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Between theory and practice: the importance of ICT in Higher Education as a tool for collaborative learning

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Abstract

This article emphasizes the importance of using new technologies in university education, which is significant for teacher's possibility in order to implement into teaching as the method of proposal for a collaborative work, in some aspects, to develop the skills required. From the point of view of the student, the technologies provide opportunities for motivating learning and also collaborative nuances. In particular, explain our experience in the utilization of new technologies in university teaching activities as teachers. The use of ICT in university teaching practice is contemplated as a necessity facing the adaptation to the EHEA.

Keywords: ICT, collaborative learning, Internet, Higher Education, EHEA, social networks.

1. Introduction

Today ICT has affected almost every aspect of our world, from trade to education. Their influence has changed the daily lifestyle of many people (Martin Diaz, Sancristobal, Gil, Castro & Peire, 2011; Ceyhan, 2008). The increasing introduction of ICT in the universities is currently evidence (Fernandez, 2003). Thereby, the universities trying to accommodate to the needs of today's society, prepare for the future challenges, the opportunities and benefits of new technologies (Salinas, 2004). The use of ICT in university teaching practice is seen as a necessity facing the adaptation to the European Higher Education Area. Technological development and new forms of communication forced to the university institution to reconsider educational practice. The digital technologies of

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information and communication are having a growing role in university educational processes, demanding setting up new spaces and learning environments and new roles and job roles in teachers. Social networks provide a new way to understand, connect with, and learn more from others (Carpenter, Green & LaFlam, 2011). The role of teachers is increasingly important in the new cultural and educational environments that are being created and to be created with the help of Information Technology and Communication.

2. Theoretical Approach

2.1. The emergence of ICTs in Higher Education

We live in a society that is immersed in technology development, where progress of the Information Technologies and Communication Technologies (ICTs) has changed our way of life, impacting many areas of knowledge. In education, ICT has proven to be a great support to both teachers and students. It's called information technology and communication (ICT) and to enable the acquisition, production, storage and processing, reporting, recording and presenting information in the form of voice, images and data contained in nature acoustic signals, optical or electromagnetic. ICTs include electronic as a base technology that supports the development of telecommunications technology, computers and audiovisual (Duta, 2012). Since the emergence of the new technologies and especially the Internet, have not stopped generating opportunities, projects, platforms and initiatives that have to do with learning. Schools and institutes possibly were the first to develop many proposals that deal with this issue.

Learning to use technology is important, but also in educational contexts have to be directly related to learning content that we had layed out. These technologies should help comply with the competences previously designed.

Moreover, technology has meant the opportunity to generate many learning spaces which are not always managed or controlled by a figure such as the teacher. Currently, learning to perform many activities can be resolved, in part, looking for tutorials in the networks. But clearly that while it is easy to learn to use platforms or an application which is more complicated to learn to make them serve as an educational tool, and this is where one of the most important teacher's orders lies. The technology does not involve an adaptation of the above tools, but also as a paradigm shift of learning. In this sense, there is no university in the world that does not already have the digital platform or campus to develop part of their learning activities or even most of these. Moreover, the approach of e-learning has been changing up do proposal from learning really motivators and even thrilling (Bach & Fores, 2007).

But just as initially the virtual university campuses were one of the centers of learning, at present the network is itself already a great tool to learn and get to contents. In addition, the emergence of social networks has brought a new paradigm of spaces where one can learn. In fact, it would be a mistake at this moment stop to consider the networks as one of the important learning spaces. There are authors who choose to directly affirm that is needed connected to learn (Jubany, 2012).

Before, to resolve an issue you had to raise your hand in the classroom, ask the question and wait for the teacher to respond. The response of the professor usually would be practically the only answer and also does not doubt her. But today while one is teaching a class may have any student launched a question in a social network such as Twitter or Facebook and receive help to resolve it of many people. Or more common, the question can be entered into a browser and to find different versions of the response and based on different authors who give their points of view. The use of social networks in higher education is being extended in the last years trying to connect with the new ways of communication of their students or faculty members (Veletsianos & Kimmons, 2012)(Roblyer, McDaniel, Webb, Herman, & Witty, 2010). Sometimes universities use the most popular like Facebook or Twitter (Forkosh-Baruch & Hershkovitz, 2012) for these purposes. Moreover, the Bologna Process provides the competences assessment as a novelty in the assessment process in higher education and includes the transversal competences as an important factor in the student development. These transversal competences can be evaluated in small groups (programmed tutorials), in which students can develop a continuous task during the course. For monitoring the tutorials work we propose the use social networks to evaluate everyday work, communication and interaction of the students (in Agudo et al. 2013:1187-1188). All this led us to conceptualization of education and learning very new and pretty sure will be changing over time. In this regard, personal learning environments are an

