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A study into the integration of ict into a business management course: challenges and achievements

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Abstract

Nowadays, the Information and Communications Technologies (ICT) play an increasingly important role in education. Indeed, ICT are considered as very useful pedagogic tools, and multimedia resources are constantly being created, updated and shared by university members worldwide. This paper deals with a case of study exploring the way in which the integration of ICT impacts learning in the context of a business management course at the Universitat de València (UV), in Spain. The results of the study point out the need for academic staff and students to acquire the appropriate knowledge and to develop the skills required for an efficient and effective use of ICT in higher education.

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1. Introduction

Over the last decade, the Spanish universities, as well as the rest of the European universities, have started a process of development of the common European Higher Education Area (EHEA), which involves important changes and innovations in the syllabus, as well as the emergence of the "degree / master's degree" structure. The development of the EHEA has also introduced a new scheme of teaching planning, based on the European Credits Transfer System (ECTS). This in turn has brought about the need for the current teaching-learning paradigms to evolve (Cabeza-García, L. & González-Álvarez, N., 2010). These innovations in the teaching-learning process consist in encouraging students to become active agents and responsible for their own learning. This process is learner-centred, meaning that learning is viewed as "a process of acquiring skills rather than a body of knowledge" (Nunan, 1988: 21). At the same time, the approach adopted is socio-constructivist, since it is borne in mind that social and community orientated influences play an important part in this process (Bandura, 1977; Vygotsky, 1978). The role of the teacher would therefore involve acting as a facilitator who helps the students by mediating and monitoring the whole process. The role of mediator or facilitator involves the selection the tools, media and

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resources used to enable students to develop the different competences needed to successfully address the different problems set out first in the class and later encountered in their social and professional environments. In this context, the Information and Communications Technologies (ICT) can be seen as very useful or even indispensable tools used to support the design, planning and monitoring of the students' progress. At the same time, ICT can contribute towards the development of a set of competencies. Indeed, ICT are becoming essential and widely used on a daily basis by a growing number of students and teachers. This usage is not limited to socialisation and entertainment, but is also common in educational and academic / professional settings, as reflected by the *World Education Report* of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1998: "Teachers and teaching in a changing world". In this document, the innovations and the changes brought about by ICT and their impact on teaching methodologies were described. Furthermore, the irreversible nature of the transformations in the teaching and learning processes was highlighted. At the same time, the modifications on the way teachers, students and researchers access and make use of the information and knowledge available to them were pointed out. These modifications have had a clear impact in the different initiatives aimed at enriching the teaching and learning experience of teachers and students by fostering educational innovation in different institutions. In the case of the Universitat de València (UV), in Spain, since 2003 several initiatives have been put into practice in order to contribute towards the improvement and enrichment of the teaching-learning process while fulfilling the requirements of the EHEA. This paper deals with a case study which explores the way the integration of ICT impacts learning in the context of a business management course at the UV.

2. The efforts of the UV to encourage ICT use and teaching innovation

At the UV, teachers are encouraged to integrate ICT into their teaching through different initiatives of pedagogical innovation involving the participation of all active agents in the educational process, those being the teachers, the students and the institution. These initiatives are managed by the Unit for Teaching Innovation (*Unidad de Innovación Educativa*) since 2009, when the Governing Council of the University created this Unit. The Unit for Teaching Innovation manages and monitors the progress and the effectiveness of the learning process at the UV within the framework of the EAHE. This is done by means of different initiatives, programmes and plans of teaching innovation launched by this Unit in collaboration with different centres at the institution, as shown in table 1.

Table 1. Initiatives and resources available at the UV

Activities	Types / names	Description
Funded programmes of teaching innovation	DocenTIC	Programme for the development of open-access digital learning resources and multimedia learning resources such as learning objects, support materials for the lectures or adaptation of already-existent learning objects.
	DocInvest	Initiative aimed at bridging the gap between teaching practices and research results concerning projects of teaching innovation, by fostering synergies and connections between research findings and their actual application in the classroom / learning environment.
	Finestra Oberta	Projects for the improvement of the teaching-learning process which have not been supported by any other programmes of teaching innovation, such as multidisciplinary activities within a particular field of knowledge, degree or centre. These projects are aimed at fostering interdisciplinary and collaborative work.
	FormaTIC	Online training courses for UV staff, including a workshop on how to develop learning objects of different kinds.
	ESTIC	Grants awarded to groups of innovative students interested in developing learning objects from a collaborative perspective, fostering and supporting their own autonomous learning.
Resources	Inst. Repository RODERIC	Open-access online repository which contains learning objects for teaching/learning and researching, as well as cultural materials of different kinds, from different fields of knowledge.
	OpenCourseWare	Free and open digital publication of high quality educational materials and study guides, launched by the Massachusetts Institute of Technology (MIT).
	Blackboard Collaborate @TIC Journal	Educational tool which allows for live demonstrations and conferences or talks via web, as well as for online interactive teaching or academic sessions. Open-access journal including publications on different innovation projects developed.

