Virtual Faculty Development Using Top-down Implementation Strategy and Adapted EES Model

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Abstract

E-learning has become an increasingly popular learning approach in universities due to the rapid growth of web-based technologies. E-learning implementation at universities is a long-lasting and complicated process. This process has to overcome a wide range of internal and external factors influencing e-learning effectiveness and content quality resulting in stakeholders’ satisfaction and acceptance of web-based learning. We describe the project aimed at creating a virtual faculty as an initial step to creating virtual university. A successful e-learning strategy relies on five main elements – people, tools, training, processes and support. For that reason we describe their importance in the paper. E-learning implementation may be disatisfying and frustrating unless we design appropriate electronic educational model that can avoid potential problems. Therefore we adapt an electronic educational system model that allows to plan and implement specific learning requirements. We start with the characteristics of selected top-down approach to an e-learning implementation. We combine elements of this approach and the electronic educational system model with the aim to broaden the ideas of e-learning to the wider community of teachers and students of Faculty of Social Sciences and Health Care. In the case of successful implementation, the results and processes defined and approved in this project at the level of one faculty will be efficiently applied in the other faculties of the university.

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1. Introduction

A virtual university has been described and defined in a variety of ways, which reflects the wide disagreement between specialists in establishing a unified definition. A virtual university can be defined as an institution of higher learning that has no confines, using technology to connect learners, instructors, and administrators. Other authors have added that a virtual university provides education at a time and distance that is convenient for the learner (Al-Shehiri, 2008). A virtual university’s role is the same as the classical one; however the delivery methods of the knowledge and transfer information are different from the traditional delivery methods. Significant work in virtual universities development has been presented in many books and conference papers. Their results have flowed into the development of various virtual university development strategies and models (Guri-Rosenblit, 2001; Kahiigi, Ekenberg, Hansson, Tusubira, & Danielson, 2008; Moore, et al., 2007; Yengin, Karahoca, Karahoca, & Uzunboylu, 2007).
Al-Sherhiri states that it can be observed from the models that the concept of a virtual university implies the following common characteristics (Al-Shehiri, 2008):

- The use of sophisticated ICT will have a major impact on the concept of the virtual university.
- The virtual university is not a traditional institution and it does not need to have an existing campus, offices, instructors and locus libraries. Instead, it has an electronic network which is capable of performing the same functions as a conventional university but in more democratic and flexible way.
- The emergence of the virtual university is derived from the urgent need to acquire knowledge and skills.
- Co-operation, collaboration and communication are significant elements of the virtual university.
- The mission of a virtual university is to increase educational opportunities, reaching widely dispersed learners who were barred from taking traditional university classes.
- The organizational structures of a virtual university can be represented in various models.

Whittington and Selater (Whittington & Selater, 1998) distinguished four virtual university models. According to them we can assign the solution presented in this paper to the model that is characterized as the virtual front end for single, existing institutions. In this model, an existing university/faculty supports a development of virtual faculty that is responsible for delivering online courses to off-campus learners. We deal with such virtual faculty development in the paper.

We can find the first attempts to develop fundamentals of virtual faculty as an integrated part of the Faculty of Social Sciences and Health Care, Constantine the philosopher university in Nitra (Slovak Republic) in the Comenius project „E-learning in Community Care“. This project was realized in the years 2007-2009. Its aim was to create a programme of specialized education for a non-medical personnel in the sphere of community care and preparation of modules for e-learning method of study at an international (Balogh, Munk, Capay, & Turcani, 2010). This project met expectations and served as a starting point for the project of virtual faculty development at the Faculty of Social Sciences and Health Care. We introduce the project theoretical background and chosen implementation strategy in the next chapters.

2. Electronic Educational System Model

The importance of advanced information and communication technologies, such to education has increased significantly during the past few years. In order for electronic learning systems making use of these technologies to be successful, effective and of a quality comparable to some of the traditional educational learning systems, the electronic learning systems must be designed and constructed with care, using a scientific approach embracing well-designed procedures and techniques.

We adopted a four-tier electronic educational system (EES) model in the presented project (Cloete, 2001). The objective of this model is to supply a basis for designers, developers and facilitators to construct practicable strategic e-learning models suitable for their individual e-learning environments. EES model permits a full range of services in the construction of a specific learning situation. Procedures are defined within each of these tiers, facilitating the design of, and suggesting a subsequent workflow structure for, a specific learning situation.

The top-down approach to the design of an e-learning situation by mapping the EES model onto a specific environment is preferable where the options available on the physical layer are not restricted. In the top-down approach, planners, schedulers and facilitators initiate the mapping of the EES model onto the specific learning situation by first selecting objects from the instructional layer to be incorporated into their design plan. The services necessary to realize the chosen objects are then selected from the educational middleware layer. Other objects on the educational middleware layer which may not be of direct service to the objects from the top layer can also be identified. The target group of students and the objects chosen from the top layers will often suggest the objects and the methods to be selected on the e-paradigm and the physical layers. The final steps include the selection of evaluation objects and methods as the designers and facilitators wish to implement. Identification of strengths and successes and also of gaps and weaknesses in the instructional process is equally important to ensure effective and quality learning. Only by analyzing the results of evaluation data that were gathered by a method included in the design of the course, can these goals be achieved (Cloete, 2001).
3. Top-down Implementation Approach Combined EES Model

Many universities adopted a ‘bottom-up’ rather than ‘top-down’ implementation approach. They tend to foreground the potential of e-learning to enhance teaching and learning; and to foster a wide variety of learning outcomes. In addition, staff training is seen as essential to successful e-learning but flexible support structures and mechanisms are seen as even more important. (MacKeogh & Fox, 2009).

