Support Structures to the Teaching Mediated by Technologies

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The definitions and assignments of the structures that are aimed to support and encourage the use of various technologies, that can be used as an educational medium, are found under a variety of names, forms and actions. They may vary depending on the role and importance in a given institution.

This report focuses on analyzing how the characteristics and institutional position directly influence the space that these resources eventually will occupy in the several strategies. This involves elements such as its nature (public or private), size, need, motivation of professors, resistance to acceptance and use of technology, proper training, effective use, feasibility and sustainability of the implemented actions.

This report is based on the results from the project "Implementation Strategies and Development of an Open and Distance Education System for the University of the Azores" (UAC) funded by the European Social Fund.

The main objective of this research was to observe the recent events related to the likely paradigm shift in the educational field and propose to the UAC the adoption of solutions that can correct implementations already made, and at the same time meet their internal demands and respond to these new challenges.

As everywhere, in Portugal different opinios are met. Some institutions opted for institutionalizing the use of resources. Others prefer to leave the initiatives in charge of departments and/or colleges. In my opinion. the first ones have failed because of lack of proper management by the parties involved. Projects receive a "red light" in order to lack of adherence of professors, who feel excluded from participating even in initial settings. The second ones may incur in duplication of structures and efforts. But when the results become a demonstration effect, it should be used in the institutional process to be applied to all sectors.

With few exceptions, the vast majority of these structures is subjected to the educational area because of it supportive function. However, the problem has never been in technology in itself, but in the effective use of these resources as a didactic option. And this can only be solved through the involvement of all parties including the participation, conviction and commitment of those who will use the resources effectively. The scope is not to invent or develop something necessarily new or original, but eventually use everything that already exists, often free of charge, developed by others.

According to my experience, the excuse, the most often cited, is lack of time and skills of professors, along with the absence of a system of recognition or curricular reward. In addition, the lack of interest in pedagogical innovation is also a significant barrier. However, innovation in these kind of resources can be implemented anywhere, in any country, especially those not attached to old paradigms. Europe is the cradle of the universities. But tradition is not everything. American universities dominate all rankings. And they do it because they do not replicate old practices but they innovate their methods.

A similar approach begins to rise in Latin America universities. It is no longer possible to

replicate old concepts and formulas. Developing countries must choose new paths and never try to follow the path of developed countries. According to Lima (1998), "Underdeveloped countries, more than developed countries, can adopt extremely bold solutions. In education, the whole classical situation is a threat to block development. The role of education in the underdeveloped world is to exercise the imagination looking for entirely new solutions and never repeat the historical solutions of the developed world".

The dominant view of the traditional European universities that have lessons to give (something to teach) to the institutions of developing countries is at least archaic. They should follow the best practices and experiences observed worldwide. We note in Europe a very great resistance and few accessions in the face of the MOOCs (Massive Open Online Courses). Guerreiro (2009), on behalf of the GUE/NGL Group (PT) and referring to the various demands says: "stop pretending that you can give lessons to the world".

In principle and in practice, we are evolving rapidly to broader knowledge ecologies (Peters, 2009) that connect to many sites and learning networks that include both prescriptive and emerging elements. Some institutions create centres, departments, offices, clusters, laboratories and specific spaces with many different nomenclatures. The independence of these structures in relation to existing departments can collaborate in the process by not encouraging more the existing competition observed internally in all institutions. As a natural evolutionary path can be considered the exclusion of the training resources from the management of informatics services and setting them independently with their own facilities. And this refers notably to learning management system, content production and video conferencing systems, among other emerging technologies. A unit dedicated for this purpose should conduct studies, research and investigations related to the development of technology-mediated education through creative and innovative approaches to teaching and learning. It should provide training sessions and support directly the departments covering a diverse set of topics on the various existing solutions didactically usable. It should focus on professional and organizational development to enhance a more effective education. There might be created a development and resource centre that performs the prospection, testing, disclosure, dissemination, socialization and contribution to the development of this area of knowledge through active participation in actions and collaborations at local, regional, national and international level.

To define the main objectives and features of something to be proposed, developed, deployed and used effectively by an institution it is necessary to consider individual opinions, even when related to a research that aims to be applied and achieve real benefits. The process should go through consultation, discussion and criticism of the parties involved, with an emphasis on professors.

An inspiring practice is to observe how similar institutions are dealing with the matter, but never replicate the solutions found. It is rather necessary to give identity to the project, which starts in the very name of the structure to be eventually created. C. Gomes (personal communication, May 1, 2012) suggests the use of the expressions: virtual education office, virtual studies office, e-learning office, e-learning lab. Names can be explicit or be related, or have no obvious relationship.

