Importance and use of information technologies in educational process

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Abstract

Competitiveness and market share on a highly competitive market of higher education can be retained by university only if it protects its good name, continuously shows good results in education, has exceeding results from its competitors, and is able to create and retain unique and above standard pleasant conditions for studying, that fulfil the expectations of current and future students. The quality of school is shown not only through the care for the product, but also through its systematic ability to satisfy needs of students as clients (partners) of education. (1)

1 Introduction

In general, it is possible to say, that in the area of educational technologies the pedagogy research is highlighting the importance of interaction and hypermedial presentation of knowledge. Sociological research confirms, that children and young people will be living in the world that is more and more about media. Nowadays, computers, videos, television, internet are increasingly becoming common part of their life environment. It is more than clear, that the use of informational technologies will significantly affect the learning environment of the school in this millennium and the pedagogical process itself. Considering these facts, there is a wide range of new didactic and pedagogical problems, including the training of future teachers.

Primarily, there is a question of how the social and individual development functions of media and information education will be presenting themselves. If it is about humane management of modern society, where also belongs the newest information technology, it will be essential to think again about the education concept in a broad context of human culture. It is that kind of awareness, which allows one to think about technical as well as social systems. It should not be reduced to only technocratic instrumental thinking, which is expressed mostly through numbers and schematics. That means to use the media impact that comes from outside of school, and also use of multimedia tools at school in a way that supports humanising aims in education.

Be conducive to, so that the students understand the basic tendencies of social progress, culture, can be critical in making opinions about current events, have understanding for changes, be able to actively support humane mindset.

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Currently, there are being developed new areas in media pedagogy and didactics. (Tulodziecki, 1989, Kron, 1993). Among other things, the view of media is expanding, they are being incorporated into a wider context of youngsters' life, theirs acculturation and socialisation (D. Baake). Further questions are focused on the relationship between new technology and the way of discovering things and the forms of knowledge. It is more than clear, that the ways of getting knowledge expand, and that also means students' outlook expands. Modern technical tools allowing students to broaden their knowledge outside of school. On the other hand, this way of getting knowledge often limits their actual experiences. A school will definitely take advantage of this fact, but at the same time it should not just observe it without any reflection. The objectives of school will be to make didactical conclusions from the fact that the "indirect getting of knowledge" often needs analysis, explanation, individual assessment. That means, that the learning process cannot get rid of the task to provide deeper knowledge, develop independent thinking, which amongst others allows one to have critical opinion about resources that are offered by the most modern technology, distinguish its benefits and limits.

There are arising new problems of illustrativeness (Rolff, 1993). Cognition through media is illustrative. However, this cognition must be often rather explained. What means iconic way of learning? How is created its relationship towards analytical-verbal way? Nowadays, it is spoken about "consuming illustrativeness", which is different from traditional school illustrativeness. It will be a task for didactics to provide the key to reality in media, and newly work on the problem of illustrativeness as a didactic principal. (3)

2   Dividing of medias, static and dynamic media Section

An important division of media was described by M.Mc. Luhan (2000 str.7), he divides the media into hot and cool. He based this around the fact, that some media have different effects on receiver of the message from some other media. For instance, he states that radio is a hot media, and describes its effects and how it differs from effects of the phone, which he labels as a cool media. Hot medias don't need active participation or receiver taking any part in passing on the information, because they have large amount of information. Lower participation of the receiver of the message leads to certain personal and social withdrawal. For example, it is enough to listen to the radio. On the other hand, cool medias require extensive personal participation and receiver to take an active role in getting the message across, because they have smaller amount of information and require significantly more active sensory participation of the receiver of the message.

