

TEACHING QUALITY IN BLENDED LEARNING MODE

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ABSTRACT

The strategic importance of education in the national economy, the evolution of quantitative and qualitative demands in relation to the learning outcomes, the use of e-learning tools for the collection and distribution of knowledge and innovative educational paradigms, atomization and complex way of teaching processes, determine the nature of higher education. The aim of the article is a presentation of the assessment model for blended learning tools quality evaluation in higher education. This paper is an attempt to look through the prism of educational entities at e-learning system, implied as a set of key elements, which are the primary mechanism for creating value and teaching quality. The proposed research concept allows to specify the structure of the assessment model (resource configuration and processes coordination) and can be used to analyze the framework of specific subjects, teaching staff and teaching modes. Furthermore proposes solution is strictly subordinated to the identified goals (quality definition) and the assumed effects (quality measurement).

Introduction

It is important for the leaders of any educational organization, to understand the changes in development of technology and information society, as the civilization challenges which lead to achieve a certain level of organizational goals. Development of e-learning tools has enabled the creation of educational products and services, dedicated to both broad and narrow, specialized audiences, and even creates different distribution

channels of knowledge within the group. Therefore, a modern educational organization, operating on the local or national market, but still functioning in the global information society, must pay attention to opportunities in ICT and e-learning tools development.

There are several dimensions of the educational organization, which are responsible for the effective implementation of good quality e-learning tools and achieving competitive advantage in the market. The most important of these are: a methodology of building educational programs, a methodology of teaching and evaluation (paradigms of education), the use of IC technologies in education and a flexible organizational structure within organization. It can therefore be noted that without the precise identification of e-learning system key elements in educational organization, it is impossible to determine and define the level of teaching quality (Rudawska, Kiecko, 2000).

Research model and the survey

E-learning system (e-learning tools) in educational organization is a subjective term, because its range may be different, depending on the viewpoint adopted by the observer. The adoption of specific benchmarks for system decomposition and atomization of its individual elements and the demarcation of borders between the system and environment, is also individual in nature and is burdened with a significant degree of subjectivity.

There are three groups of definitions within systematic approach: structural, functional and attributes definition, so the e-learning tools can be analyzed and defined from various points of view. The structural definition identifies key tools factors and defines its boundaries with the environment, points to relations between elements and the main relationships. Structural approach determines the components of a e-learning system and clarifies how it should be seen in relation to the environment. The functional definition (process) indicates the actions that occur within the e-learning system and shows the main impact on the teaching process. The process approach clearly emphasizes the dynamics of the system and processes occurring in it and presents a specific sequence of parallel or consecutive events. Kind of a bind connecting structural and functional perspective is the definition which shows the characteristics of e-learning tools. The attributes approach gives an answer to questions about the specific characteristics of the key quality factors and processes that create a network of mutual ties and interaction. Networks are understood as "an evolving system of mutual dependence on resources, which is the result of the systemic nature of interactions, processes, procedures and institutionalization. Measures implemented in this system relate to creating, connecting, sharing, transforming, absorbing and exploiting the formal and informal relationships." (Tijssen, 1998).

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Based on the presented approach to e-learning tools (three definition types) and earlier research conducted at the faculty the most important assumptions of adopted survey procedure are:

The research model is based on the combination of several methods, such as: SERVPERF (Cronin i Taylor, 1994) and five elements Likert scale (1 – the lowest, 5 – the highest); methodology of building Network Readiness Index by (World Economic Forum, 2017); methodology of higher education organization assessment in five areas model (Stecyk, 2016) and is based on systematic approach to e-learning tools.

The first step to evaluate e-learning tools is to identify the key factors that determine the level of teaching quality:

- F₁ – Content,
- F₂ – Presentation/Communication/Verification value,
- F₃ – Innovative and mobile solutions,
- F₄ – Translations (foreign language),
- F₅ – Printing possibilities,
- F₆ – Wi-Fi and ICT service quality,
- F₇ – Teaching efficiency and skill transfer,
- F₈ – Knowledge distribution,
- F₉ – Practice links,
- F₁₀ – Ethics and manners (teachers role evaluation).