As an example: Google was created in 1997, and has in common the fact that it has originated also from a university (Stanford University, with the domain google.stanford.edu) and started its activities as a search engine. Its first name was "BackRub" later changed to "Google", due to a misspelling of the word "googol", a term coined by Dr. Edward Kasner of Columbia University, who wanted to baptize a very large number (one followed by a hundred zeros), with a sonorous name and easy to remember (http://en.wikipedia.org/wiki/Google). The rest is history. But analysis of Roth (2013) points out some lessons on names. Names are important as they provide a brand and give identity to a particular initiative. The original meaning of a name will

not necessarily be maintained over time. Changes of names may seem unproductive and incur additional effort of marketing, but often prove to be advantageous. Being the first in a particular initiative does not mean being the best or the most successful. And lastly, certain universities have not administered very well the copyrights the products and services that are developed in their labs, so they quicly become private ventures.

Various expressions are used to refer to the structures to support technology-mediated teaching in academia. In particular the names "distance education", "distance learning", "online learning", "distance study", "study away", "e-resources", "teleducation", "tele-education", "tele-learning", "remote learning", "e-learning" and derivations "blended learning", "b-learning", "m-learning" and "x-learning", among others. In business environment the term "distance training" is commonly used. In a way, there is no distinction between education, learning and training, because it is a constant learning and search for knowledge.

In my opinion, the first two expressions ("distance education" and "distance learning") are inadequate. Education and learning are processes that happen inside the person, that is, there is no way to perform them at a distance. Both education and learning (which is conceptually linked to education) happen wherever the individual who is being educated is. There is no way to do, not even understand, "teleducation", "tele-education" and "tele-learning". Teaching at a distance, however, is entirely possible and, nowadays, it happens all the time.

In Brazil, "distance education" was the expression that overlapped the other, being the most used in books and articles as well as used by professors and researchers in the area. In Portugal, "distance learning" is the term more often applied, probably because educating is much broader than teaching. Brings with it the idea of socialization in all its forms, including teaching. When the one who is teaching is distant with respect to time and/or space, the expression "distance learning" makes perfect sense. The effects of extensive use in Brazil of the expression "distance education" (or its acronym EAD in Portuguese) are reflected in acronyms and structures related that were created. The TelEduc, for example, is a development environment at the Nucleus of Informatics Applied to Education (NIED), State University of Campinas (http://www.teleduc.org.br/).

In 2005 the University of the Azores co-operated (playing a role of the superviser, producer of materials and coordinator of distance education) with two Brazilian institutions totally different in their nature, characteristics and size:

- Pontifical University of Rio Grande do Sul (PUCRS) (http://www.ead.pucrs.br/)
- The PUCRS VIRTUAL is a service unit and its role is to support and manage the actions and policies of PUCRS regarding the distance education mode. As such, it has training courses for teachers, technicians in distance education (ATEDs) and managers of virtual courses, supported by ICT.
- State University of Rio Grande do Sul (UERGS) (http://www.uergs.edu.br/)
- Education, through the processes of learning and teaching, involves the constant construction of information and knowledge. In distance education, this interaction occurs between people separated geographically. Therefore, that is why they need technological resources to support communication. In the case of UERGS, this separation is a consequence of the structure of the University, distributed throughout the state. To overcome the distances and provide integration, the University predicted the networking of all units with the rectory and support of various software applications. The Nucleus of Distance Education (NEAD) team coordinates the training activities of students, professors and staff, as well as advises on the use of these resources to educational and administrative activities. UERGS is also part of the Gaucha Network of Superior Education at Distance (REGESD), composed of eight public universities of the south of Brazil, under the Pro-Licenciatura program, which offers degree courses free of charge and at a distance. Through this experience, the institution has reinforced its vocation to the distance education (http://www.regesd.tche.br/).

