

SOME APPLICATION OF WEB TECHNOLOGIES IN EDUCATION - BETTER EFFICIENCY OF KNOWLEDGE ACQUISITION

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Abstract: This paper presents some views of the application of web technology in education. Considerations are relating to the principles of the use of information and communication technologies in new concepts of teaching. The importance of information and communication technology is emphasized as an indispensable factor for its support.

Keywords: Information technology, e-learning, blended learning

1. COMBINED (MIXED) LEARNING

Combined learning and the use of web technology are focused on meeting the goals in learning, by applying the "right" learning technologies to match the right style of learning, and thus convey the "right" skills to "right" people at the "right" time. Principles embedded in this definition are [1]:

- the focus is on the learning objectively, and not on the method of learning transfer,
- different individual learning styles are supported, so that wide audience can be reached,
- everyone has a different learning experience,
- in many cases, the most effective learning strategy is: "exactly what is needed, at the right time".

2. DEVELOPMENT OF EFFECTIVE PROGRAMS FOR COMBINED LEARNING

When designing learning environment, a lot of factors must be taken into account. Many of these factors are connected and dependent. The factors make octagonal frame (Khan's frame). The frame has eight dimensions (picture 1) [2]:

- institutional – it deals with issues related to organization, administration, and some academic issues,
- pedagogical – this dimension "suggests" a scenario in which all the learning objectives in a given program are explicitly stated, and then the appropriate method is selected,
- technological – learning environment is created, and tools for different learning program are provided,
- interface design – are the factors related to the interface user of the combined learning program,

- evaluation – it deals with the usefulness of program,
- management – it deals with managing the program of combined learning,
- resource support – various types of resources (off-line and on-line), available to students and their organizations, are created,
- ethical – issues related to cultural and national features are identified.

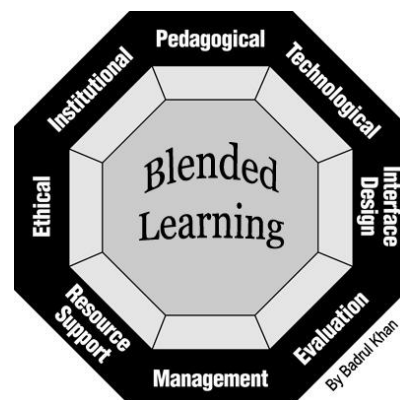


Image 1: Khan's octagonal frame

3. COMPONENTS FOR COMBINING

The process of combining is not new. Earlier, the components to be combined were limited in classrooms (reading materials, labs and etc.) and books.

The choice of the most appropriate media, activity or content for hybrid learning can be based on several criteria:

- the investment in online education is justified by course stability,
- longer time and greater financial resources allow the creation of complex content and

interactive multimedia application based on web technology,

- learning at your own pace without a teacher available, only if the interaction between learners and teachers for successful learning, is not necessary.

For successful implementation of hybrid learning, more common combinations (models) of on-line or off-line learning should be chosen [3]:

- additional model – various on-line activities are added to the traditional way of learning in the classroom,
- partial replacement model – instead of using the traditional methods of teaching and learning face-to-face, some types of on-line learning are used, but only for selected topics/lessons,
- on-line teaching model of domination – learners use on-line materials at their own pace, with minimal learning in the classroom, and with the help of on-line and off-line contacts between teachers and learners,
- integral on-line model – all course materials are available on-line, and interaction with students is completely on-line,
- model of "self-learning" – learners can choose between using on-line and off-line lecture presentation, or on-line and off-line contact with the teacher.

In combined learning process students can work alone or they can work with other students, by directly communicating in the classroom or in the virtual classroom as well .

As a result of rapid development of web technologies, great opportunities, connected to presenting or using the lectures, are available, the aim of which is achieving better results in learning.

4. APPLICATION POSSIBILITIES OF COMBINED LEARNING

Today, there are numerous sophisticated software tools designed to support the learning process [4-6]. Certainly, the Internet represents one of the most important elements in such computer technology. By allowing access to users regardless of location, Internet applications allow an extension of learning beyond educational institutions. This concept allows the improvement of the conventional learning by independent learning, as well as distance learning [7, 8]. All major universities of the world fight for their position in the use of online learning. President of Penn State University says the use of classroom and online education is "the only major unrecognized trend in higher education today"[9].

Internet is a global computer network and an outstanding medium that can be implemented in the education process [10-13]. It is difficult to estimate

the amount of information and to show how great it really is.

By sophisticated tools, extremely detailed and precise parameters of Internet data traffic can be obtained. On the Internet Traffic Report website, the following accurate information about the parameters of the Internet are presented.

