applications are flowing at a much slower pace (than needs dictate) in relation to the developed countries of the world and their educational systems. The main intention and goal of this paper is to point out on this occasion as well the importance, need and necessity of far broader and deeper study, and the application of modern educational technology at all levels of education, with special with an analytical review of contemporary university education.

**Keywords:** Non-formal learning, e-learning, e-education, teaching, e-learning modern technology, teaching strategies.

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## 1. Introduction

One of the problems of contemporary society is that the educational system must be able to train youths for life, equipping them with not only knowledge and different skills, but in particular teaching them how to confront everyday challenges and problems, and, in turn, how to resolve them. Young people have to develop not only their cognitive competences, but also cooperativeness and social competences because these are one of the basic conditions for life-long learning and improved employability. To achieve this, flexible forms of learning have to be implemented [1].

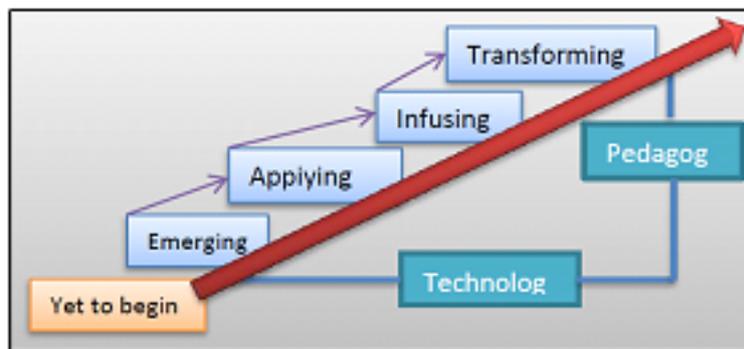
The characteristics of today's generations, defined from different perspectives (sociological, technological, psychological, philosophical), and their expectations, are a new challenge for modern-day schools. The educational process must be more closely related to the individual's needs, their personal development and the cultural environment in which they live. The complexity of all the things affecting the youth of today (the environment, technology, a large amount of immediately accessible information, the possibility of direct communication with the entire world, newest insights from the fields of cognitive and neuroscience, artificial intelligence [AI], etc.) requires a well thought-out and quicker response on behalf of the creators of school policies than it did in the past (OECD 2016), mainly because the social environment in which we live (society, technology, etc.) is changing very rapidly, and because the school of today must prepare students for occupations

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and social environments, which at this moment don't even exist yet. All these changes in the social environment, in turn, require different, innovative ways of learning and teaching, to which the entire school system must be able to adapt on a paradigmatic level. We have to realise that we will not be able to achieve such great changes in the time we have by taking small steps. In the proposed learning and teaching strategy, special attention should be given to increasing the level of interest and motivation in youth.

Research shows that students, who are exposed to innovative didactic information and communication technology (ICT)-supported teaching methods, express a less depreciative attitude towards school (Carrió-Pastor M. L. 2007 [2]; Flogie and Aberšek 2017; OECD 2011). Social interaction is integral to the healthy psychosocial development of adolescents. Because healthy development during early adolescence is complex and fraught with both challenges and opportunities, both parents and schools may need to conscientiously educate early adolescents about the potential risks the problematic or maladaptive engagement with specific ICT tools or applications can bring about in their lives" (Shaljan and Myint 2017).

The use of innovative ICT by youths in the context of social competence should be given special attention because it plays an important role in the process of socialisation (Li and Kirkup 2007)[3].



**Figure 1.** Stages of ICT Integration in Education

These stages offer us a lens through which we can observe how ICT has leveraged incremental and deep change in learning environments (see Figure 1). The first three stages represent learning environments using technology to evolve—using technology, at varying degrees, as a means to make advances towards more digitally-rich, 21<sup>st</sup> century learning environment. Schools that seek a more holistic change and dramatically overhaul the existing environment have leveraged technology to completely transform—where all elements of the learning environment become new as they drive towards this new vision.

## 2. Didactics and Educational Technology

In the first half of the 19<sup>th</sup> century, the German pedagogue Johann Friedrich Herbart (1776-1841) elaborated the theoretical foundations of Didactics and focused on the analysis of teachers' actions in school when transferring new knowledge to students. Since that time, Didactics has become an independent pedagogical discipline (Popov, Jukic, 2006) [4].

