

QUALITY ASSURANCE OF E-LEARNING THROUGH IMPROVEMENT OF TEACHING MATERIALS

Vesna Ružičić, Marija Blagojević
Faculty of Technical Sciences Čačak, University of Kragujevac

Abstract: *The current trend in education is towards flexible and creative institutions that are capable of sustained change and development. E-learning plays an important role in the process of accessing, collecting, analyzing and transforming information and knowledge. The greatest contribution has to do with bettering both the teaching staff and the students and raising the process of education to a higher level. The quality of teaching and the system for managing the process of learning is likewise improved. The primary aim of E-learning is to enhance the quality of contribution to a particular organization, i.e. an educational institution. The research testifies to the importance of E-learning, as well as the quality of instructional content, and the results have been obtained by means of a survey conducted among students who use the learning management system. The teaching materials which are posted on the learning management system, as well as the activities through which students acquire knowledge, have been clearly outlined in the paper. A suggestion as to how to improve certain materials in order to enhance the quality of knowledge has also been offered on the basis of the results obtained in the survey.*

Keywords: *E-learning, teaching materials, quality of knowledge.*

1. INTRODUCTION

In the system of higher education, the attainment of quality is a comprehensive procedure which includes all the mechanisms, processes, and activities by way of which an institution of higher education establishes, maintains and enhances the quality in all areas of work. In this continuous process, an institution of higher education ensures compliance with standards which have been adopted at a national level and which are, by and large, compatible with European standards. It is absolutely necessary to establish a system of quality in each and every line of work, particularly in the system of education, which affects the development of society as a whole.

Knowledge management is a dynamic process that is constantly developing. The pivotal role that lifelong learning occupies in solving social problems is increasing daily, so that it has now become an indispensable element of sustainable development. Managing changes in education must improve pedagogical management as a process of managing the quality of education. The current trend in education is towards flexible and creative institutions that are capable of sustained change and development. Teacher could improve quality of teaching and results of work with students, if he use appropriate

teaching materials, and if he adapt his work according to students' needs.

Learning management system gives opportunity for different types of teaching materials and different activities for knowledge achievement. Based on students' opinions and results of conducted research this study proposes types of materials which could provide quality assurance.

2. KNOWLEDGE OBTAINED THROUGH E-LEARNING

2.1 Learning objectives and learning outcomes

Learning outcomes give a clear description of what a student should know, understand and be able to do at the end of a course or module. Learning objectives and learning outcomes are two different terms. The former represent what a teacher aims to teach a student throughout the duration of a course of study, whereas the latter represent what a student has learned at the end of that course. Intention lies at the heart of learning objectives and learning outcomes are a measurable result of that intention. The aim is to align the learning outcomes with the set objectives so as to enhance the quality of knowledge. Each learning outcome is thoroughly checked and consistently graded according to explicit criteria for each grade [1].

2.2 Achieving results through E-learning

E-learning provides access to learning materials, multimedia presentations and other educational resources on the Internet and involves continuous assessment and evaluation of knowledge at all levels, as well as electronic communication with teachers and other students. Knowledge is acquired by means of information and guidance submitted using different information technologies.

Such an environment enables individual support to students and provides an extremely high level of teacher-student interaction and cooperation. E-learning plays an important role in accessing, collecting, analyzing and transforming information and knowledge. The greatest contribution has to do with bettering both the teaching staff and the students and raising the process of education to a higher level. The quality of the teaching process and the system for managing the process of learning is likewise improved.

For E-learning to be successful, both the teacher and the student have to change their attitudes and traditional beliefs and habits and adopt a different way of thinking, suited to this new learning environment. In order to successfully blend into this environment, teachers must possess an additional set of skills which can be attained by attending training courses and by making an extra effort. The extra effort that a teacher is expected to make implies his or her readiness to understand the demands of a new generation of students and to tailor their lectures to suit students' needs, as well as create an interactive learning environment. Motivating students and encouraging them to take active part in E-learning is also of fundamental importance because it is the only way of raising their level of education [2].

E-learning provides many activities which could serve, either along, or combined with others for creating and delivering lessons to students, knowledge evaluation, opinions checking etc. Depend on learning strategy of teaching, some of the activities could be proposed to students „conditionally“, which means that students could attend those activities only if there are satisfied some conditions (available of dates of materials, available if some other activity is finished, available if the previous grade is acceptable). There are other activities which students could use for communication with teachers, or with other students. These activities are support for collaborative learning or individualization: **chat** (sinhron communication between users); **forum** (asinhron communication between users) **wiki**, **workshops**, which support collaborative learning.