interesting alternative analysis of how, where and from what and from whom people learn. From this point of Castañeda and Adell (2013) constitute a large exponents view on these issues.

2.2. The reference models relating to the e-learning and ICT

It is convenient to place ourselves in the different paradigms of teaching and online learning. These will determine the way to display the tasks of the different actors involved. So it is convenient to review the different roles that are developed according to different perspectives. This issue is approached by different authors but in this case we rely on Benito (2009) and Hernández Requena (2008):

Table 1. Various paradigms of teaching and learning online and the tasks of agents involved

(a) Behaviorism			
	Student	Teacher	ICT
Based Learning Stimulus-Response	-Passivity of the learner repetitive exercises. -Based on linear-learning: Stimulus-Response. -Learning is understood as change of behavior (Pavlov). - Plays the information.	- Design and assesses. -No interaction with the student. -Is the person who "knows".	- The student plays like a machine. It is "programmed".
(b) Cognitive			
Based Learning on connection and interaction with the teacher	- Processes the information. - Is active subject - There is peer interaction.	- Generates strategies for learner autonomy - He is an expert	- Are used as building cognitive abilities - Use of Internet, virtual books - Artificial intelligence
(c) Constructivism			
Based Learning on the experience and interaction	- It is also active subject - It does it's what you learn - It builds on prior learning, generates knowledge - There are peer interaction	- It will arrange. - Facilitates students to build	- They promote the group work - Use of blogs, wikis, web quest, shared personal spaces, interaction.
(d) Connectivism			
Based Learning in the community, in processes of teaching and learning to sharing. Ecological, collectively.	- Is active learning subject - Even decides how to learn - Generates knowledge network, share - It interacts among students and generates new knowledge	- It interacts among students and generates new knowledge - Proposes connection spaces between students - Encourage the creation of new knowledge	- Using Social Networks - Personal Learning spaces, global contact.

In this sense, we must take into account this type of models to find order where we position at every moment of our proposals for teaching and learning. On this view and review of these models we would not advise leaving the text of Siemens (2004) which introduces his article making it clear that "the behaviorism, cognitivism and constructivism are the three broad learning theories most often used in creating instructional environments. These theories, however, were developed in a time when learning was not impacted by technology. In the last twenty years, technology has reorganized how we live, communicate and learn".

2.3. The virtual campus as a center of learning under technological environment

Starting from review of the literature most current (Urbina & Salinas, 2014; Johnson et al. 2013, 2014; Sharples et al. 2012; Shaidullin et al. 2014; Gros & Noguera, 2013) we take as a starting point the following considerations:
•   A virtual campus is defined as "part of a college or university that provides educational services at any time or, in theory, anywhere, via the Internet (In Learningeuropa Glossary);
•   The virtual campus concept used to describe various websites available to an educational community, with the purpose of providing educational resources and functionalities of communication and interaction.
The universities have been relatively quick to generate environments in general closed network for connecting students, teachers and also, though sometimes forgotten, care staff and services (secretariat, attention to students etc.). In this moment there is none that doubt that this type of environment has to exist. But another issue is the

functionality that you give this space. In general, the functions depend on the overall approach to the model of university education you have. The virtual campus as a documentation file and centralization of articles and equipment for the student has been a general first step in universities.

Overall, all of this has served to complement the tools used in class attendance. The real revolution may be coming from b-Learning models where everything is done via the virtual campus, both by the teacher and by the student, has an integrated with what happens in the actual class sense. This model naturally leads to a new design model fashion teach at the University transport left behind what was done in a traditional model, and only on-site, with little learning spaces virtual environments. Anyway there would be many ways of understanding the b-Learning as explained Shaidullin et al. (2014).