Bandur and Potkonjak (1999:38) say that many important pedagogues worked before Herbart, but that he “tried to satisfy the needs of the society in which he lived, determined the subject of pedagogy, and systematized pedagogical knowledge into a unique and coherent system” [5]. In contrast, the American pedagogue John Dewey and other pedagogues from the beginning of the 20th century put the emphasis on didactics on the study of students' work and their learning activities. Modern Didactics synthesizes Herbart's “teaching theory” and Dewey's “learning theory” and it “should study the actions of teachers, but also the activities of students in learning” (Popov, Jukić, 2006: 134) [4].

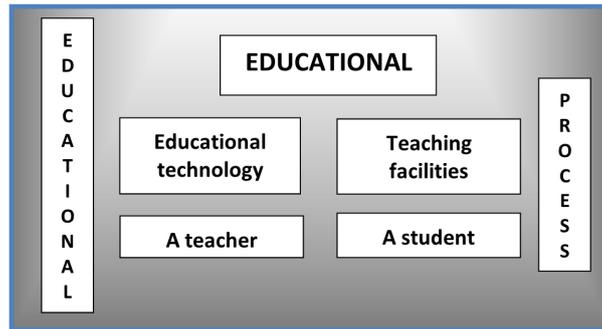
In pedagogical theory, there are several different definitions of the term Didactics. We will accept that Didactics is a science of teaching and learning (Popov, Jukić, 2006) and that as such it encompasses many wholes. For this paper, the most important part of Didactics is Educational Technology. However, in different geographical regions, the relationship between Didactics and Educational Technology is defined differently. According to D. Mandić (2003-2: 18) [6]. In Anglo-Saxon countries, educational technology includes knowledge of students, determining the goals of their education, specifying the possible organization of teaching, planning the content of education, choice of forms, methods and didactic media, determining the position of teachers and students in teaching and evaluating the achieved results of teaching and learning. In these countries, didactics is not singled out as a special scientific discipline, but is included in educational technology. “He goes on to say: educational technology is based on the study of the characteristics and possibilities of application of modern didactic media in the function of innovating teaching and learning, while in America within educational technology all didactic problems and laws are studied, including new technologies and modern didactic media” 2:22).

We see that there are numerous definitions, which treat Educational Technology as a science that aims to raise the quality of education. According to Mandić, D. (2003-2), these definitions can be classified into two large groups in relation to where they place the emphasis on the study of its action. One group of definitions understands educational technology as a science that primarily deals with the study of the application of didactic media, while the other group of definitions emphasizes the study of applied teaching methods and forms of work with the application of didactic media in teaching. The didactic media means “didactically shaped, objectively given objects, phenomena and products of human labor that serve as sources of cognition, ie learning” (Mandić, 2003-2: 15) [6].

Educational technology cannot be singled out as a completely independent field of research. Its contents overlap with the contents of other scientific fields such as pedagogy, didactics, methodology, psychology (learning theories, memory, motivation, etc.), cybernetics, communication, management, media, docimology and other areas so that the new whole goes beyond the simple sum of included parts. (Danilović, 2004 [7]; Stanković, 2012 [8]). According to Danilović, M. (2004), Educational Technology has had 3 phases: hardware, software and theory. The hardware phase lasted the longest and during this phase, over 30,000 different devices, means, instruments, aids were produced, which are still used in the educational process. The first steps in this area were made and recorded, according to M. Danilović (2004:3) [7] in 1873. year when the first exhibits of educational techniques were seen at the international exhibition in Vienna - various demonstration tools to increase the obviousness of teaching content such as various graphic materials, maps, textbooks and more. “In the middle of the 20<sup>th</sup> century, a “visual movement” appeared in the teaching process, which highlighted the use of audio-visual aids in teaching. Many, therefore, when referring to the term “educational technology” think exclusively of teaching aids that mean “technology” and do not pay attention to methods and forms of work. Many of the teaching aids have been created for other areas of human activity but teachers have found ways to apply them in teaching.

The software phase is characterized by the understanding that the essence of learning and teaching is the ways of organizing and presenting teaching information, and that hardware is the means that will enable that. Today, the term “new” educational technology means one that, in addition to modern teaching methods, necessarily includes the use of computers, the Internet and various software tools in teaching.

The theoretical phase continues today and deals with the search for theoretical and experimental evidence that the use of educational technology improves the learning process. Therefore, we are working on the development of modern learning theories and appropriate teaching materials for learning. “Pedagogical research shows that educational technology contributes to the rationalization of the teaching process, saving teaching time and material and technical resources, greater dynamism and individualization of teaching, more successful development of psychophysical abilities, motor habits and skills” (Danilović, 2004: 5) [7].