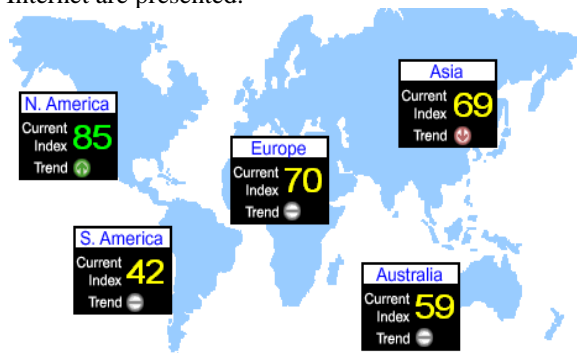


Image 2: Index of the continental bandwidth of Internet [14]

Recent data on Internet development in Serbia [15] suggest that the popular "network" is still relatively poorly distributed in households in Serbia (only 36.7% of households in Serbia have internet connection), and since it is so, the traditional methods of data collection are some time to be an indispensable part of research offers, as certainly necessary for measuring the general population. However, the Internet is rapidly expanding in our country (percentage of households that have Internet access has almost doubled since 2006., when it was only 18.5%), and forecasts for the future can only go in the direction of further growth, and we can say that preponderance on-line time data collection of traditional yet to expect. Electronic mail is by far the at the first place (61%), followed by: free surfing - 39%, reading news - 35%, chat - 34%, the search - 30%, and, finally, the download - 27%.

The most commonly used platform for implementation of the Moodle learning combined. However AlefMentor and educational software can be used in combined learning. The system is designed for creating on-line courses and tests, and mutual communication of participants. This software is an Internet-rounded educational system. The crucial concept of this software is based on its universality. This concept represents a universal system for creating courses, tests and forums. The system enables [16]:

- fully flexible learning "anytime, anywhere",
- individualized, personalized, and relevant teaching and learning,
- lessons exempt from classic conventional physical stress related to location, building, arrivals,
- students can be in very large numbers, but also in small groups, even individuals,
- this way of learning is very cost effective and adaptable medium for small educational institutions with limited budgets.

One of the most important success factors of online teaching is effective communication. From the very beginning of on-line teaching, through its course, and at the end of online teaching, the teachers in online communication use proven and successful teaching methods and develop their own methods. Communication with each individual student is different because every student has his/her own style of learning. It is followed by messages related to teaching content (discussion of tasks, support for mastering the content, motivating students to work).

Combined courses combine learning in the classroom and on-line learning by using the Internet. Students can expect to be taught in a traditional classroom, while the other part of learning should be done on-line. The division between on-line and classroom learning depends on the learning content. Some assignments may require additional use of the Internet, where the required information can be found, so that the assignment can be done.

Combined learning is primarily intended for students who:

- are interested in both types of learning – in the classroom and on-line learning ,
- are busy (with work or family), so instead of being at school they can learn on-line,
- want to save personal contacts with teachers and students, but on the other hand, certain assignments can be done by themselves.

Technical college in Cacak (now Technical College for Vocational Studies) was established in 1960. The college has changed and adapted the curriculum to the requirements of modern time, even before the Law on higher education. In 2002/2003, the first generation of students at the three-year (six semesters) studies was enrolled. As a result of a hard work of all employees, the Commission for Accreditation and Quality Assurance has accredited six school programs in the field of technical science in 2007 and 2008. Since the college has continued to improve and to meet the needs of students, the Commission for Accreditation and Quality Assurance has accredited 4 new and modernized study programs in 2012.

While monitoring and working with students (teaching the subject IT and Computing I and II), it can be noticed that new generation of students is willing to work hard. At first, the number of students, willing to work hard, was 10%, but now their number has increased to 20%. Poor financial situation is the main reason why many of students, after finishing high school, first find a job, and after a year or two continue their education. The reason is that, most parents are unable to pay scholarship fees and other obligations connected to study. Currently, these students are helped, since some lectures and exersies are given in the afternoon, so that they could attend the classes according to the principles of Bologna Declaration (presence on classes is required). For

these students, the idea of combined teaching would be the right solution, because they would be able to adjust school, work and personal commitments, and still be in the same position as students who attend school regularly.

Similar situation exists at other colleges and universities. Knowing these facts, there is a good reason for considering the introduction of combined learning as a working method at High Technical College for Vocational Studies in Cacak, but at other colleges and universities as well .

5. CONCLUSION

The constant development of technology imposes the introduction of new concepts, as a support for active learning, aided by using modern web technologies.

Not only does combined learning save time and money, but it provides a more natural way to learn and work as well.

Application of combined teaching is very important in the process of improving traditional teaching. The development of web technology has enabled the innovation of educational technology in the improvement of teaching and motivating students, and raising the quality of learning as well.

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