

Capacities, tools and methods that support E-learning

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Key words: E-learning, ICT, educational organisations, internet, user requirements

ABSTRACT

Increasing market needs and development of the Information and Communication Technologies (ICT) are pushing educational organisations towards continuous development and implementation of the new innovative learning methods in order to meet the challenging user requirements. Educational organisations should be one step ahead then the current developments in the particular industry and to have a vision for its further progress so they can provide adequate programs and be a competitive player on the educational field.

These organisations, academia need a 'state-of-art' information systems, which would facilitate students and professionals learning and practicing new acquired knowledge and skills. Functional and sufficiently fast internet is ultimately required. Discussion boards or video conferences links are present as a tool to practice E-learning or to gather experts in their domain at one virtual place to share their knowledge and to contribute in offering support and solutions on a particular topic.

Digital libraries are more frequently used as a source where specific, quality and easy accessed scientific literature and materials can be found from any remote point having internet access. These libraries are equipped with search engines and with simply typing key words or author's name(s), sufficient results come out.

Professors, lecturers with theoretical background are ultimate, but real life and real problems are not always as described in the books. Academic professionals having practical experience in specific domain could contribute educational processes by transferring combined theoretical with practical knowledge. Like in other industries lessons learned and good practices in education are always beneficial to apply.

This paper concludes that as a consequence of living in the era where the revolution in technological developments and increasing demand for information implies with the need for continuous upgrading professionals: 'lifelong learning'. E-learning practicing higher discussed capacities, tools and methods are the present and the future models in institutional strengthening and human resource development.

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1. INTRODUCTION

Where just two decades ago spatial data was mainly carried on paper maps, map and three-dimensional topographic data is now accessible via Google Earth. Where accurate positioning was once the professional pride of highly trained geodesists, we now see such services provided by GPS-based consumer products. This revolution in technological developments and demand for information implies the need for continuous upgrading professionals: 'lifelong learning' (Molenar, 2006).

Educational organisations should be one step ahead then the current developments in the particular industry and to have a vision for its further progress so they can provide adequate programs and be a competitive player on the educational field. Technique that could support identification of the current and possible future requirements is the analyses of the user requirements, performed by questionnaires, interviews, SWOT analyses, etc.

E-learning is a new innovative learning method developed as a consequence of the need to meet the challenging user requirements.

Tools and capacities that supports E-learning are the 'state-of-art' information systems with their applications and digital libraries that facilitate skilled and experienced academic personal to transfer their knowledge to the end users: students, mid career professionals etc. This paper is presenting views on capacities, tools and methods that support E-learning.

2. ANALYSES OF USER REQUIREMENTS

Efficient and effective performance or doing business of one organisation lies down in optimal use of skilled human resources and availability of the well organised and institutionalised technology in order to best identify and meet system and user requirements. Meeting these requirements is becoming a critical success factor and it is more recognised as such by different businesses (Todorovski, 2008).

Well performing educational organisations, world wide, also consider achieving user requirements as a critical success factor and analyses of these requirements becomes a regular practice in their every day working activities. ITC conducted a workshop with its students in 2005 in order to better identify their current and future requirements. These results together with the results from the similar workshops with the academic and administrative staff are taken as a significant input while developing the ITC Strategic plan 2005-2009 (ITC, 2008).

Recognised accomplishment of the 'user requirements' as a critical success factor, is one of the main elements of this study too. Specific attention should be put on analysing user requirements in the period of development of the business and ICT strategies of the

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educational organizations. Good practices are showing that this activity is recommended to become a regular working practice of a particular educational organization. Internal and external users should be analysed with respected relevance within their own domain.

Meeting user requirements - a critical success factor - is becoming a bigger challenge for all business. Organisations which succeed in this are more efficient in their performance, their products and services are increasingly demanded which gives them opportunities for improvements and further development. Follow the motto: Learn from the users what to do and how to do it (Todorovski and Lemmen, 2007).

3. 'STATE-OF-ART' INFORMATION SYSTEMS FOR E-LEARNING

"State-of-art" information and communication systems are tool facilitating the E-learning process. For the end user what is important is to enter his/hers username and password and click the particular button to be connected on the discussion board or video conference link, a click which will allow him/her to attend the virtual class or provide teaching materials for the next class. End users in this case are the students, mid career persons wiling to advance and academic professionals too. Powerful tool that supports this activities and which is used in ITC is the 'BlackBoard' (ITC, 2008b) software application.

Components of the information and communication systems or the system architecture have to be composed of functional networks components where sufficiently fast internet is ultimately required. User friendly interface of the software applications or applications infrastructure provides user's trough the networks facilities fast and correct access to the databases with materials for the specific module, announcements and important information.

Another tool used for the E-learning processes are the discussion boards or forums. This are virtual places where students can meet using advanced information technology and have lectures. Industry is also using this method for gathering experts at one virtual place for discussing on a particular topic and give a their opinion or suggestions for specific subject. This tool is used by business industry like World Bank projects on land issues or simmiar forums can be accessed via The Global Land Tool Network (GLTN) – portal which contributes to the implementation of pro poor land policies to achieve secure land rights for all (GLTN, 2008). Using the advances of the technology is offering these days this boards and forums can easily be performed trough the video conference links where participants can establish audio and visual communication. Nowadays messengers like: Yahoo, MSN, Skype and many others provide sufficiently good audio and visual communication.

We can conclude that 'state-of-art' information and communication systems facilitated with fast internet connections, web based software applications, data base driven using international (open) standards are the pre condition for establishing E-learning processes and long distance courses.

