SUGGESTIONS OF WAYS OF APPLYING COMPLEX APPROACH TO THE CREATION OF E-LEARNING COURSES OR TO TEACHING IMPLEMENTED BY COMPUTATIONAL TECHNOLOGY

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Abstract: *Computational technology has become a current trend in the educational process mainly in higher education. The technology sometimes helps students during their self-study time when they search for additional information concerning the topics discussed in the lesson. In other cases the computers are part of the instruction itself e.g. drawing different kinds of pictures, laboratory experiments, using special software in exercises. There also exists teaching based directly on the use of computer. The method, E-learning, exists in various forms and modifications e.g. Blended learning. We often focus on gaining and acquiring of certain skills and so on in teaching, carried out by teacher, as well as in learning, learner's activity. However, we often forget to perceive the work on computer itself from the complex point of view. That means that not only the skill of work with software, but also health aspects of work on computer are important. This paper deals with the problem and suggests unforced ways leading to observing work hygiene. The paper primarily focuses on creation of E-learning courses; however most of the proposed suggestions are applicable to the use of computers in classic instruction.*

Key words: *E-learning, health, proceeding*

Introduction

Computers and computational technology are currently spreading into almost all aspects of life including education. Pupils learn the basics of Computer Science already at primary school. Many children are already able to operate computers perhaps because they play computer games at home. The educational impact of this kind of activity lies beyond the topic of this paper. Let us conclude that children come across computational technology in very early age. The technology accompanies them during their school attendance if not during their whole life. It should be in parents' and pedagogical work-

ers' interest to insure that computer technology is beneficial for young learners. There are various projects in which specialist focus on this problem. For example there are several schools where computers were as part of experiment integrated into the learning process, etc. The teachers explain the subject of the lesson by using interactive boards and students do not take notes in their notebooks but use their portable computers. Even though the school lacks financial resources to provide each student with a computer, their parents are strongly interested in this kind of education. That is why parents are willing to invest their money in a personal computer so their child can be placed into this special kind of class.

The older the students the more are computers used for gaining information to the topics related to the curriculum. When a student is interested in a topic and he or she wants to explore it in detail, there is nothing easier than enter the right word in the search engine on the Internet. The next possibility of application of computers are exercises in Mathematics or various tasks in learning foreign languages. In addition computers can be used for discussions about the given topic among classmates. We could find many more examples of positive effect of computers on a learner.

Although students have a chance to use computers from early years at primary school, mainly university students use computers to support their learning and carry out their homework like research the sources for their essays. Computers are used also for the process of teaching itself. Typical example of this kind of teaching is teaching with the help of E-learning. There are various forms of E-learning: E-learning in its full form or other variations like Blended learning.

Following paper focuses on designing E-learning courses for university students. The main aim of the paper is to ensure high quality of the courses from many different perspectives.

Suggest proceeding

While preparing an E-learning course it is necessary to consider the question of the target group of the course. Different approach should be applied when designing a course for students under thirty years of age and different approach applies to seniors attending University of the Third Age. Different approach is taken to create courses for healthy students and to in some way handicapped students.

The paper does not deal with designing courses for handicapped students. This is a very specific field for Specific Educational Needs teachers. However, E-learning method is a very beneficial way of learning. It is a great advantage when a student is not able to attend traditional teaching process can continue in his learning process by way of E-learning or other method using a computer. In case of less serious illness a student can join his or her classmates and continue in his education as if he or she did not miss any classes. In case of more serious illnesses the computer has a positive effect on the patient's psyche that could, in the end, lead to the improvement of the patient's state of health. At the same time the patient can use computer to continue in his or her studies, which to a certain extent, avoids breaking all social ties with school friends. We can observe the positive effect not only on the side of the ill student but also on his or her friends. They can realise that the nowadays celebrated symbol of young, healthy and

beautiful man is just an illusion which could disappear in a split second in which one becomes disabled.

The target group of the paper is relatively healthy university student under thirty years of age. Once this question has been settled we can proceed further. E-learning course should be designed according to the general principles of pedagogy. We need to follow for example the principle of proportionality, the principle of progress from simple to more complex issues, etc. In addition to these factors it is necessary to take into the account the financial factor: economic return, etc. Health aspect is an inseparable component of an E-learning course, too. Working on computer means following the principles of work hygiene.

The first and the most important principle we need to follow when participating on an E-learning course is from the health aspect the prevention. This aspect is very often neglected since everyone has basic knowledge from this field and does not want to admit that it is not satisfactory. Failing to observe basic principles of work hygiene might become evident only after a longer period of time, which leads to overseeing this problem. Introducing an introductory course in work hygiene at the beginning of the E-learning course itself might solve this problem. A student would be familiarised with the correct way of sitting at the computer, holding the computer mouse, what angle is the most convenient to look at the computer screen and other advice related to the topic. The course would be concluded by a test and only after passing the test the student would be able to access the learning material in the E-learning course. The test should be quite simple as its purpose is not to test the student's knowledge in detail but to make the learner to think about the health aspects of work at computer. Important fact is that the designers of an E-learning course offer the possibility to learn about the protection of the health while working at computer and it is the student's own decision whether or not he or she uses this possibility.