**Figure 2.** Didactic quadrilateral

Teachers, students, teaching contents and educational technology today form a didactic quadrangle (Figure 2) which in its mutual action achieves the goals of upbringing and education.

Reality shows a different situation. “Some research indicates that even where it is used, it is used more in the preparation of classes than in the teaching itself, the use of educational software is negligible, and teachers are trained independently, from professional literature or with the help of more experienced colleagues and friends. Furthermore, a very small number of teachers follow innovations in the field of educational technology, and a certain number of employees in education do not use the Internet at all” (Stanković, Z, 2012: 159).

This leads us to the conclusion that professional development of teachers in the field of using educational technology supported by ICT is necessary. For a start, teachers need to change their attitude and overcome resistance to new technologies in teaching. Resistances arise because teachers “do not sufficiently understand its significance and its pedagogical possibilities; because its introduction presupposes special efforts, adaptation to new forms of work and taking on obligations that require a more complete pedagogical culture; because the introduction of new pedagogical technology requires additional training, retraining and permanent professional development of teachers, and these are obligations that teachers are reluctant to accept in conditions when their financial position is not what it should be given the jobs and tasks they perform” (Mandić, 1986: 4) [6].

### 3. Pedagogical Effects in Teaching

Traditional teaching is dominated by the frontal form of work with a pronounced teaching function of teachers, which does not provide enough interaction with students or leaves enough time for independent activities of students in the function of quality mastery of teaching content. Teaching is often formalized, verbalized and insufficiently obvious, which reduces the durability of knowledge and connecting theory with real life. In the last decade, didactic media, teaching methods and forms of work have been intensively developed and improved in order to increase the efficiency and effectiveness of the teaching process. The process of modernization of existing technologies is much faster in production areas, and it is rightly expected that schools and faculties follow innovative processes and educate young professionals in accordance with the needs of society and economy. In the world, schools are equipped with modern didactic media. The school expects to adequately apply them and modernize the methods and forms of work with pupils and students. Interactivity and quality of presented materials with the use of multimedia and hypertext gives much richer content compared to the teaching that takes place in traditional classrooms [9].

The development of telecommunication technology and mass use of the Internet have enabled interactive distance learning based on a systemic approach with the use of multimedia electronic sources of information. which location with the use of

laptops. Using voice and handwriting recognition software, the keyboard is expected to become a secondary device and the microphone and electronic device to become primary. Information technology in education provides opportunities for the use of new teaching methods and new teaching organization, which could reduce the shortcomings of traditional teaching. Classic classrooms and forms of work are not thrown out, but new technology is added that integrates the positive elements of traditional technology by changing the position of students and teachers in order to increase active student participation and continuous monitoring of its progress. Today, video projectors connected to computers are used intensively and enable quality display of content on the projection screen, active electronic boards, microcameras for the presentation of three-dimensional models, etc. New technology provides an opportunity for teachers to raise the quality of teaching and to provide two-way communication in teaching.

The multimedia presentation contributes to the easier maintenance of discipline in teaching and the creation of pedagogical situations in which the responsibility of students for the success of teaching and learning will be expressed. Students more diligently follow the multimedia presentation, better remember the content (especially those that are harder to remember by listening and reading) and more actively participate in the process of learning new content. Faster acquisition of knowledge provides students with the opportunity to think, analyze and conclude; by discovering and solving problems and thus making a greater contribution to their development. Modern educational technology, with the use of multimedia systems, creates preconditions for engaging all the senses in the process of acquiring knowledge, develops students' creativity and provides student activity in teaching and learning. The imperative of the scientific and technological revolution and information era scientific achievements, to develop and enrich one's personality with them, to use it in the process of creating new knowledge, improving production, quality of social life, in the function of socio-economic and cultural development, is a guarantee of progress and survival of the human race in our time. owned by all people and not just a select elite or groups of technocratically oriented experts.

That is why the information era is a reality and not an abstraction, it enables people to understand it, to accept its achievements, to develop what will contribute to socio-economic and cultural development, liberation and personal development. Information technology includes computer hardware, software and communication networks for electronic exchange between physically remote computers, and devices and adapters that convert information (text, image, film, sound, etc.) into digital format. By information technology we mean, in addition to information technology and adequate use of digital information in order to improve human abilities and possibilities of better performance of various activities. Information technology in education includes the study of characteristics and possibilities of electronic sources of information (today most often multimedia computers with Internet access) teaching and learning technologies. There are numerous research projects that talk about the need and possibilities of using information technology in education, as well as the level of knowledge and skills that teachers must have to effectively use new technologies.