Event though, we adopted top-down approach in a large extent to e-learning implementation strategy chosen in the project. The basic idea of this approach lies in initializing the implementation of e-learning solutions by the university or faculty management. This implementation should be in line with long term vision of the faculty development.

A successful e-learning implementation strategy using top-down approach relies on five main elements: people, tools, training, processes and support (Moore, et al., 2007). An understanding of the effect of these elements ensures the selection of the best suited strategy for current needs, and is flexible enough to support the changing needs of the faculty over time. We have to note that we have not strictly chosen top-down approach. To broaden the ideas of e-learning to the wider community of teachers and students of faculty we decided to combine elements of top-down approach and EES model features. We introduce our vision of all mentioned elements shortly in the next subsections.

3.1. People

Creative approaches and competent strategies at the instructional design, the user levels as well as integration to other systems, need to be established and understood in order to ensure a degree of quality comparable to that of traditional learning. We created the team of specialists from the university departments necessary for the success of implementation right from the beginning. While we are building the team, we should use the knowledge of university environment and know the people who are already using the e-learning solutions. We invited the IT specialist from other faculty to minimize technical problems and to ensure the readiness and flexibility of services at the physical layer of EES model. Also we have to clearly specify the responsibilities of particular members of our implementation team.

The first step of the project management addressed making the change understandable to teachers, administrators and students. Even the best ideas can fail if they are not properly understood by the stakeholders. The faculty and project management should therefore co-operate and attract all potential partners and invite them to share their vision and to participate in its implementation (Hvorecký, 2008).

3.2. Tools

Tools are the technological resources we will use to conceptualize, design, and develop e-learning solution. Regardless of which tool(s) we end up choosing; we make sure that we take adequate time to assess our options and determine the best tool for our needs, our users, and the whole organization (Thompson & Lamshed, 2006). Because enabling technologies present many opportunities as well as challenges in the realizing of e-learning, it is imperative that educators and institutions planning to embark on the development of e-learning systems, have a clear and accurate understanding of the capabilities, limitations and influences of these technologies (Cloete, 2001).

Selection of the Learning Management System (LMS) plays a key role in the success of e-learning implementation. Even the most well-designed and executed course will have limited effect if it is not effectively managed and delivered to the learner. The size and forecasted growth of the organization, and how it uses e-learning for training and development, will dictate the type of LMS we need to consider (Drlik, Švec, Skalka, & Kapusta, 2008).

We could have chosen among commercial packages on the market and open-source solutions. We have regarded many parameters in the LMS selection process, mainly integration into other information systems of the university, scalability, possibilities of technical support and update, security and so on. It turned out over the time that educational platform LMS Moodle was the most suitable solution in recent conditions. The fundamental principles and rules of IT support, e-learning portal administration and course development support have been postulated.
The aim of these considerations is to provide environment for delivering e-learning study programs created in project. For that reason it was necessary to cover following areas and define responsibilities:

- Hardware and operation system administration.
- LMS Moodle administration - E-learning course creators with the experience in course development and LMS administration assure LMS administration and management. We agree with Barajas (Barajas & Gannaway, 2000) that the technical services personnel tend to perform their duties based on their technical knowledge, not in pedagogical needs, therefore we decided to choose this solution. The additional profit of this solution is close contact between administrators, lectors and other e-learning course creators and teachers. The administrators are at once teachers and course creators. They also understand what other users (mainly new course creators and teachers) need and what problems they could have.
- Users support - We will explain forms of user support in more details in the following chapter.

We considered not only abovementioned parameters. We have regarded the results of previous research about the demographic structure of the students of the Faculty of Social Sciences and Health Care and different facets of their behavior (Čapay, Balogh, Boledovičová, & Mesárošová, 2011; Munk & Drlik, 2011; Munk, Drlik, & Vrábelová, 2011; Munk, Kapusta, & Svec, 2010; Munk, Vrábelová, & Kapusta, 2010). The results of these experiments markedly influenced the instructional and educational middleware layer in term of using the most suitable types of multimedia sources and course activities.

