STRATEGY FOR EVALUATION AND SELECTION OF SYSTEMS FOR ELECTRONIC LEARNING

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Abstract

Today’s technology supported and accelerated learning time requires constant and continuous acquisition of new knowledge. On the other hand, it does not leave enough time for additional education. Increasing number of E-learning systems, withdraws a need for precise evaluation of functionality that those systems provide; so they could be reciprocally compared. While implementing new systems for electronic learning, it is very important to pre-evaluate existing systems in order to select the one that meets all defined parameters, with low costs/investment. Proper evaluation can save time and money.

Keywords: e-learning, systems for e-learning, evaluation of systems, e-learning tools

1. Introduction

The sixth generation of e-learning systems has reach the top in last few years. A significant increase of systems for electronic learning requires a precise evaluation of the functionality that those systems provide. With qualitative evaluation they can be compared. In most cases, when we implementing a system for e-learning, it is necessary to hire an e-learning system experts who will help us to prevent unnecessary waste of resources, time and money. Another key point for successful implementation is to make a project for implementation of e-learning systems because it is the only way to reduce risks and increase chances. A huge number of systems for e-learning offers a multiple choices. For the quality evaluation is it necessary to chose a system that offers us exactly what we want with the least investment. E-learning in the teaching process imposes the question of quality of electronic education. Compared with traditional instruction, e-learning has many peculiarities. First e-learning requires extensive technical knowledge, information and computer literacy, adequate equipment, multimedia presentation, also physical and virtual contact between teachers and students. E-learning systems generally use a web interface that realizes the communication between users and the systems. Also there is a question of adaptability of learning material which includes the user interface and the ability of transition to a new system if we choose to replace the old. Besides the flexibility in choosing LMS it is necessary to pay attention to system durability because LMS requires new resources and computer upgrades. Design and implementation are the final process in implementing system for electronic learning.

2. Evaluating e-learning system

The evaluation system for e-learning, is the process of testing the effectiveness in an e-learning. If a quality knowledge is final result in the evaluation process, the system is ideal, purpose and tasks are fulfilled and users are satisfied. Teaching, as a specifically important and time-consuming process of training, requires maximum engagement and takes time. E-learning process requires the specified system for e-learning. System for e-learning must be effectively checked and if system performance has not been tested it shouldn’t be used in teaching. The evaluation system is a complex process. Today there is a many variations of evaluation method and therefore it is easier to testing LMS. Before implementation of LMS, the institution or individual must define a methodology for evaluating. The base of selecting criteria is to create our own evaluation model that will enable easier evaluation. The first step of system evaluation for e-learning is to create hypothesis. Hypotheses must be set according to predefined parameters that the system should have. The results must be obtained by observing and researching needs of all users in the institution. Following the hypotheses, we must definition our valuation model. System must be evaluated in the way to confirm the truth of hypothesis. Further, we must research and analyzed the results. Effectiveness of the system can be measured by surveying or testing all users. Results of surveys or tests must confirm the hypothesis, which means that the evaluation was successful and give us positive results. We also can compare the results of efficiency with traditional instruction. This requires experimental research that will allow parallel testing of LMS effectiveness because it will examine the relationship between teaching and student learning.

3. Strategy for evaluation and criteria selection

3.1. Experts gathering

The first step in strategy for evaluation and criteria selection is to gathering experts who will guide us through project selection and implementation of new system for e-learning. When Faculty or other institution
decides to introduce a system for e-learning it is necessary to assemble a team of experts who will set up hypothesis, select the criteria and parameters for evaluation. A team of experts would have to consist of an administrator, technical support, IT managers and people who are generally responsible for computer equipment. If the institution does not have enough technical knowledge or resources to implement the system, institutions can take advantage of "open source" system. This systems have free software. But as we said free software is anything but free and we must observe all the conditions that this “open source” system provides and under what conditions does. The system administrator must know all about server installation and configuration on which system will be installed, also to adjust and optimize LMS functions, and how to upgrade the system. Administrator also create a “back up” systems, and technical support. Team of experts are inconceivable without the role of administrator.

3.2. Assessment of criteria selection

In the process of e-learning system evaluation we have to set the selection criteria. As first, we must observ system for e-learning as a specific information system that provides the ability to create and use different methods of learning. Quality assessment is defined as the systematic examination of the extent to which an entity (product, service or organization) capable of meeting the specified requirements. A team of experts in the institution must set priorities. They must determine would the system be an integral part of teaching and should be all courses fully or partially on-line, etc. Also we must set would the system be an assessment system or helping system in communication between teachers / students. The most important criteria is to determine, compare and analyze them.