3. The business management course

"Foundations of Business Management" is a core subject within the syllabus of the Degree in Administration and Business Management of the Faculty of Economics at the UV. It is a 6 ECTS-credit subject taught during the first semester (from September to January). The work load corresponding to these credits is 150 hours. 64 of these hours are devoted to face-to-face sessions while 86 hours are allocated to out-of-class activities. In accordance with the requirements and guidelines set out by the EHEA, the students are provided with a syllabus which introduces them to the study of enterprises, their relation to the environment and the different tasks accomplished internally and externally by the firms. The main goals of the subject are:

- To acquire a basic knowledge about enterprises and about the way they are managed.
- To develop the skills and competences, both intellectual and behavioural, needed in the practice of their profession in the field of management.
- To raise awareness and to develop positive attitudes, values, norms and habits to be applied by the students in their future career from the perspective of serving society.

Given the importance of the contents taught and of the skills and competences to be developed, this subject can be considered as an essential basis for the students to be prepared for the rest of the subjects of their degree. In this context, ICT can be seen as an ideal tool which helps students to achieve the aforementioned goals, given that they provide students with a set of resources which foster effective theoretical and practical learning.

Four tools were selected to be used in and outside the class: the introductory videos to the lectures, the illustrative videos, the videos of the case studies, the FACTIVA database and the SABI software. The main characteristics of each of these tools are described as follows:

FACTIVA: This documentary database gives its users access to newspaper articles and economic journals from thousands of websites, and over 31, 000 global news and information sources from 200 countries in 26 languages. This tool is particularly suitable to look for news about different firms. The students are asked to find different articles and pieces of news about a particular firm, working in teams. Once they have done that, they need to comment those pieces of information by putting into practice the theoretical contents learnt in class.

SABI: This database provides financial information about over 800,000 Spanish firms. It contains a 10 years-long record of the accounts of every company. The companies can be found individually or in groups, thus allowing for comparison with competitors. The information from this record can be used as input data for the design of more detailed analyses of different kinds: statistical, comparative or graphic.

Illustrative videos: These 3-minute long videos are mainly extracts from films, documentaries or advertisements which connect the topics dealt with in every unit to the reality of the companies. These kinds of videos are presented during the lectures and introduced by means of hyperlinks shown in the slides. These deal with the different contents, thus allowing the lecturer to provide students with practical and audiovisual examples about the topics dealt with. The selection of videos depends on the specific objectives of every unit. They are aimed at fostering the autonomy of the students in an effort to help them to become both active agents in the learning process and responsible for their own learning. This in turn helps to establish a *continuum* between pedagogy and the real world (Nunan, 1989).

Introductory videos: These videos provide an overview of the contents which will be dealt with in the lecture. They highlight the main concepts the students should bear in mind when reviewing each of the units dealt with throughout the course.

Videos of case studies: Unlike the introductory and illustrative videos, these are 10 to 25 -minute long recordings showing the main elements and contents dealt with during the course in relation to the reality of a company. The main goal of these recordings is to enable students to identify, distinguish and understand how things work within a firm and how the different internal and external processes occur.

Both the SABI and FACTIVA databases are used in the seminars in such a way that the students can understand the different decisions made by firms while analysing the consequences of each decision. In this way, it is expected that their ability to understand different variables and their impact in the activity of a firm will be fostered, the variables being financial, legal and political, as well as socio-cultural.