Hot medias are alphabet, radio, photographs, films. Cool medias are hieroglyphics, phone, caricature, television. Notice that in the above stated example of hot and cool medias, the radio and phone, create only one media - sound. Radio and phone are "only" communication technical tools of this media. M.MC Luhan does not understand to medias in terms of how they transmit a message, but according to how they affect our perception. To simplify it, we can say that the media is the message, not the information itself. The important point here is the form of how the information is transmitted. There is a great amount of literature that disagrees with Mc Luhan's statement. For example, objectionable is the feedback and insufficient argumentation, or poor evidence of some statements. Another possible way of how to divide media is according to social relationships, which each media supports. It can be about the support of communication amongst two individuals, who consider themselves as unique, independent persons and between them can also exist very strong social bonds (family, relations). This communication is interpersonal, see D. Mc Quail (200. page 27).

It is also communication through letters, emails, phones, etc. The top of mass communication can be computer (electronic) nets, which can connect many senders with many receivers, and that create a wide (by the number of participants and space) communication net. For example, chats, electronic conferences, etc. Another good example of the role that modern media has, in terms of information, is the social role. This is explained by in an article by P.,Krpálek and A., Kulhánek (2017), in which they refer to their teaching work at the University College of Business in Prague. In particular, they talk about the use of material didactic tools that support financial education, which is socially very important. Significantly more effective teaching was achieved by using didactic technique - electronic presentation in MS PowerPoint. In the presentation was developed each stage of the cash flow statement procedure with tasks for students, who received printed brief.

Then they had the presentation in front of them, and each step of the correct solution of the identical task for each method (direct and indirect) was shown bit by bit. At the end of the task, the results of each method were compared in one table. It was clear that the result must be the same, different is just in the structure of items according to relevant report. Important is also the recommended reading list and the use of it to support students' learning process. In this case, the learning materials of the cash flow and ideas for tasks come from the book written by Synek and Dluhošová.

Positive effects of this attitude is demonstrated through results of summative evaluation, ie. students' results in final exam, where in comparison to previous period there was significant improvement, also higher attendance during exercises (by 20%) and positive opinion that took part during the evaluations - regularly organised surveys always take place at the end of a semester. I consider this evidence to be only indicative, because the comparison of the results applies to different groups of students, and student surveys reflect subjective opinions. It is out of question, that work that was spent on completing exercises is much faster, it became more illustrative, clearer, user friendlier and more comfortable. On the other hand, it is more difficult in terms of preparation for a lesson. If the teaching tool is already created, then further use and improvement isn't that hard. According to authors, didactic effectivity is unexceptionable.

Didactic technique allows effective presentation of learning tools, most often through recordings and reproductions of text, pictures and sound (Kostelník 2009). In many cases, it allows didactically more effective management of the learning process. Similarly, Šimoník (2005) says that didactic technology is every machine and device, which allows demonstration of learning tools and presentation of learning programs that are saved on different kinds of racks. In practice, at universities the most popular and most used projection technology, which has three important advantages: it is highly didactically effective, suits in terms of fulfilling didactic principles, ideally supports modern styles of teaching. However, it is necessary to realise that even the most profound teaching tool or modern didactic technique and technology, in direct contact teaching cannot replace thoughtful well prepared and conceived pedagogic work of a teacher.

But that is not the mission of it. In particular, in full-time college courses the position of the teacher is irreplaceable and decisive. Didactic technique, technology and teaching tools are only supporting tools to make teacher's pedagogy work more efficient. Modern way of multimedia learning is based on internet services and the support of technical resources like information and communication technologies, that is e-learning. At universities, its importance is steadily increasing. It offers a wide range of use, and it is characterised by emphasis on independency, creativity and the student's responsibility for his studying progress (self-responsible leasing). Many colleges and universities diversify their courses and partially they take advantage on part-time courses that is based on learning management systems (LMS).

In the Czech Republic, e-leasing platforms are still being used in their simplest form, text materials are shared on CD-ROM, emails or internet. E-leasing allows creating of multimedia database of particular knowledge of particular education institution through a computer connected to the internet, distant communication is allowed with the teacher (tutor) and at the end it is possible to gain particular certification confirming successful completion of the course (Tóblová, 2006).