The second step is to select a specified e-learning tools to be evaluated:

- T₁ – video tutorial (presentation tool),
- T₂ – text workbook (presentation tool),
- T₃ – external websites (presentation tool),
- T₄ – glossary (presentation/verification tool),
- T₅ – file downloading (presentation tool)
- T₆ – file sending (communication/verification tool),
- T₇ – discussion forum (communication tool),
- T₈ – quizzes and surveys (verification tool),
- T₉ – grouping (communication tool),
- T₁₀ – lessons (verification tool).

The third step is to conduct a research and analyze the collected data.

The research was conducted on a sample of 157 students in the academic years 2016–2017. Students evaluated the selected e-learning tools in the context of the proposed factors describing the quality and effectiveness of teaching process in computer science subject. All survey respondents were participants in classes conducted in a blended learning mode, so they had experience with e-learning and blended learning solutions. A summary of the research on all selected tools in specified dimensions is shown in the Table 1.

The collected empirical data allowed the use of statistical analysis to aggregate information and calculate the average value of the results for the specified tool and factor. The results of the study were finally grouped into three ranges:

- the tool/factor determining the satisfactory level of quality (4.0–5.0, light grey color);
- the tool/factor determining the acceptable level of quality (3.0–4.0, white color);
- the tool/factor determining the unsatisfactory level of quality (less than 3.0, dark grey color).

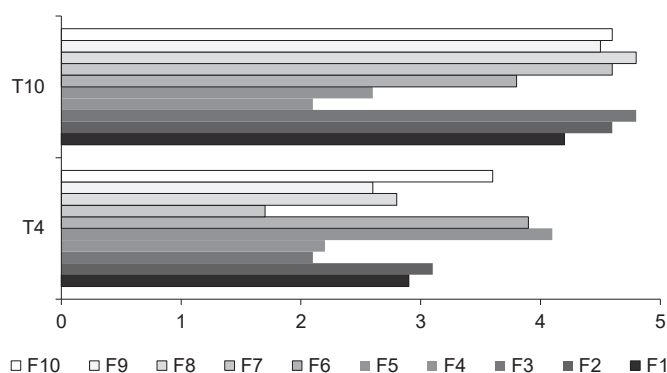
Table 1. The summary of survey results

	F2	F3	F4	F5	F6	F7	F8	F9	F10	Av.	
T1	4.7	4.8	2.2	1.7	1.3	3.6	4.6	4.8	3.8	4.5	3.6
T2	4.3	3.7	1.2	1.4	4.8	4.6	3.5	4.1	3.7	4.4	3.6
T3	3.6	3.4	2.3	4.7	4.3	3.9	2.9	3.1	3.4	3.6	3.5
T4	2.9	3.1	2.1	2.2	4.1	3.9	1.7	2.8	2.6	3.6	2.9
T5	4.6	4.4	2.5	1.7	3.7	4.8	3.8	4.3	4.6	4.5	3.9
T6	2.1	4.6	2.6	1.7	4.7	4.8	3.6	4.2	4.6	4.3	3.7
T7	3.3	4.1	2.1	2.7	3.6	4.3	3.2	3.7	3.1	3.3	3.3
T8	3.6	3.9	3.7	2.5	2.9	4.6	3.4	3.8	3.9	3.6	3.6
T9	2.2	3.8	3.2	2.4	1.3	3.7	4.2	4.5	4.3	4.8	3.4
T10	4.2	4.6	4.8	2.1	2.6	3.8	4.6	4.8	4.5	4.6	4.1
Av.	3.6	4.0	2.7	2.3	3.3	4.2	3.6	4.0	3.9	4.1	3.6

Source: own elaboration.

The detailed characteristics of the research go beyond the scope of this article, but one should be noted that the final average result 3.6 belongs to the group of factors defined on acceptable level of quality.