The students were asked to answer an online questionnaire about the course. Their answers would be taken as a basis to assess the degree of acceptance of the different tools used, as well as the students' perceptions and self-assessment of the development of their skills and competences. An important goal of the course was to make students think critically and self-assess their learning, raising their awareness about the skills and competences to be developed while making them reflect on the way they develop and on how useful the different tools used are when trying to develop each of them (Sevilla-Pavón et al., 2011). The questionnaire was filled in by 31 students in December 2011. In order to guarantee the veracity of their answers, the questionnaire was anonymous. The respondents divided in two groups according to their age: the first group was made up of students under 20 years old, and the second group was made up of students over 20. The results shown in table 2 correspond to a 7-point Likert scale, ranging from the least popular to the most popular teaching technique among the ones used in class. As shown in the table below, the most popular teaching technique among the students under 20 was team work, followed by solving case studies and lectures. Among the students over 20, the most popular technique was solving case studies, followed by lectures and team work. Even though “team work” got the third place, the fact that it got a mark lower than 4 means that it was not positively rated. As far as the use of ICT in and outside of the class is concerned, there were also significant differences between the responses from the students under and over 20. The students over 20 valued the introductory video shows the most, as well as the use of different tools which complemented team work; whereas the first choice of the students under 20 was the use of different tools which complemented team work, the introductory videos to the lectures being the least popular option among the students from this group.

Table 2. Teaching techniques and use of ICT

Age	Population	Teaching techniques			ICT			
		Lecture	Case studies	Team work	Complementary to team work		Complementary to lectures	
					SABI	FACTIVA	Introductory videos	Illustrative videos
<20	26	4.19	5.38	5.54	4.88	4.42	3.88	4.62
>20	5	4.40	5.40	3.80	5	4.00	5.00	5.60
The whole group	31	4.37	5.39	5.26	4.90	4,35	4.06	4.77

Table 3 shows that in the case of “ICT complementary to the lectures” there were not significant differences in the students' assessment of their development of different skills and competences by means of the use of these tools. Overall, the students over 20 thought that the introductory videos were a good complement to the lectures, unlike the students under 20, who did not show a high degree of satisfaction concerning the use of these videos (see table 2). As far as the case-study videos are concerned, they were perceived by the students over 20 as very useful tools which allowed them to better understand the strategic and planning processes. These tools were also regarded as a suitable complement to the lectures.

Table 3. Introductory videos and case-study videos

Age	Introductory Videos			Case-Study Videos				
	Introduce theoretical concepts in an enjoyable way	Give more opportunities for participation in the classroom	Help to remember basic concepts	Are a suitable complement to the lectures	Are a suitable complement to the lectures	Help understand the strategic and planning processes	Help understand how companies work	Help understand the commitment with ethics and social responsibility
<20	4.73	4.12	4.77	5.00	4.96	5.35	4,50	4.88
>20	5.20	4,20	4.40	5,60	4.80	6.00	5,00	4.40
The whole group	4,81	4.13	4,71	5,10	4,94	5,45	4,87	4,81

The SPSS software was used to perform a linear regression intended to clarify whether the differences pointed out in table 2 concerning team work preferences were significant. In this linear regression, “team work” was the dependent variable, while the students' age and sex were the independent variables. The results showed that the students' preferences concerning team work were explained in a percentage of 28 % by their age (measured as a continuous variable), which seemed to indicate that as students get older their preference for team working decreases ($P < 0,001$).

Tabla 4. Regresión multivariable

Dependent variable: Preference for team work	Model
(Constant)	9.49***
Age	-0.186***
Sex	-0.39 ^{ns}
R ²	0.32
R ² revised	0.28
F	6.69**
N	31

4. Conclusions

This paper deals with a case study exploring the way in which the integration of ICT impacts learning in the context of a business management course at the Universitat de València. The results of the questionnaire show that the use of these tools was positively rated by the students, as they found that ICT fostered the development of the different skills and competences specified in the syllabus. This was especially true in the case of those skills and competences related to understanding the way objectives and strategies are planned at different organisational levels, as well as in those which required the students to remember essential concepts in the field of business management and understand the aims of a firm, as well as its commitment with ethics and social responsibility.

Nowadays, the high level of dynamism and uncertainty of our socio-economic context requires managers to have the ability to make important decisions both quickly and efficiently (León-Darder et al, 2010). This is the reason why universities, as trainers of future managers and leaders with the decision-making power, should take the actions required to ensure that every specific need is adequately addressed. Although the results of this study cannot be generalised, given the small size of the sample, they provide a set of guidelines about the students' preferences concerning the use of ICT as a complement to the lectures. Furthermore, they point out the need for teachers to make use of different tools with a view to fostering the development and use of multimedia resources in business management courses.

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