3. MATERIALS POSTED ON THE LEARNING MANAGEMENT SYSTEM AND WAYS OF IMPROVING THE QUALITY OF KNOWLEDGE

The process of education takes place within the institutionalized education system, as well as within the academic programs and curriculums. The quality of continuous professional education can be improved through proper management, understanding of the teaching profession and the use of standards that are applicable in practice. E-learning focuses on providing support in the form of pedagogic supervision during individual learning (supervisor organizes the learning process). Knowledge management takes into account organizational perspective and practice, drawing on the notion of „sharing“ and knowledge „transfer“ [3].

3.1 Research results

A survey was conducted among students who attend a number of E-courses in order to improve the quality of E-courses and the quality of knowledge thereby attained.

The survey was aimed at gathering information about students' opinions on:

- the quality of E-courses
- ways of improving teaching materials so as to encourage increased participation, provided that it is insufficient in the existing courses.

The research results can be used to improve the quality of the course and obtain the best model of an E-course.

The survey included 46 students majoring in IT, 4 of which were female and 42 male. The survey refers to Moodle courses [4]. Table 1 presents the basic characteristics of respondents.

Table 1: Participants' information

Gender	Frequency	Percent	Valid percent	Cumulative percent
Male	42	91.31	91.31	91.31
Female	4	8.69	8.69	8.69
Total	46	100.0	100.0	100.00

Table 2 shows descriptive statistics of the respondents in the survey:

- number of survey respondents
- minimum number of students who answered a survey question
- mean
- standard deviation.

Table 2: Descriptive statistics of respondents

N	Minimum	Maximum	Mean	Std.
46	2	28	14.34483	6.67766



Figure 1. Choice of interactive activities

As shown in Figure 1, the majority of students chose forum as a preferred activity within the course. Wiki pages occupy the second position, followed by chat rooms and workshops in the third and fourth places respectively. Students believe that a course without interactive modules would be of poor quality and a

testimony to this is the fact that only a small percentage of students (only 4%) opted for the option Course without interactivity. Based on the results it is possible to draw a conclusion on the activities that should be included in the course and forum is evidently number one on the list.

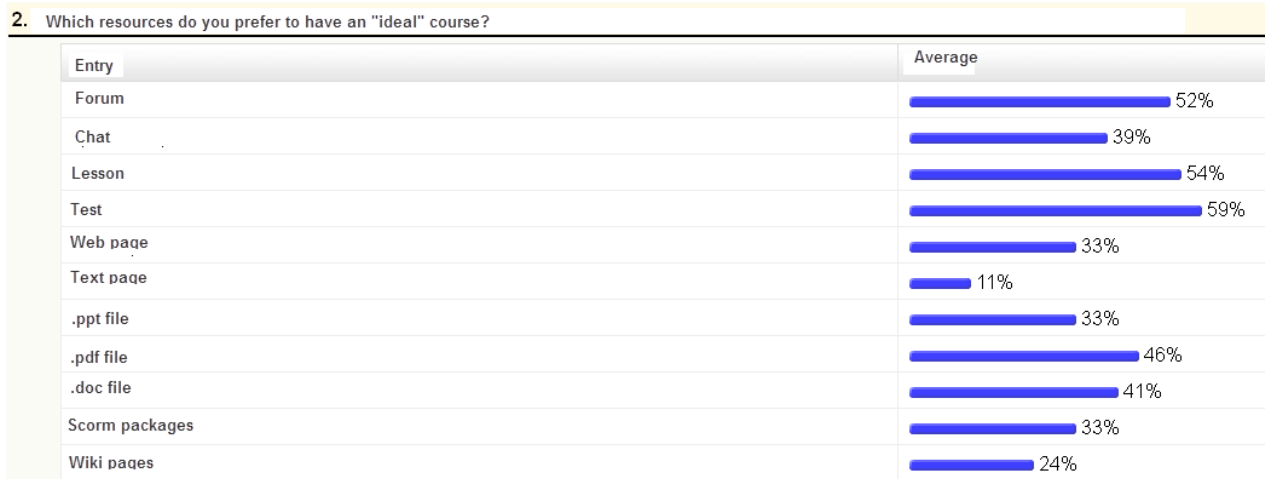


Figure 2. Resources students mostly choose

Figure 2 shows the resources that students mostly choose within the so-called „ideal course“. These resources would directly improve the quality of a course. The majority of students (59%) opted for tests. With that in mind, tests should be included within E-courses as much as possible. They should serve both as a method of self-

evaluation and assessment. Lessons and forums occupy the second and third places, respectively. The results referring to forums are in accordance with the previous question. Namely, it continues to occupy a prominent position among the preferred resources which would increase the quality of the course.

