THE USE OF QUALITY MANAGEMENT SYSTEMS FOR E-LEARNING

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Abstract: *In this paper some examples of quality management systems for e-learning are given as well as findings of their application within higher education institutions in the Republic of Croatia. Literature review along with document analysis, quality policy analysis and interviews with universities management and quality departments have been conducted. Among different quality management systems developed specifically for e-learning, only general ISO standards are used in some universities in the Republic of Croatia. The need for adopting a quality management system for e-learning is indicated as there is a lack of defined pedagogical and technical standards for e-learning within universities.*

Keywords: *Quality management systems, E-Learning, Standards, Higher education*

1. INTRODUCTION

Electronic learning (e-learning) is becoming increasingly used in higher education worldwide. As in a context of a traditional learning where quality is important topic, in e-learning quality matter also receives a very important place. From ECAR (*Educause Center for Analysis and Research*) report (2013) about the state of the e-learning in higher education it can be concluded that institutions in general need improvements in the area of outcome assessment, improvements considering policies and management in e-learning as well as investments in teachers and staff [2]. Therefore, focusing on quality in the context of e-learning concepts at universities is of considerable importance. In general terms, the quality management system (qms) is the way of the official ensuring that the organization is consistently in quality control of products or services provided to its customers [6]. Considering the choice of options and existing systems, universities have the opportunity to find a system according to their individual needs or on the other hand, they can adapt an existing quality control approach or qms to their special requirements [1]. The subject of this research was the state of the culture of quality in e-learning in higher education university institutions in the Republic of Croatia where mostly blended learning is used. The study encompassed the knowledge of the topic, the existence of a strategy of quality and the study of possible existing practice of monitoring and evaluating the quality of e-learning in higher education institutions. More precisely, the aim of this study was to assess the current situation regarding the use of quality management systems (qms) for e-learning within higher education institutions in Croatia.

2. APPROACHES TO QUALITY MANAGEMENT IN E-LEARNING

According to Wirth [15] there are three main organisation that support developments of management approaches. Those are the European Foundation for Quality Management (EFQM), International Organization for Standardisation (ISO) and Deutsche Institute für Normung e. V. (DIN). Mentioned organisation have influenced on transferring quality management models to the educational sector, hence developments focused on education and e-learning has been deployed. In Table 1 there is a list of some examples of quality management systems in e-learning.

Table 1: A review of some examples of quality management systems in e-learning

Year of publication	Organization	Standard / Guideline
2003	EADL (European Association for Distance Learning)	Quality Guide
2001	NADE (Norwegian Association for Distance Education)	NADE's Quality Standards for Distance Education
2004	AFNOR (French Standardisation Group)	Code of Practice: Information technologies – eLearning Guidelines (French Code of Practice)
2000	ODLQC (Open and Distance Learning Quality Council)	Quality Standards
1999	QAA (Quality Assurance Agency for Higher Education)	Guidelines on the Quality Assurance of Distance Learning
2005	EFMD (European Foundation for Management Development)	EFMD CEL (e-Learning Accreditation)
2004	DIN (Deutsche Institut für	PAS 1032-1 Reference Model

	Normung e.V)	for Quality Management and Quality Assurance
2005	ISO (International Organization for Standardization)	ISO/IEC 19796-1:2005, Part 1: General Approach
2006	EFQUEL (European Foundation for Quality in e-Learning)	UNIQUE, European University Quality in eLearning
2009	ISO	ISO/IEC 19796-3:2009, Part 3: Reference methods and metrics

The EADL *Quality Guide* was developed by the *EADL Research and Development Committee* and supported by EU [4]. The goals of the projects were to provide a basic framework for quality assessment and improvement for private distance education institutions, to provide a satisfactory quality guarantee for distance education as well as to improve the status and image of private distance education institutions in Europe. The theoretical basis of the work was taken from *The Total Quality Management System* originated from the European Foundation for Quality Management. Basically, the model is focused on processes as a means by which the organisation gathers and releases the talents of its people to produce results. So the processes and the people are the *enablers* which provide the *results.*

The NADE quality standards were originally developed in 1993 but the last revision was done in 2001 with specific attention to standards for e-learning [13]. Standards were based on a matrix of problem areas for evaluation of a professional field or an institution. While working with the quality standards mentioned matrix was adapted to distance education so that the distance education institution's activities were divided into four main categories which were further divided into four phases. These are placed in a matrix of 16 elements named *quality areas* where for each area certain *factors* have been specified which can or ought to be includes into the institution's evaluation of its own quality.

The French Code of Practice refers to the *customer-oriented* guidelines which are also described as a process-oriented model. There are six main areas representing the guidelines which range from *introduction, analysis, construction stage, equipment stage, implementation* and *assessment* with a large number of sub-activities in a total of 282 recommendations [6].

The Open and Distance Learning Quality Council provides quality standards which define requirements of the provider and the pivotal activities grouped into six areas of *outcomes, resources, support, selling, requirements of provider* and *collaborative provision* [8]. The QAA guidelines are organised under six areas which should be specially addressed and directed on programmes offered as a distance study [11]. Every area

has stated some practices with more concrete advice on measures and activities. Guidelines or areas refer to the *system design – the development of an integrated approach, the establishment of academic standards and quality in programme design, approval and review procedures, the assurance of quality and standards in the management of programme delivery, student development and support, student communication and representation* and *student assessment.*

The European Foundation for Management Development (EFMD) developed the EFMD CEL (e-Learning Accreditation) with the purpose of raising the quality of e-learning programmes and directed to e-learning in management and business administration. Six areas also cover the quality criteria of EFMD CEL: *programme profile, pedagogy, economics, technology, organisation* and *culture* [5].