Some Portuguese initiatives:

- Santarém Polytechnic Institute (IPS), Santarém Higher School of Education (ESES), Office of Open Space to support e-learning (http://eraizes.com/)
- It is an office with a hybrid group (e-content, e-platform, e-communication, e-mentoring) to deliver technical and scientific support. The main objective is to work as a team that will solve any questions arising in the context of changing the content of the curriculum units for e-learning format, swiched to the platform e-Raízes (http://www.eraizes.com/).
- This platform provides to students a set of basic digital tools created within the course Technological Project Methodologies of Masters in Education and Communication of ESES. It contains training units in life histories, LinkedIn, Wordpress, Second Life, Entrepreneurship and Facebook. A great asset is that all these features are presented to the virtual student in e-learning format, thus facilitating lifelong learning.
- Institute of Information Sciences and Administration (ISCIA), Multimedia Technology Centre (http://www.iscia.edu.pt).
- The Multimedia Technology Centre of ISCIA main function is the technological support of all the teaching and administrative activities that require the use of new technologies. With a video equipment, sound and digital image, already installed and available, it is possible to establish a multimedia platform to support all stakeholders in the educational process of the Institute. With regard to teachers, enables and facilitates the creation, editing and publication of didactic material in digital format for subsequent placement on the Internet and, to students, serves as the basis for the development of work for their curricular units. This is a recent lab in constant adaptation to better respond to the constant and growing need for the use of multimedia material as support for educational activities taking place in the Institute. The access to the e-learning platform (FORMARE), installed since 2003 and fully functioning at the Institute, is associated with the functioning of the Multimedia Laboratory. This application of PT Innovation allowed the adaptation of the tool to the reality of ISCIA and guided its installation in order to support classes (http://www.formare.pt/).
- Each curricular unit has its availability of content space in various formats within this application. As well as teachers and students have there a set of synchronous and asynchronous communication tools to their diposal. In addition to the content produced by each teacher, there is another area of vital importance: the library. This feature of the platform seeks to bring together a set of digital resources open to current communities and constantly updated. On the other hand, the same application serves as an area that allows the clustering of interests and cultures where students, teachers and administrative staff communicate, share and learn in a collective and dynamic way. In addition to that, the possibilities for managing applications and personal data by secretariats are provided as well. Within the e-learning activity of ISCIA this lab is also responsible for developing content in SCORM standard to be made available to the academic community.
- Portugal's Open University (UAb), Laboratory of Distance Education and eLearning (LE@D) (http://lead.uab.pt/)
- The Laboratory of Distance Education and eLearning (LE@D), is a research unit based at UAb, dedicated to research and development in distance education and e-learning. It promotes and carries out research in the field of e-learning, distance education and on the impact of digital technologies on the knowledge society as well as it promotes dissemination activities of research and advanced trainings. To achieve its goals, it is structured in lines/research groups and, for the purposes of guidance and assessment, each line/research group is organized within research projects, understood as scientific activities with specific objectives, a limited duration and a scheduled execution. The actions of advanced trainings of human resources, as a result of the research, as well as consulting activities are their own projects. LE@D is formed

by researchers, associates and collaborators who are organized into three groups:

– Distance education and network society group, focusing on the new trends of distance education in the network, both in terms to innovative theoretical models and to applied developments based on emerging technological devices;

– Systems and information and Communication Technologies in eLearning group; this research group explores the technological aspect of distance education and networking, focusing in particular on information and communication technologies that support and facilitate e-learning methodologies, b-learning (blended) and m-learning (mobile), as well as models and a technological support infrastructure, covering topics such as data networks, distributed systems, information systems and security;

– Education, Cyberculture and Organizations in the Network Society group, that investigates organizational models and institutional dynamics that promote innovation and new leaderships in networked communication contexts, particularly in formal educational environments and systems.

• University of Aveiro (UA), the Operational Unit for e-Learning (UOe-L) (http://cms.ua.pt/suporteuoel/)

• The UOe-L is a multidisciplinary unit, dedicated to the support for all those involved in e-learning programs of the UA. Its main goals are: to create scientific and technological skills that allow the university implement programs and projects supported education and training in information and communication technologies, to become a resource centre in e-learning, to support professors, researchers and students involved in the UA programs, by providing a set of features and services, to lead the operational management of the UA e-learning environment (e-learning platform and worki areas existing there, support sites, educational content and users).

• The UOe-L has its field of action: in the management of e-learning platform of the UA, in the management of working areas (websites), in content management, in supporting users involved, in the quality management of services it provides.

• University of Lisbon (UL), e-Learning Lab (http://elearninglab.ul.pt)

• The e-Learning Lab operates as a unit to support professors and researchers of the University of Lisbon in the integration of technology in teaching and research. It promotes the use of Learning Management Systems and other online applications in support of a more current and innovative training, modernizing the classroom teaching and stimulating the development of b/e-learning practices.