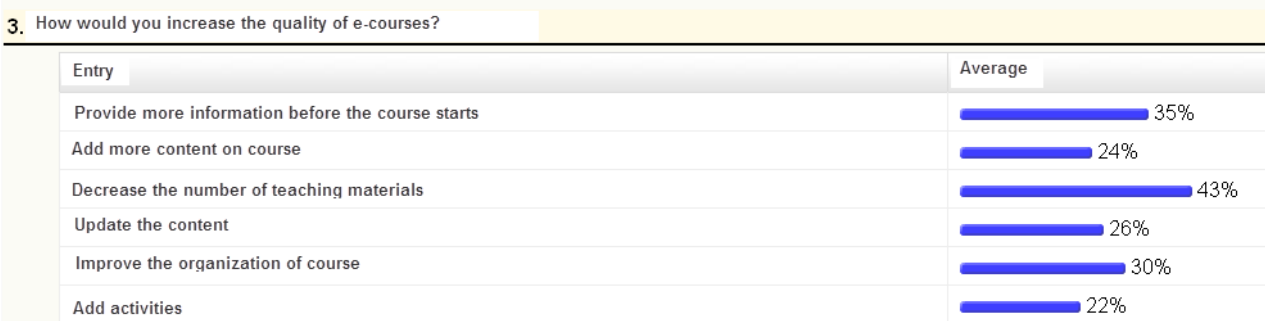


Figure 3. Ways of improving course quality

The ways of improving the quality of E-courses are given in Figure 3. Students, for the most part, believe that reducing the number of teaching materials would lead to an increase in the quality of a course. Furthermore, they think that it is necessary to provide more information

before the course begins and to improve how the course itself is organized. All of this can be implemented in the future with the aim of improving the quality of E-courses.

4. Mark the number of resources which you consider as most appropriate.



Figure 4. The number of resources considered as most appropriate

Figure 4 shows the results which refer to the selection of an appropriate number of resources within an E-course. Resource in this question is related to different types of activities in the course. For example, if teacher use assignments, forums, test, lessons and power point presentations, the number of resources is five. Students believe that it would be most appropriate to use three

different resources. This result is a consequence of limited use of E-courses, as all the respondents in the survey were first-year students. It is, therefore, necessary to organize the course in such a way as to keep in mind students' previous experience with E-courses, so that maximum quality is achieved.

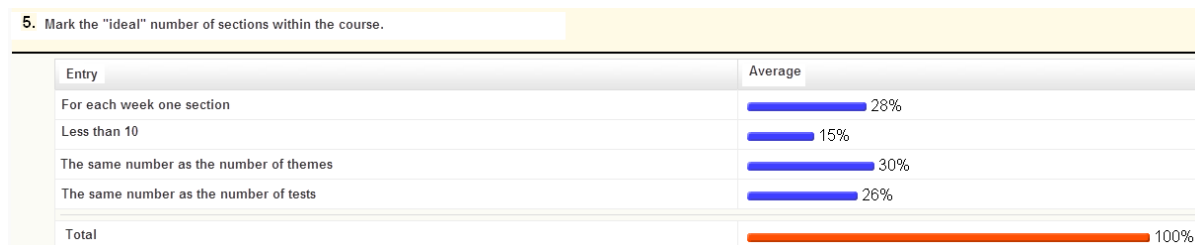


Figure 5. Ideal number of sections within the course

Figure 5 shows the results which indicate the ideal number of sections within a course. Students, for the most part, believe that there should be one section for each topic, or that the number of sections should correspond to the number of weeks or to the number of examination units.

4. CONCLUSION

Current technology is highly advanced and student-friendly. It is necessary to forge a link between students and teachers. The Computer Age has brought about an educational and professional change which can direct thoughts focused on various multiple tasks – „multitasking“. This should be applied in the case of learning strategies and teaching techniques. As E-learning and its features are mostly set apart for future generations, it is essential not to judge their value only from our perspective.

E-learning requires continuous work and improvement and the set goal is the students' guidance. All the tools, blogs, social networks, forums and Wikipedia are well designed and extremely flexible in that each of them help to establish strong links between students and teachers. In addition to creating electronic activities, which directly involve them in the process of learning, it is essential that students use E-course resources for better results. The conducted research has shown that it is advisable to use forums as a learning tool. Previous experience should pave the way for more flexible learning, provided that it is properly used and linked with the target group.

The presented research has also yielded some general guidelines for improving the quality of E-courses. It is necessary to point out that the research was conducted among students who have only just begun to use E-courses and that the guidelines given do not apply to students who have used this method of learning for a long time.

In addition, the results point to a need for continuous quality assurance of E-courses, as well as their improvement through joint efforts of all participants in the learning process.

Future work in this area will examine the question of redesigning the E-course for which the survey was conducted. It will not only provide a re-evaluation for a future generation of students, but an evaluation of other courses and ways of improving them.

ACKNOWLEDGMENT

The work presented here was supported by the Serbian Ministry of Education and Science (project III 44006 and III41007).

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