3.3. Users Support

Support is required to ensure that individuals have the knowledge and mechanisms they require when involved in e-learning initiatives. These supports allow individuals to reference processes and procedures, review examples, access templates, and get regular updates on the information they need to execute e-learning effectively (Pollock & Cornford, 2000). We understand the user support in presented project from several points of view:

- The basic support consists of creating new e-learning course in LMS, its categorization, and roles assignment.
- The support of formal correctness is carried out through course templates. Templates provide the framework for course design and structure (e.g. predefined structure of the lesson or course syllabus). To assist individuals to match to the organization’s standards and best practices, it is important to provide templates that can simplify the design and development process, allowing e-learning to be created more efficiently. Templates should be there to support individuals who are new to designing e-learning courses and their content, but not hinder those who have more advanced skills and abilities – therefore the use of the templates should be flexible based on ability (Thompson & Lamshed, 2006).
- The support in form of e-learning course content creation. In some cases it is easier to help teacher with minimal IT skills to fill up the content of the e-learning course, because if she/he has long-lasting problems she/he lose her/his intention and interest.
- One-to-one mentorship as part of a staff development program with aim to respond individual issues and requirement of team members and so improve their abilities to independently administer the e-learning courses and/or to find the most suitable teaching strategy.
- A discussion platform for staff to showcase their uses of the system and to ask for help and share tips was reported as helpful by all authors. The community support rests in moderation of creators’ discussions and cooperation in finding solutions of their problems.
- Further training of the creators is realized through the electronic materials (lecture notes, books, papers and conference proceedings) and through the workshops and on-the-job trainings.

3.4. Training

One part of communication strategy is a well made structure of trainings taking care of target groups needs. These activities have to cover not only the area of creating e-learning content but also prepare people for new forms and models of teaching to the same degree.
Based on several years of experience we can say that the main problem isn’t the choice of LMS but insufficient teachers’ preparation for managing education by e-courses in blended and distance learning forms (Drlík, et al., 2008).

The accent should be therefore done on developing teachers’ readiness and on the ability of the course designers and instructors to exploit technology efficiently, effectively, and at the right moment (Hvorecký, 2008).

The needs of the stakeholders will change over time, therefore we need to provide training in small, bite-sized learning chunks, minimizing the time and resources required to support these types of training initiatives (Thompson & Lamshed, 2006). We should not forget that the instructors have to have the course content knowledge, but they have to understand the technologies used for the delivery of the instruction (Guri-Rosenblit, 2001). Considering these requirements we prepared several types of stakeholders training in the project:

- Introduction training sessions for the groups of teachers.
- Just-In-Time support. This type of support is more effective than general training sessions. Just-In-Time support involves providing training, help or advice to a course team when they need it (i.e. at the point when they are preparing or updating their courses), when they are looking for appropriate method in instructional layer.
- Use the e-learning system itself to run courses for staff. The lecturers should be put “into the learners’ seat” as this makes them more reflective about learning and more aware of what they are asking of their students.

3.5. Processes

One of the biggest advantages of implementation of top-down approach is the possibility to identify the whole process in advance and defining exact rules, procedures and responsibilities. The success of whole integration process depends on consistency of these rules and on clear delegation of responsibilities. In the same time, their definition is the most difficult part of the project because they markedly influence the comparability of quality of electronic education with traditional one. We prepare a set of requirements which have to be accurately defined by the management to ensure the quality and sustainable development of the project outputs. We consider these requirements:

- The primary factor for e-learning course evaluation is the result of reviewing of the scholastic correctness of the e-learning course. The comprehensive course must be appreciated better than incomplete e-learning course.
- E-learning courses are different in content. It is necessary to evaluate the textual and multimedia extent of each e-learning course according to its purpose and aim.
- The number of active teachers in the course – The content of the course may be often created by several teachers. It is important to recognize the overall contribution of each of them.
- Teachers’ activity and visibility in e-learning course environment represent important aspect of evaluation process. Creating of the e-learning course is only the first evaluative criterion. If teacher is regularly visible in the course, moderates discussions and coordinates students’ activities, he/she should be adequately motivated.
- The number of assigned students and their activities are closely associated with teachers’ activities.
- Innovation of the e-learning course rests in the appropriate usage of new, traditional and unconventional methods that increase the overall quality of the educational process. The emphasis should be put on developing students’ competitiveness and on the ability of the course designer and the instructor to exploit technology efficiently, effectively, and at the right moment (Hvorecký, 2008). These methods should not go unnoticed.

4. Conclusions and Recommendations

E-learning has become an increasingly popular learning approach in universities due to the rapid growth of web-based technologies. E-learning implementation at traditional universities as well as creating of any kind of virtual universities is a long-lasting and complicated process. It is necessary to see the e-learning implementation as a continuous and iterative process. The points of the entry into this process will vary depending on the institutional context and personal skills of the teacher. It is becoming increasingly clear that there are many reservations, worries, objections and questions about e-learning from the pedagogical, professional, and sociological point of view that must be taken seriously (Barajas & Gannaway, 2000).

We introduced the theoretical background of the project whose aim is to create virtual faculty. The detailed description of the presented project is described in (Skalka, et al., 2011).
When we take into account the opportunities available in virtual universities, their place in the educational future is nearly assured. We believe that virtual universities are becoming more visible in higher education environment. The student demographics are changing, technology is constantly improving, international issues are always being explored, and so classical universities have to take advantages of these potential profitable investments.

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