3.2.1. Determination parameters of system for e-learning

Each system including a system for e-learning should be regarded as divisible units. Evaluated criteria must be divided on the general criteria, the criteria for customer premises and criteria of adaptation. Under the general criteria we mean that general properties of each system is characterized, and makes it unique. Criteria of adaptation are adjustment of sustainable simplicity. Any system for e-learning have users: teachers, administrators, students and authors of materials. Each of these users has its own working space or a virtual interface in e-system. Beside work space we should also look for technical criteria. In each of these users interface, it is necessary to specify the default configuration and needs that institution look for. According to the needs of the institution we must define each area of all users. A team of experts must determine the primary parameters. In working environments users observe the following parameters shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1. Users interface</th>
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| **Teachers working environment** | - teaching tools  
| | - creating of the course  
| | - space for the development of teaching materials (calendar, design interfaces, etc.)  
| | - ability to control student`s work  
| | - space for testing  
| | - communication tools (forum, chat, etc.)  
| | - test of knowledge  
| | - private space  
| | - archives  
| **Students working environment** | - communication tools (forum, chat, e-mail, etc)  
| | - private space  
| | - approach to teaching materials  
| | - help space  
| | - archives  
| **Administrator working environment** | - registration and authorization  
| | - creating users accounts  
| | - design of interfaces  
| | - create a group  
| | - backup  
| | - upgrading and monitoring systems  
| | - control of all uses  
| | - protestion of all materials  
| | - accounts support  
| **Autor`s working** | - working materials  

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System for e-learning can be evaluated using two types of evaluation criteria: internal software quality and quality of use. Internal quality is a descriptive characteristic that describes the quality of software unrelated to the other criteria. The quality of use is an evaluation characteristic using the software to obtain judgments based on the criteria of validity for a particular software project. Selection criteria are divided into the main criteria (the structure of the system) and its implementation as well as secondary criteria.

3.3. Determination of adaptation criteria

Making e-learning strategies to the needs and requirements of the organization. It is necessary to pay attention to the available resources that could make a good choice. The higher resources amount will give us better results and the choice will be better. The evaluation should also be adjusted to the quantity of resources. When we select and set parameters that we want to explore and analyze we approach to evaluation. We use the method of parallel comparison. The advantages of this method are that we can compare multiple products that are not the same. When we have a large number of criteria analysis will be more successful. We watch only the facts and not their implementation. Because of speed of such analysis it is possible with few resources to make qualitative analysis. The evaluation aims to select the best alternative based on the obtained results. Adaptation criteria are: system adaptability, system expandability, system adaptivity, interoperability (seamless integration and support for standard LMS) /1/, the localization system (localized user interface, Unicode text editing of time zones and date, localization support for alternative languages) and license (open source and commercial tools).

3.4. Functional characteristic determination

Each e-learning system must meet the basic functional characteristics such as stability, scalability, flexibility (flexible layout and design), usability (the ability of multiple installations on a single platform), reliability, ease of use and users interface design, flexibility (the contents of a custom platform / LMS for educational institutions such as language or design), personalization aspects (indicating the content of each individual user to make their appearance platform, to collect data and later made an empirical model), extension (possible for all the free products). And adaptability (means all kinds of automatic adaptation to user needs, eg. personal notes automatically or custom content).

3.5. Establish standards sustainability (SCORM)

SCORM (Sharable Content Object Reference Model) is a set of standards and specifications for web-based learning /2/. This set of standards defines the communication between the content of participants and the system working environment. SCORM defines how content may be packaged in a portable ZIP file named "Package Interchange Format". Except SCORM, there are also following standards for the exchange of content: IMS, IEEE, AICC.

4. E-learning system analysis and analysis of research results

In the third step it is necessary to examine the existing LMS systems on the market: an overview of key features and functions, review of existing valuation usefulness and user experiences, visions of possibilities to adapt the institutions and review the strengths and weaknesses. According to the developed model we evaluate existing e-learning systems with parallel comparison of existing criteria. Finally, we analyze the results of research.

5. Selection of the optimal system for e-learning

According to the results of research we choose the system that fully meets the set requirements of the organization. According to we send offer to LMS companies. According to collected data team of experts selects system for electronic learning.

6. Implementation of e-learning

After we select system for e-learning it is necessary to assemble a team for the entire system, establish the obligation to start the process and establish the conditions and criteria to begin the implementation process. In the event that the system for e-learning has been implemented and did not meet the requirements, it is necessary to make an assessment.
7. Assessment

Under the assessment we consider that it is necessary to consider the existing LMS operations and functions. We must conduct a survey of institutional groups of people about the current composition of e-learning. After collecting and analyzing data it is necessary to determine the percentage of use by institutions and by students. With collected data we can define the current state of e-learning. The collected data will give us an answer are current system effective or not. At the end, we present reports. This step is necessary to consider what would be the difference between costs of integration of the new system which includes application software and services, hardware and other infrastructure, integrated services and the extension, then the adoption of new knowledge, support and administration, and customization.

8. Conclusion

The need for proper selection of the system is adapted to real needs and the educational processes in each educational institution. System for e-learning with simple features may not fulfill needs of a school or university that wants to fully implement e-learning. On the other hand, too complex and complicated system of e-learning can not be effective enough to real needs in a specific area of application.

The main objective of this paper is to show how the evaluation system for e-learning is important for best system selection according to the needs of users. The role of future users in the process of evaluating e-learning system is very important for increasing the quality of choosing the best system for e-learning. Through evaluating e-learning systems, we have selected basic features that every system should satisfy. According to individual needs and the needs and requirements of the organization, it is necessary to form and additional items which will make the best system. The market is a growing number of e-learning systems which are able to add functionality every day greater adaptability. But e-learning systems are still relatively new form of learning, so that daily monitoring of our overall system, we can come up with new insights that will be guiding the evaluation of old and creating new ideas to improve our overall learning process. Only the quality of the evaluation process, can help us to choose the best.

Notes:
/2/ http://scorm.com/scorm-explained/

9. Bibliography

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