The next suggestion how to improve an E-learning course from the health point of view is to split the course into appropriately long blocks. What do we understand under "appropriately long block"? The main principle of E-learning courses is that every student can determine the time he or she spends studying each component of the course. That is why when designing this kind of course it is necessary to assess approximate time needed for study for example according to the previous experience. When upgrading the course it is already possible to take into consideration the times of the previous students. It is necessary to point out that most of the E-learning platforms like Moodle enable to observe the amount of time the students devoted to each item in the course. To be more precise, how long they were connected to each item, since they could also print some parts it is necessary to make a reductive assessment. Each block of study should be designed in a way that they are not too long and the student does not have to face the dilemma whether to make a break and this way loose the context of the learning material or rather skip the health break and thus risk his own health.

The next field where it is possible to improve the health aspects of E-learning courses is in operating of the hardware. The solution to this on the first sight debatable solution was inspired by in automotive industry, Internet connection or other fields like diving, where an instrument measures the time and the depth of the submersion.

Some automobiles are equipped with a system, which reminds the driver to fasten his seatbelt. It is possible to fully operate the car while the seatbelt is not in place, however the car makes unpleasant noise, which stops as soon the seatbelt is fastened. When we look at the case of change of the oil in a common car, the owner has to watch over the time when it is necessary to change the oil depending on the kilometres made and the time of the last oil change. Other automobiles, usually the more expensive ones, have a built in system, which monitors the oil and informs the driver when it is necessary to change it. When the time comes the driver can have the oil changed in a garage. If the driver ignores the oil change indicator the car fully works on, however, after a certain time it is not possible to start the car and the driver is thus forced to look after the technical state of the car. These precautions are introduced due to the security concerns.

Another example is from the field of Internet connection. Internet providers offer their customers various connection tariffs. Many of them are based on the fact that the high data transfer speed is limited to a certain amount of data. After exceeding this limit the transfer speed is temporarily reduced. This policy is called FUB (fair user policy).

These examples could serve as an inspiration for at the first view distant field of designing E-learning courses. Computer software would observe the time the student dedicates to uninterrupted study of a certain block. In case of excessive time of study the student would be advised to make a break. When the student ignores the warning and continues to work the E-learning course would slow down the computer and it would make an unpleasant noise. Naturally, it is necessary to consider whether the time that the program assesses is the actual time spent on continuous study. If an E-learning course contains documents in PDF format it is not possible to determine whether the student spent the whole time studying or whether he made a break and just left the running program. That is why the suggested method only works when we eliminate this problem. Interactive learning where it is automatically possible to trace the time of uninterrupted learning could be the solution to this problem.

Conclusion

In conclusion, when designing E-learning courses it is essential to look at the process globally through the optics of other scientific disciplines. Health aspect is an important feature to be considered when creating a course using a computer. Each course should be designed in respect of the health principles. Prevention is essential. However, it is possible to take safety precautions to protect the learner's health. One of the main features of E-learning is that the student takes over the responsibility for the learning process as well as for the health protection. That is why we hope to create suitable conditions to protect health and not to force him/her to protect his/her health.

Literature

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NÁVRHY JAK KONKRÉTNĚ UPLATNIT KOMPLEXNÍ PŘÍSTUP PŘI VYTVÁŘENÍ E-LEARNINGOVÝCH KURZŮ ČI VÝUCE USKUTEČŇOVANÉ PROSTŘEDNICTVÍM VÝPOČETNÍ TECHNIKY

Abstrakt: Současný trend v edukačním procesu, zejména pak na vysokých školách, je mimo jiné charakterizován stále větším využíváním výpočetní techniky. Někdy se jedná o pouhé samostudium studentů, kdy třeba na internetu vyhledávají informace k tématům probíraným ve škole. Jindy jsou však počítače přímo součástí vlastní výuky. Například při rýsování obrázků různého charakteru, v laboratorních cvičeních, při používání specielního softwaru ve cvičeních apod. Kromě toho však existuje i výuka založená přímo na používání počítače. Tím je myšlen E-learning v různých jeho podobách a variantách (např. Blended learning). Při výuce jakožto činnosti učitele stejně tak i při učení se jakožto činnosti studujícího se příliš často zaměřujeme pouze na získávání a osvojování si určitých kompetencí apod., ale zapomínáme, že je třeba se věnovat i samotné práci u počítače, a to v komplexním pohledu. Tedy nejen ovládání softwaru, ale také třeba zdravotní hledisko studia u počítače. Příspěvek se věnuje právě této problematice. Popisuje návrhy, jak studujícího nenásilnou formou přimět k dodržování pracovní hygieny. Příspěvek se primárně zaměřuje na tvorbu E-learningových kurzů, ale mnohé z navržených podnětů lze aplikovat i při využívání počítačů v běžné výuce.

Klíčová slova: E-learning, zdraví, opatření