### **3.1. Formal education**

It implies knowledge acquired in educational institutions (preschool, primary, secondary, higher and higher education institutions) with a clearly defined work plan and program. In many countries, the education system is formally supported and managed by the state. The ultimate goal of formal education is the acquisition of certain knowledge and skills, and this is confirmed by the issuance of state-recognized diplomas or certificates. Primary education is compulsory for all.

### **3.2. Informal education**

It is not state-organized and focuses on acquiring practical knowledge and skills. It is usually a supplement to the shortcomings that the individual had in moving through formal education, and in life and work he was shown the need for this

knowledge and skills. It is most often organized by private organizations in the form of various courses of specific skills, practical business knowledge and serves for personal development. Not mandatory.

### 3.3. Informal education

It implies unintentional, ie “accidental” learning from everyday life and is therefore a lifelong process. We learn everywhere, with everyone, from everyone - at home, on the road, with peers, watching TV, listening to the radio, talking to friends. All these situations influence the individual to adopt knowledge, attitudes, values and skills from everyday experiences and educational influences from their environment. Since it is not organized, as formal and non-formal learning, informal education can go unnoticed by individuals in terms of acquiring knowledge and skills. All three of these forms of educational activities together make up the concept of Life Long Learning. It is predicted that today’s generations, in their working life, will change at least two occupations, which will require education during work and life. According to many predictions, this education will mostly take place over the Internet, in the “e-classroom”.

## 4. Didactics and Development of Informatics

With the development of Cybernetics in the second half of the XX century, as a science that deals with efficient process management, and its application in teaching, which is also a type of process, new pedagogical models of teaching have emerged. The most well-known model is programmed teaching that deals with information management. Programmed teaching presents its contents to the student according to a predefined algorithm that leads the student to the ultimate goal, to the acquisition of knowledge. At the same time, programmed teaching can be both linear and branched, so different reactions of students can be predicted and paths planned in advance that will ensure that each student reaches the goal with his pace and way of working. In addition to the individualization of the work, the programmed teaching provides each student with immediate feedback on his success and refers him to additional literature if necessary. Programmed teaching and learning provided the basis for promoting educational technology as a scientific discipline and field.

With the emergence of Informatics as a scientific discipline that deals with the collection, storage, transmission, processing and use of information, Didactics has expanded its field and methods of action. With the development of technical means, which have increasingly begun to be used in teaching, in the first place computers and related equipment, Informatics has become an integral part of modern educational technology. Thus, for example, the use of computers can take full advantage of the programmed teaching model. According to Popov, Jukić (2006: 283): “Educational software, made by teams of different experts, enables multimedia access to teaching content, and easier, faster and more successful, their understanding and adoption [4]. Computer teaching, if the educational software is well done, enables maximum individualization of teaching work. Each student progresses at his own pace and according to his abilities and possibilities. This allows for content of different scope and weight. “These thoughts in the direction of improving pedagogical practice in accordance with time are not new, but unfortunately they have been repeated for a long time in more or less the same form. This is evidenced by the thoughts of Professor Mužić V. from 1968 (Yugoslavia) and Professor Martin Ebner from 2009 (Austria), which do not differ much. The development of pedagogical theories for a fundamental change in education has not progressed far.

“The accelerating development of technology, and in connection with that the entire social production, is increasingly reflected in the demands placed on education. The progress so far in the production of education is still, for the most part, relatively slow, not going to step with progress in other social activities, does not meet our requirements and therefore, of course, is the target of many objections from society. This lag, in one form or another, appears all over the world, in countries with various social systems ”(Mužić, 1968: 10) [10]. “Learning supported by technology has a great impact on

education and will be an integral part of it in the future. Without a doubt, a large amount of research will be necessary to find a way to influence the change of existing teaching and learning patterns. Technology is changing in a short time frame, and in the same way pedagogical practice must change together with new didactic approaches that must be devised to ensure the quality of education” (Ebner, M., 2009: 14) [11].