3.1. ICT developments in the educational domain in the Republic of Macedonia

In the case of the educational development in the Republic of Macedonia there are some developments which later could result with E-learning processes as they are developed now in the western European countries. Government of the Republic of Macedonia announced a minister for ICT and his responsibility is to increase the ICT awareness of the general public through the project: Macedonia - country of ICT experts. Under this project that the government is executing sub-projects which are worth mentioning here are:

- PC for every pupil/student – PC's are bought and installed and currently the network facilities are in installation phase,
- internet for everybody – there are internet accounts given by the ministry and users can use internet for free,
- free courses for beginners in using personal computers,
- free voucher for every student registered in 1-st year of university for buying a PC, etc.

In the Republic of Macedonia a governmental body responsible for the Cadastre and Land Registration is the State authority for geodetic works (SAGW). Currently reforms are going on in transition of this organisation from authority under government into a self financed agency for real estate cadastre. There is a project going on in SAGW financially supported by the World Bank for Real estate cadastre and registration. This project is supported by the grant from Sweden for strengthening the institutional capacities of SAGW which is executed by Sida – International Swedish developing agency. With the resources of this grant training centre is established in the premises of the SAGW equipped with PCs where staff from SAGW can be trained for basic use of PC up to the advanced usage of software applications for processing digital graphical data-digitizing of analogue scanned and geo-referenced maps.

4. DIGITAL LIBRARIES

Digital libraries are portals more frequently used as a source where specific, quality and easy accessed literature and scientific materials can be found from any remote point having internet access. These libraries are equipped with search engines and with simply typing key words or author's name(s), sufficient results come out.

Excellent example is the 'Digital Library' of the ITC, it is a specialised scientific library on Remote Sensing and GIS (Geographical Information Sciences). The library is open to all students and staff and supports the education and research at ITC. Outside users can also visit the ITC Library (ITC, 2008a). It is a portal with a network of libraries providing scientific materials and academic output in the area of geo-information sciences.

Another source of reliable scientific materials is the web-site of the International Federation of Surveyors – FIG - a federation of national associations and the only international body that represents all surveying disciplines (FIG, 2008). On the web site of FIG, its publications, congress and seminar proceedings with scientific papers, commission's publications and other related materials can be found. In order to increase the quality of the output of the published materials from this year for the FIG Working Week in Stockholm, Sweden from 14-19, June 2008, a process of peer reviewing the scientific papers is introduced.

Digital library in the domain of Land Administration is the OICRF - the International Office for Cadastre and Land Records. It is one of the permanent bodies of the FIG. OICRF serves as a documentation and study centre for land administration and is charged with the following tasks:

- collecting and systematically filing and indexing all documentation material relating to existing cadastres and land registration systems,
- conducting comparative studies of this material and publishing the results,
- providing information and advice on all cadastres and land registration systems to all interested persons and institutions for the purposes of study or to help countries wishing to set up a cadastre or land registration system or improve an existing system,
- maintaining the documentation system on a daily basis (OICRF, 2008).

OICRF is supported and maintained by the Netherlands Cadastre, Public Registers and Mapping Agency.

5. ACADEMIC PROFESSIONALS

Professors, assistant professors, lecturers, presenters having theoretical knowledge and skills are ultimate, but real life and real problems are not always as described in the books. Academic staff having practical experience in specific domain could contribute increasing the quality of the educational processes with spreading combined theoretical with practical lectures.

Academic professionals that in parallel of their educational occupation have a professional engagements too, as a consultants in specific projects that require their expertise, or there are excellent examples of professors that are 50% of their time employed as a professors and 50% of the time employed as professionals in related domain organisations, the Netherlands Cadastre International for example, these academic professionals provide quality lectures based on their solid practical experience.

Students are more confident when they got a practical example, a particular case, or practice the lectured material after a set of theoretical lecturing, and if this could be accomplished through a study tour or if they can pay a visit to the organization that already implement and in real life see how the theory that they were thought is practiced in a real life then this has a bigger effect on the students.

Experiences from other similar academic institutions that provide E-learning and distance courses, their 'Lessons Learned', could be very useful and they should be utilized while further developing E-learning processes. Sharing the knowledge, experience and learning from each other would result with avoiding repetition of the same mistakes and development E-learning processes for the end users.

6. CONCLUSIONS

As a consequence of living in the era where the revolution in technological developments and increasing demand for information implies with the need for continuous upgrading professionals: 'lifelong learning'.

Organisations going virtual (Molen, 2008), this is a trend in the industry but professionals should be appropriately trained for performing in these virtual organizations. Educational organisations practicing adequate E-learning support organizations and professionals in their further development and successful performance in the new coming virtual world that we are going into.

E-learning practicing higher discussed capacities, tools and methods are the present and the future models in institutional strengthening and human resource development preparing and supporting professionals for the new coming virtual environment.

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BIOGRAPHICAL NOTES

Dimo Todorovski holds a diploma as a surveying engineer of the Faculty for Civil Engineering, at the University of Kiril and Metodij, in Skopje, Republic of Macedonia and obtains MSc degree in Geo-Information Management at International Institute for Geo-Information Sciences and Earth Observation ITC, in Enschede, the Netherlands in 2006. He is a head of digitizing department, Sector for Cadastral Information Systems at State Authority for Geodetic Works, R. Macedonia, and has a practical experience in fields of surveying, digital mapping, Cadastral Information Systems development, ICT and ICT Strategies. He is a Macedonian delegate of FIG Commission 7.

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