2.4. The personal learning environments: social networks and collaborative work

Undoubtedly, the University in an environment such as the information society must consider many issues related to the different learning styles that people have today. Personal learning environments are not a new issue for analysis, but it is true that access to information right now there has been an increased importance. In fact, when the network is the main source of information we are talking about virtual learning environments.

Justly this increase in the ease of access to information and also generate an essential exercise has involved know how to select sources and choices that come closest to the type of information we need. Students and academics in this area is a basic and very important to perform during the teaching and learning experiences request. Jubany (2012: 103-113) explains the basics of treatment and contextualize this information in the "digital competence".

In this sense, today cannot ignore the importance that social networks are becoming for many issues but also learning opportunities. Although mostly are not designed for it have already experiences in this regard. While it is true that students still show some doubt in some cases (Espuny et al., 2011). Along the same lines is necessary to note that students mostly use social networks to communicate among equals but not specifically as a possibility for explicit instruction (Aguilar et al., 2012).

Here, we present the history of social networks, based on Ponce (2012, in Arguelles, 2013: 5-6):

- 1971. Is sent the first email between two computers, one beside the other.
- 1995. The web reaches a million sites, and The Globe offers users the ability to customize their online experiences by posting your own content and connect with other individuals with similar interests. In the same year, make Classmates Randy Conrads, a social network to connect with fellow alumni. A classmate is for many the first social network service, because the origin of Facebook and other social networks for contact between students and alumni are noted in it.
- 1997. AOL Instant Messenger is launched. Sixdegrees, social network that allows the creation of personal profiles and friends list, some set with it the beginning of social networks to better reflect its features is inaugurated.
- 2003 born MySpace, LinkedIn and Facebook, but the date of the latter is unclear, since it has thrived for several years. Created by Mark Zuckerberg, Facebook was initially conceived as a platform to connect students of Harvard University. From this time many other networks are born as Netlog and Hi5, among others.
- 2005. Begins as Youtube video hosting service and MySpace becomes the most important social network in the United States.
- 2006. Microblogging social network Twitter is inaugurated. Google has over 400 million searches per day.
- 2009. Facebook reaches 400 million members and MySpace back to 57 million.
- 2010 Google Launches Google Buzz, its own social network integrated with Gmail, in its first week your users published nine million entries. A new social network, Pinterest was also inaugurated. Internet users this year are estimated at 1.97 billion, nearly 30% of the world population. Facebook grows to 550 million users; Twitter logged 65 million tweets daily; LinkedIn reaches 90 million professional users and YouTube gets two billion views daily.
- 2011. LinkedIn becomes the second most popular social network in the United States with 33.9 million visitors per month. This year Google+, the new proposed network Google launches. Pinterest reaches ten million monthly visitors. Twitter tweets received increases to 33 billion in a year. However, throughout the year it is possible to find new rows and completely modified.

- 2012-2013. Facebook surpassed, in 2012, the target of 1000 million users. Twitter had a new member of great importance: Pope Benedict XVI (Madariaga, 2012) and 100,000 tweets sent every minute through this network. Instagram reached 100 million users. 48 hours of video were published in Youtube every minute (Alfaro, 2012) and reached 800 million unique users (Cortés, 2012). 250 million to users recorded in Google+ and Linkedin 161 million (Cortés, 2012).

Networks allow the publication of information, autonomous learning, collaborative work, communication, feedback, access to networks and other related contact with other experts, among others. All this, both among students in general, and between the student and professor binomial; which facilitates constructivist learning and collaborative learning (Gómez, 2012: 132). Therefore, we see two trends in the use of social networking within the educational environment: a) the use of the available networks, and b) the creation of specialized networks for education and research.