## 5. Formal, Non-Formal, Informal and Lifelong Learning

Rethinking the relationship of learning in the formal, informal and the informal context is increasingly in the spotlight. It is considered to be that in educational theory, practice, and politics, the focus is dominant on formal learning contexts (schools, colleges, centers for training and the like), while learning in informal contexts see as less significant and valuable (Antić, 2018; Bransford et al., 2006; Hager & Halliday, 2009; Kimonen & Nevalainen, 2017; Paradise & Rogof, 2009; Rogof, 2003; Roger, 2014; Scribner & Cole, 1973; Torres, 2001). This situation is inherited from earlier times, but unjustified for the needs of education in new age. In addition, we now know much more about the nature of the learning process. Among other things, learning characteristics are possible systematize as follows: learning lasts throughout life the cycle and all ages are good for learning; learning transcends education (everything we know we have not learned only through teaching); the school system is not the only one that educates (we learn in the family, workplace, peer group); learning in a school context goes beyond the classroom and the planned curriculum; teaching is not refers only to the interaction between an adult and a younger person, peers are also taught to each other, but pupils / students can also to teach adults; there are many ways to learn besides listening and readings; learning needs differ in different social and cultural groups, but also change over time; individual have different learning needs; learning is a complex process as well there is no guarantee that it will happen when we only ensure the availability of educational institutions or educational technologies; motivation, effort and time are key learning requirements (Torres, 2001) [12].

Based on the above, it follows that the establishment of a greater balance in attention to all contexts in which learning takes place (formal and informal), contributed to a better understanding of nature teaching / learning process, but also raising its quality in formal education.

The division into informal and formal learning should be accepted conditionally. The very nature of the cognitive process is not qualitatively different, but the contexts in which learning takes place are different it happens, so it is more appropriate to talk about the formal and the informal learning context, not informal or formal learning (Hager & Halliday, 2009) [13]. In principle, formal and informal contexts differ most in whether there is a predefined learning framework. In a formal context, goals are planned and learning outcomes, there is a prepared curriculum behind when stands institution (school, faculty, Ministry of Education), learning ends with a certificate or diploma. The formal context for learning is also characterized by the stay of those who study in the institution which provides teaching, although there are situations when that it is not necessary. All other teachings are some form of informal learning. Non-formal learning is actually a variant of formal learning in relation to the existence of a planned learning framework, although from the perspective of the learner it may appear as part of an informal training within lifelong learning.

Informal learning alone is not a unique form of learning. Some teachings are conscious, intentional, external or driven by the inner motivation of those who learn. Some are accidental and unintentional but conscious, arising as collateral gain from practicing some other activity. The third is completely unconscious, as it is learning the mother tongue, they happen by practicing in a social context, without the intention or awareness to learn something (Hager & Halliday, 2009; Rogers, 2014; UNESCO, 2009) [14].

The conditionality of boundaries between different learning contexts also stems from previous research on the nature of

the learning process, which indicates that each person carries all their experiences, understandings and interpretations through different learning situations. The process the construction of meaning and significance is subjective, dynamic, often insufficiently structured and knows no boundaries of formal and informal context. Cognitivist and constructivist emphasis on the importance of prior knowledge for any teaching speaks for itself. “Pre-knowledge is the overall knowledge of a person, dynamic in its own way nature, available before a particular task, structured, can to exist in different forms (declarative, procedural, fitness knowledge), can be explicit or implicit and contains conceptual and metacognitive components” (Dochy et al., 2002, p. 266). Such a broad and comprehensive definition indeed gives the opportunity to encompass the entire previous life the experience of the person with whom he enters a learning situation. Therefore, the boundaries of the informal and formal learning context must be seen rather as fluid, blurred, and highly permeable rather than as precise and clear (Banks et al., 2007; Barron, 2006; Clark, 2005; Bell, Lewenstein, Shouse & Feder, 2009; Hager & Halliday, 2009; Roger, 2014; Scribner & Cole, 1973). This further means that in any formal context, students also learn informally, whether it happens planned or not. For example, educational goals, such as which are the development of cooperation and tolerance for diversity or the development of civic values, are learned informally in a formal context, in a planned way, if the culture of the school / faculty supports it, if there is an institutionalized atmosphere of cooperation and mutual respect for all employees. And vice versa, through the hidden curriculum that the school / faculty implants unplanned, students will learn informally about inequality, intolerance and stereotypes.