There are educational courses and also many others supporting tools: e-mail, electronic presentation and documents, video, chat, electronic conferences, virtual classes and on-line discussing groups. (2)

3 Internet as the environment for education

Current learning process at universities is not possible without using modern technical resources or new information and communication technologies. The point of their use in learning process is the delegation of certain communication and decision making tasks from human onto technology, and making space for creative human activities at the expense of mechanical and reproductive activities. The use of information technologies significantly affects the learning process at universities. Considering this there is a whole range of didactic and pedagogic issues, which must be considered while training future teachers. First of all, there is a question regarding how the social and individual developing functions of media and information education will reveal (Skalková, 1999).

The newest IKT is necessary to see from the humane aspect, it forces us to think about teaching concepts in wider context of human culture. It is the teaching concept, that allows development of students' character in social area, and not only in isolated technocratic thinking. Students should understand basic tendencies of social development, culture, they should be able critically look at current life situations and learn to actively support humane mindset. The development of the internet brought new options into education. Website environment and the simplicity of document and information publishing is bringing information and publishing explosion. From this point of view, the internet is possible to evaluate as a democratic and free communication and information tool.

When evaluating teaching online application it is necessary to follow these aspects (Slavík, 2012).

- **Didactic level of an application.** First of all, it consists of compliance of didactic rules and teaching methods. Part of the evaluation of the didactic level of a teaching application must be also an analysis of the goals, which the application specified (what user should learn) and what methods the application is using to reach specified goals. Important criteria of the rating are: the scale of illustrativeness of the teaching application, use of multimedia elements and the feedback that the user receives.
- **The evaluation of the content of a learning application**. Mentioned evaluation is about rating the scope and depth of particular topic, that was analysed in the application in cooperation with the teaching goals that are in the curriculum, in taught subject and in particular topic.
- **User's point of view of the learning application.** It represents the scope of how difficult it is to use the learning application (simplicity, or complexity of the application, navigation elements, user's orientation). When evaluating, from the user's point of view, it is important to consider the necessary entering ability. Either from the operation point of view of the application or educational content point of view. User friendly attitude is considered to be the most important. Individuality of a learning process in learning application is, for example, set up by allowing continuous evaluation of a user that is connected with a record of user's activities.
- **Technical requirements that are needed to run a learning online application.** For example, these are decided by the capacity and speed of the internet connection, requirements for installing different software plugins and modules. Learning applications can be interpreted differently by internet browsers, so browsers can show same content with slight differences. Learning applications should this eventual issues solve in a way, that neither group of users is advantaged because of a particular browser. (4)

Conclusion

Media and education is getting increasingly more attention throughout all levels of our education system. We cannot, and of course we don't even want to avoid the modernisation and development of new educational methods. What else to do, if we don't want to be considered old theorists by our students, those who lose contact with the modern world. Education is mostly about communication and motivation, as well as most human activities. It is not possible to educate someone, who does not want to be educated. To keep one's interests awaken and actually deepen them, we have to work with methods that are close to him, attractive and natural, and modern media for sure are like that. What is left is, that we must use them properly, so they are helpful and not harming.

Current globalised world allows businesses continuous activity thanks to modern information technologies, which are utterly part of our every day lives. The extremely fast transmission of information and pace of changes, which are happening all around the world forcing the businesses to react promptly. Only the business, that is prepared to react in an adequate and fast manner according to changes, is able to survive amongst the competition that globalisation brings. These situations must be practised by students through professional education system at high schools, colleges and universities. This preparation starts when teachers themselves during the lessons use modern technology, so the students don't consider them to be conservative theorists, that loose contact with modern world. (2)

The use of medias as didactic resources cannot be seen isolated only from the teaching point of view. Repeatedly, it has to be remembered that television, video, computer, internet, despite the school and lessons taught, are acting in a wide social environment, in which young people live, and that it further outreaches the school boundaries - family, free time, peers' activities etc. In this context, sociological research is especially important, which maps the effects of mentioned media on socialising and acculturation of young people (Baake,1975, Sak a Saková,2003 aj.). Such a research explores the frequency of the media use, take into account the problems around its effects on children and young people character, analyses positive and negative consequences in their value system, how it affects structure of the value system and orientation etc. (3)

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