With respect to educational use of networks of a general nature, may be mentioned the following as part of many applications, the limit is the imagination and creativity of the teacher (Haro, 2011: 6):

- **Institutional.** This option allows a wealth of information exchange and the formation of communities of various kinds; between groups of the same subject, among teachers in the same department, etc. Additionally, create a sense of belonging by all involved.
- **Field of study.** These allow you to perform the communication between teacher and students. Thus, the teacher can send tasks or deadlines, publish multimedia content to support their teaching; meanwhile, students can develop and deliver individual and team work, and clarify doubts.
- **Consulting**. This is a subset of the above, in which he notes specifically aimed at solving questions and problems presented by the students regarding the class or with the tasks and work assignments.
- **News.** This is also a subset of the above, allowing the dissemination of messages from the teacher. Activities for students, deadlines or work the following tests are published.
- **Students.** This option also provides a wealth because it promotes autonomy, including team collaboration, group study and solution of tasks.

Haro (2009) attributed to social networks three common benefits:

- Minimize the need for training because they all use the same resource.
- Supports communication with student's bidirectional, as the teachers and students are in the same space.
- Possess a general character which enables the universal use of them.

Based on relevant studies in education we emphasize the experience of Martínez & Planella (2011) for use of micro blogging in a training project with a strong professionalizing and based on collaboration component. Ebner et al. (2010, in Peña-López, 2012) highlight the important role that Twitter can take into part of informal learning (a very important part in a professional environment) and the process-oriented learning.

Junco et al. (2013) offer some good results in regards to the increase in engagement of students using Twitter. Contrary to the topic of the dispersion, a well-directed use of the tool allows for greater involvement of the learner. Yes, always with a strong involvement and motivation also by the teachers. Although social networks (especially Facebook) have become increasingly popular among the youth, there is research that highlights how some university students do not want to participate. The work of Turan et al. (2013) explores the underlying reasons why the students do not are using social networks. Data were collected in two large state universities in Turkey. Facebook was selected to contextualize the research, being one of the most popular social networks. Among the main reasons for not using social networks are its perception as a waste of time, or needless tool; possibilities lead to addiction; violate the privacy, sharing too much information; and invoke parental concern (Turan et al., 2013).

New technologies provide teachers a variety of resources that perhaps other media cannot provide, since it is not to provide information, but also to interact with the materials and encourage more flexible, dynamic and motivating cooperative learning for students, thus enhancing the teaching-learning process as long as a good use of them is made. Istrate (2013) describe some tools of social networks: tools for educational cooperation and collaborative projects (Wikispaces, Google Docs, Glogster, Wallwisher/Padlet, Wordle, Voki); tools for communication (Skype, Google Groups); tools for images (Slide, Picasa, Fotobabble) etc. Social networks can be a source of knowledge and collaborative learning as well as a motivational tool for learning. Therefore it is important to know what opinions are regarding these practice students who are already working in this new framework.

3. Research method

It is a descriptive case research based on our teaching experience in higher education that focuses in knowing which are the opinions of students on the importance of ICT in the classroom by using virtual platforms (www.padlet.com, blogs, twitter, Trello, email, discussion forums etc.) *Participants:* was analyzed the population of students. *Sample-* was collected data from 90 undergraduate students, aged between 18 and 28 years in university in Romania. Participants were selected by purposive sampling, a method known in qualitative research (Patton, 1990). *Instrument-* the data were collected through a semi-structured essay. For the analysis of the assays data were transcribed.

4. Results

Because the responses were varied, were grouped into categories. The results of analysis of available data, students consider as fundamental aspects - in descending order - what is indicated below:

1. *Tool for communication and interaction* (91%, 82 responses) - students use technology to interact, assess, sharing content, organize materials and to communicate results. The teaching-learning process is more personalized increases the number of student interactions with each other. "It encourages collaborative work among us and it is easier to express opinions".

2. *Improves learning* (87.7%, 79 responses) - it facilitates learning of content where the student becomes an active agent in the educational process itself. "It helps the learning dynamics, classes are more enjoyable".

3. *Facilitates the autonomous and independent learning* (80%, 72 responses) - social networks make students to learn autonomously and independently "can learn from the social networks by simply being part of the network", which is due to the communicative process is instituted between the members and the opportunity to distribute information in several ways, "you can work at our own pace, with exercises, websites etc."

4. *Assume different roles* (75%, 68 responses) – "We can find different roles, such as active and the liabilities subject" by the fact that there are people more outgoing to which costs them nothing to communicate either through network or in person, while those more passive people who have difficulty communicating, can uninhibited and maintain relationships with others according to your hobbies, tastes and interests.