• University of Porto (UP), Support Office for New Technologies in Education (GATIUP). (https://sigarra.up.pt/up/web_base.gera_pagina?p_pagina=18377)

• GATIUP's mission is to offer a pedagogical and technical support in order to encourage and facilitate initiatives of open and distance learning, taking advantage of Internet technologies, to all teachers of the University of Porto. This mission has as main beams both the face-to-face and online component, that is blended-learning. However, there are already some continuing education courses fully at a distance. Its objectives are to disseminate and promote the use of Information and Communication Technologies (ICT) in the teaching/learning processes through: dissemination and implementation of events, dissemination of good practices, disclosure of e-learning initiatives elapsed or ongoing in the UP, notably by conducting biannual sessions for presentation and dissemination of internal projects completed, conducting training for professors interested in the design and management of online course units. It also supports the academic community of the UP in designing, production and delivery of e-learning courses, evaluates the effectiveness and efficiency of the introduction of ICT in courses at the UP, supports the creation of multimedia materials, participates in carrying out works in collaboration with other UP units, maintains a constant updating of knowledge in

ICT applied to education, in particular through monitoring and participation in national and international events/projects in this area.

- New University of Lisbon (UNL), Faculty of Science and Technology (FCT), e.Learning laboratory (http://elearning.fct.unl.pt/)
- The e.Learning lab delivers a support service to all teachers, students, researchers and staff of the FCT in content development in different areas.
- University of the Minho (UM), Office of Continuing Education (TecMinho) (http://www.tecminho.uminho.pt/)
- The e-Learning Centre is a structure that provides specialized support to the development of distance learning process by e-learning, b-learning and m-learning. As an integral part of the Department of Continuing Education, it has created a culture of integration between classroom training and distance learning, especially among students and professors of the UM. The TecMinho is a training entity accredited by DGERT, with top quality profile, with specific accreditation for design, implementation and evaluation of distance learning. The e-learning centre organizes courses specialized in e-learning (90% online), develops e-learning projects tailored to the organizations (in partnership), as well as innovative technologies and pedagogies. Since 2007, all classroom training courses of TecMinho have an online extension in the e-learning platform, which implies the existence of an offer of courses in b-learning environment. Among the activities of the e-Learning Centre there are: e-learning courses, support to companies/organizations in creating and implementing online training designed to each customer, R&D e-learning projects (national and international), development of e-learning pedagogies and technologies, studies and publications about e-learning, organization of conferences on e-learning. Over the last few years the TecMinho has trained middle and senior management of companies and organizations in the area of the information society and knowledge, through the organization and implementation of training courses (90% by e-learning).

The report mentioned above emphasises that, in due time, the University of the Azores (UAC) will set their own structures and systems. Working this process out requires the involvement, consultation, discussion and criticism of the parties involved, with an emphasis on teachers. Among the suggestions there is a recommendation that it should be followed, while possible, the principle of simplicity also known as "Keep It Simple". It is a general principle that values simplicity of design and argues that all unnecessary complexity is discarded.

This principle teaches that we must fetch the results avoiding any unnecessary complexity. The simplicity principle is directly related to Information technology (IT). I share the opinion that it is quite common for universities to use resources that would never be necessary to solve a problem I conclude, by suggesting that the starting point must be the current situation. The UAC uses the Moodle LMS and has video conferencing systems. It provides training and support for these systems, an this is the principle of everything. The e-learning lab can then rely on passive and active installations of both technologies, and the passive should be easily convertible into active, if necessary. Passive LMS can be understood as one (or more) offline facilities of Moodle, installed on a server under invalid IP or even desktop PCs or laptops. Thus it avoids cluttering the production plant with trials and training. However, „only" passive video conferencing system is inconceivable because of the associated costs. But nothing prevents two or more rooms (individual or small groups) be used by switching (internal or external network). Personal video conferencing systems (present in all laptops, notebooks, tablets and mobile phones, among other devices available today) should be used for experimentation, but do not compare in terms of quality and productivity to systems developed specifically for this purpose. The use of internal network saves bandwidth (internet) for capacity building, training, trials and testing.

More than equipment, is an e-learning lab, above all, formed by people who not only will

provide training and support to others, but also take part in development, testing and approving new solutions for use of the university.

Thus, I perceive it important to develop a multidisciplinary structure, represented by the various existing departments, and which also serves as a space for research development, enabling aggregation of solutions and positive differentiation of the needs of the university and the region. There are no magic formulas or complete turnkey solutions, ready cake recipes that can be replicated, adapted or customized successfully to different social, cultural, economic and technological realities. The best way forward seems to be to do a rereading of the best practices, adapting them to the needs and local realities.

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