Although the boundaries are permeable, there are typical forms of teaching / learning characteristic of the formal and informal context for learning. In the formal context, learning is focused on the cognitive aspects of learning, in the informal context, cognitive, affective and conative aspects. The formal context is linguistic saturated because the main (exclusive) channel for the transmission of information is written and oral language, in the informal context it is learned by observing, practicing, apprenticeship, learning by model and Similarly. In a formal context, what is learned is important, and the relationship with to those who teach is impersonal (especially in college), in In an informal context, the relationship with the mentor is personal, it is important who teaches. In addition, many people can take on the role mentor, not just one person (such as a professional teacher for a particular subject in a formal context). Learning in a formal context it is separated from real life, learning in the informal context it is completely situational, integrated into context and the like (Antić, 2018[15]; Banks et al., 2007; Barron, 2006; Hager & Halliday, 2009; Rogers, 2014; Rogof, 2003; Paradise & Rogof, 2009; Scribner & Cole, 1973). It is important to emphasize that these differences do not mean that the stated characteristics cannot appear in both contexts, but are only typical or dominant.

Based on the above, for teachers on each at the level of formal education, knowledge about students becomes crucial, about what conscious, but also unaware knowledge, skills, abilities they bring to the learning situation. In this paper in the focus is on the student population at the beginning of the university’s formal education. Students in the first year of study are on a certain turning point in life: they made the first big decision what he will do professionally in the future; they must adapt to the requirements, procedures and learning conditions in the new formal context; a significant number of them begin independently life, separated from family and the like. In that sense, many informally acquired knowledge and skills can be a support, a repertoire support systems for a new stage of life. In this paper, we set two goals: to determine the informal achievements of the students be aware and determine when they recognize as a support, a mentor in the team teachings.

All three of these forms of educational activities together make up the concept of LifeLong Learning. It is predicted that today’s generations, in their working life, will change at least two occupations, which will require education during work and life. According to many predictions, this education will mostly take place over the Internet, in the “e-classroom”. Here is what Siemens G. (2004: 1) says: “Informal learning is an important part of the learning process experience. Formal education no longer occupies the most important place in our education. Learning appears in various forms - through various social

communities, personal networks, to the completion of tasks related to a particular job. Learning is a continuous process that lasts a lifetime. Learning and working are no longer separate activities. In many situations, these are the same activities.”

## 6. Conclusion

Our time is characterized by great production and rapid obsolescence of knowledge and technology. Education is turning into an industry and the necessity of lifelong learning is emerging. The Internet and its possibilities are becoming an unavoidable factor in the educational process. Web-based tools and technologies for e-learning enable teaching and learning processes to be fully individualized and differentiated according to the needs of the individual. In order to keep up with the world and those we teach, we need to constantly improve as teachers. In addition to advancing in professional knowledge, all teachers, without exception, need knowledge and skills related to information and communication technologies. The young people we prepare for life are surrounded by multimedia information and need to learn to distinguish, classify, analyze, create, use, and communicate with it.

The school and teachers can play a significant role in this. Observations and experiences in working with teachers in -service training indicate that about 10% of the teacher population can independently, without the help of others, devise their own creative concepts and teaching methods. Most teachers will resist change. The most common reasons given for resistance are: insufficient pay, lack of social recognition and evaluation, lack of hearing in the ministry and laws, unjustified introduction of changes (why change what works well, what others have thought of before us?), Inertia in work (if it were obligatory, they would apply it immediately), lack of ideas, lack of interest in change and the work they do, state of dissatisfaction on a personal and professional level, alleged attitude to traditional values, fear of change, etc.

Changes in the teaching profession happen regardless of all that. Teachers today have several more roles and are becoming more and more organizers, course moderators and mentors. At the request of the job, they share their knowledge with others and pass it on to students through a certain model of work in the classroom and through a model of behavior. That is why it is important for teachers to know different teaching models. The way in which teachers themselves acquire knowledge in this area is very important because they will pass it on to their students, consciously or unconsciously.

An IT-educated teacher can create classes that motivate students to learn with the help of new technologies. Therefore, it is necessary to redefine the IT competencies of teachers. It is not necessary for them to have only IT literacy for office operations defined by the ECDL standard (word processing, spreadsheets, presentations and Internet search). The focus of work with students, future teachers and educators, should be shifted towards instructional design and design of educational media with the application of basic and modern pedagogical theories. For further research, it remains to be seen how much the introduction of the compulsory subject “Educational Technology” at pedagogical faculties would affect the improvement of everyday teaching.

Improving teachers’ IT competencies is only the first step in improving teaching. Without the application of what has been learned in teaching and the change of the methodological-didactic approach, only the improvement of teachers’ information competencies does not mean much. They have an element of potential energy to really apply what has been learned and to improve teaching, which can be attributed to the action of the new model for e-learning.

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