The highest estimated tool was the T₁₀ (lessons, a tool for different teaching paths based on tests results) – average 4.1), which means that the proposed teaching mode is highly regarded by the students. This was the only tool that belongs to satisfactory level of quality group. In the second place was the T₅ – downloading file tool (3.9) and T₆ – sending file tool (3.7) which mean that computer file sharing is an effective teaching tools, but still need to be improved. The only e-learning tool that belong to the group of the unsatisfactory level of quality is glossary (T₄ – 2.9). This is probably due to the constant need for students to complete theoretical issues on specific subjects. However, the final average results point to a positive evaluation of the selected tools by the students while pointing out the need to improve the proposed e-learning solutions. The Figure 1 shows the highest and the lowest rated tools (T₁₀ and T₄) and all the selected quality dimensions.

**Figure 1.** The highest and the lowest rated e-learning tools (T₁₀ – lesson, T₄ – glossary) and all the quality dimensions

Source: own elaboration.

Another element of the study that needs to be analyzed is the assessment and students' perception of the factors that determine the quality of e-learning tools and teaching process. The three highest estimated factors were: F_6 – Wi-Fi and ICT service quality (4.2), F_{10} – ethics and manners (4.1), F_2 – the quality of presentation, communication and verification factor (4.0) and F_8 – knowledge distribution (4.0). Such a result indicates that, in key areas, the adaptation of e-learning tools in the context of quality improvement in the education process is moving in the right direction. Nevertheless, it is important to pay attention to those factors that have been assessed at the unsatisfactory level of quality: F_3 – Innovative and mobile solutions (2.7) F_4 – Translations (foreign language 2.3). Such results clearly show that the next step in the development of the e-learning tools should be to pay attention to the mobile solutions, increasingly popular among students. The second thing is to turn to translating educational components into several foreign languages, with particular emphasis on English, German and Russian. That will allow us to open a faculty to foreign students and increase competitiveness in the education market, which will also have a positive effect on the quality of education. The Figure 2 shows the highest and the lowest rated tools and the average rating of all the other selected quality factors.

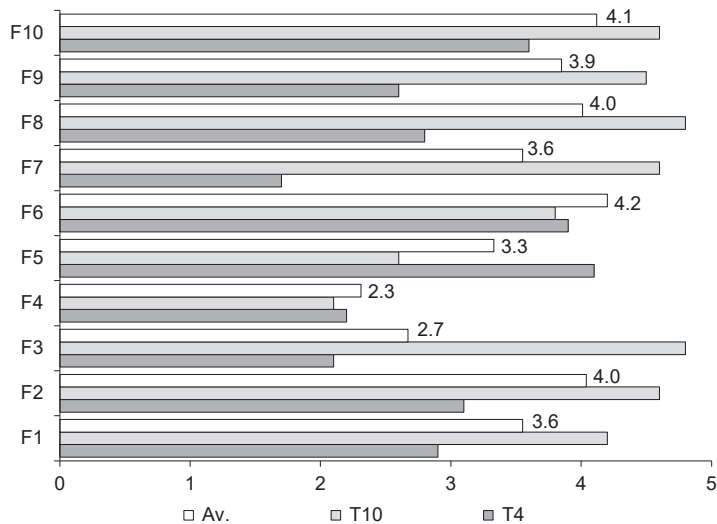


Figure 2. The highest and the lowest rated e-learning tools (T_{10} – lesson, T_4 – glossary) and the average rating of all the quality factors

Source: own elaboration.

Conclusions

The conducted survey ends a phase of analyzing the quality of selected e-learning tools at the faculty in specified quality dimensions. This raises the question about the direction of developing new solutions for higher education in the future. The answer how educational organizations will respond to future challenges depends on the speed

and flexibility in adaptation to the rapidly changing reality. Most experts agree that the processes of globalization, technology development and building the information society, will push the educational organizations to:

- continuous monitoring and implementation of proven or innovative technological solutions in the teaching process,
- diversification of teaching methodologies through the development and promotion of new paradigms in education and the use of e-learning tools,
- modeling, analysis and measurement values in the e-learning systems (IT resources, human resources, methodology, organization, economics, social resources, etc..),
- continuous increasing the volume of students, diversification of the educational offer by building new educational products and services for individual customers, globalization of educational services by reaching out to new markets and new customers,
- searching for new business models in order to the implement the social and economic objectives.

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