The PAS 1032-1 represents a comprehensive framework as reference for quality management and quality assurance in e-learning development projects [6]. It is also a process model described by the following process categories [12]: *requirement analysis, context, concept, production, introduction, implementation* and *evaluation.* The reference process model has no temporal sequences, no dependencies as well as no specific requirements. It always operates as an open format description in the application on the basis of individual adaptation to the respective organisation and situation.

The first international quality management standard in education and training is ISO/IEC 19796-1. ISO/IEC 19796-1 standard of quality for e-learning is defined according to the ISO information as: "…*a framework to describe, compare, analyse and implement quality management and quality assurance approaches. It will serve to compare different existing approaches and to harmonize these towards a common quality model. The main aspect is the Reference Framework for the Description of Quality Approaches (RFDQ)*" [6]. ISO/IEC 19796-1:2005 consists of the three main items, namely *description scheme for quality management, process model defining the basic processes to be considered when managing quality in the field of ICT-supported learning, education and training* and *conformance statement for the description format.* The main objective of the ISO/IEC standard is to provide a transparent description model for quality management and quality assurance approaches [9]. UNIQUe establishes a layer of quality for e-learning systems implemented in universities aiming at improving the reform process of European institutions of higher education [14]. Standard ISO/IEC 19796-3 establishes a set of metadata for describing methods and metrics of quality in e-learning. Additionally, it includes a list with examples of methods and reference metrics [7].

All of the above mentioned are process-oriented quality management systems. Their task in education is to ensure a generic and adaptive description format, specified for each situation, according to the user [3]. Furthermore, there are many approaches and widespread quality

management systems like EFQM (European Foundation for Quality Management) Excellence Model which also count for widespread industries for holistic quality management [13]. Overall, the application of these general quality standards and quality management systems in e-learning and the education and training is possible but with demanding work and expense of their implementation and adaptation as they are generally described in the service sector.

3. METHODOLOGY

A survey was conducted about the opinion and plans of the leadership of the faculties as well as the university quality departments about the quality management systems for e-learning in higher education. Repeated inquiries responded management of 24 faculties and all leaders of the seven public university quality departments in Croatia. A survey has been conducted during the years 2013 and 2014 as a part of a PhD research. One of the objectives of the research was to explore the state of the culture of quality in Croatian universities considering e-learning, especially in the context of the use of quality management systems. Interviews with vice deans for teaching and head of quality departments as well as analysis of available quality policy documents were conducted in order to reveal do faculties use any type of qms in e-learning or are they planning to adopt and integrate some qms.

4. DISCUSSION AND RESULTS

After collection and processing the survey materials following conclusions have been made.

In general, only around one quarter of faculties have a strategy of using ICT in the educational process. Specifically, the system of quality assurance at the University of Zagreb appreciates the European standards and guidelines in the field of higher education adopted in 2005 by the ministers of member countries of the Bologna process (ENQA, 2005) [10]. It is also based on the application of international standards ISO 9001:2008. The University of Split refers to the introduction of quality management system according to the requirements of the HRN EN ISO 9001 as a strategic decision. The quality management system at the University of Josip Juraj Strossmayer in Osijek is also based on the principles of the European Standards and Guidelines for Quality Assurance in the European Higher Education (ESG) and meets the requirements of the norm HRN EN ISO 9001 Quality management systems – Requirements. The structure of the quality management system is an integral part of the Strategy of University of Osijek 2011 to 2020 year. Some faculties are also implementing or already have implemented quality management system by norm ISO 9001:2008. The strategic choice of most faculties is systematic quality management. The quality management system is designed to enable continuous improvement of the quality of activities, by constantly monitoring and realizing the needs, requirements and expectations of these activities as well as other interested parties. A systematic approach to quality management encourages faculties to constantly analyze the needs, requirements and expectation of students and teachers, to establish and improve business processes by which these services are realized to achieve effective management of these processes. International standard ISO 9001:2008 specifies requirements for a quality management system. It focuses on the effectiveness of the quality management system to meet the requirements of service users. Documentation of the quality management system involves: *Quality Manual, The documented business processes and operating procedures, Quality Policy* and *Documented Records.*

Overall, e-learning is still mainly governed by the individual faculties, departments or as single teacher initiative. Mostly, qms introduction is planned by the central university administration concerning general quality management and quality management of teaching. There are some examples where faculties general qms also covers e-learning programmes so there is no need for a separate system.

5. CONCLUSION

In the context of universities in Croatia, mostly general, not e-learning specific, quality management systems are used. Even though early initiatives of quality management for e-learning in universities do exist, adoption and realisation of qms at the universities are barely apparent. Several formal e-learning strategies have been established, but there is a lack of specified pedagogical and technical e-learning standards. Considering the future prospects of the higher education institutions in Croatia, a positive quality culture are evolving.

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