5. *Fosters knowledge of the contents of the field* (63.3%, 57 responses) - better and easier access to more content and compression of matter, "have the facility to read the contents at home if you have not heard either in the classroom".

6. *Increased motivation* (58%, 52 responses) - work on the course with ICT is more motivating, and simultaneously they provide a better understanding of the learning object contents, "is a motivational tool to facilitate learning". The students confess they are highly motivated because they have access to a large volume of current information.

7. *Follow-up* (46%, 41 responses) - this category as the students consider the use of ICT can support both monitoring of the teacher in the learning process of the student, and the student in his own reflection of this progress.

8. *Achievement of the time (*43%, 39 responses) - student can access information almost instantly, can send your homework assignments with just a "click". You can interact with peers and teacher from the comfort of your home using chat rooms and discussion forums.

9. *Innovation and integration* (39%, 35 responses) - virtual social relationships are often richer, "we can provide information on an interesting subject and we miss because we do not reach the right person. We offer a variety of opportunities to integrate our experience, in the sense that we can post photos, send messages and comment, provide feedback, edit our profile gives us the ability to communicate in different ways and at different times".

10. *Developing skills in finding the information* (34%, 31 responses) - to make a few decades, an afternoon in the library consultation was not sufficient to find the information. "It is important to develop skills to properly choose and refine useful information useless to continue the amount of information we process".

11. *Creativity* (31%, 28 responses) - a creative environment with multiple tools and materials "that make acquire knowledge in an active way," facilitates contact between students and teachers, allowing joint activities and share ideas, breaks the barriers of space and time.

12. *Other answers* - here those responses that could not be integrated into any of the above categories (such as "maintain independence and individual responsibility", "to cope with the new learning situations significantly", "enables mobility, based on access through various devices, sharing links, but also states of mind").

ICT in the range of benefits they provide to the teaching task allow interactivity, feedback, self-learning, etc. Only a matter of knowing how to take advantage and focus to achieve the objective of matter or class that is taught. Note that the data are based on statements, opinions and, therefore, the assertion is valid in terms of honesty and real capacity for self appreciation.

5. Conclusions

The use of social networking in higher education is becoming a new form of communication with students and teachers can use these new tools for different purposes. Also, another important factor is the motivation of students to the use of an online environment and the ability to display their own creations.

In today's society, new technologies of information and communication are present in all fields, it is desirable to widespread use of digital documentation systems, among other things, because it allows access, review and update information. Development of activities and electronic materials is also recommended a new alternative that tries to overcome the individualistic culture of teaching practices in universities and create a community of collaborative reflection among colleagues. What would be the "lesson" that must be learned from the results obtained?

We consider that students recognize the need and importance of ICT as a tool for collaborative learning and as we see there are great similarities between them about training methods, their application is mainly aimed at seminars on the use of multimedia equipment teaching-learning-assessment by some teachers and students, thought-provoking that there is an area that teachers are not fluent enough in Romania and therefore, the request is in line with this. It is essential to consider these views to develop proposals for improvement in the near future. Based on the theoretical foundations of this work and opinions of the research subjects have synthesized a series of general recommendations: a) creation or involvement at national and international level network for education, research and innovation (according to Knowledge Triangle Strategy Europe 2020) focused on lifelong learning; b) engage students and teachers (beginners and experienced) in research projects at national and international level for educational practice in higher education; c) at international level we consider necessary creation of a collaborative network of training providers or accession to existing networks (for example training providers, institutions of higher education in Romania could join existing networks of association in Spain or create a new network). Inclusion and incorporation into these networks could facilitate the exchange of experiences and best practices, share information, collaborate for resolution improvement and strengthening of the common problems of training and professional development. Therefore, the results can constitute points of reflection and valuable premises for the staff of academic institutions. It should be noted that the human resource is the decisive factor because of their level of education and training - in achieving the political and strategic objectives. The society in which we live is characterized by diversity, interdependence and change, represents the reality that almost everyone recognize them, but very little is done to those who, in everyday life, they must find ways to respond to challenges of the contemporary world. Based on literature review and from the pedagogical point of view, ICTs allow students to take control over learning, reflect on practice and establish the framework that allows them to cope with new learning situations significantly.

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