

# Use of E-Collaboration Technologies Among Students of Management

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## INTRODUCTION

Nowadays technology is seen as an important tool for improving the educational methods at all levels. This has implications for both general and specific education such as management training. Some of the advantages identified in general education include no time limits or geographical barriers and the ability to teach more people without additional cost. In particular, in Europe *digital literacy* is emerging as a new key competency required by workers and citizens for the Knowledge Society (European Commission, 2005). Therefore, the integration of IT-supported learning could help workers acquire the necessary skills and knowledge for their job (European Commission, 2005) and if the student learns the use of technology before starting his/her job, this could be an advantage for both the future professional and the employer. Besides, the use of IT can improve the effectiveness of the learning process.

Referring to specific education, technology is also proving valuable in higher education and in specialised areas such as management training (Ives & Jarvenpaa, 1996). Furthermore, in management education the learner (student) will in their future, work in an environment where technology (in particular information technology (IT) and, indeed, e-collaboration technologies) will have several applications.

It is normally assumed that young people, particularly university students have a developed and sophisticated use of IT and the Internet. In fact, some are included in a new generation of people who are intensive users of technology, particularly for using IT for social contacts, music downloads and so on. Interestingly, almost all students use a lot of mobile phone technology but, normally, this type of technology is not covered in universities teaching. Taking this into account, management teaching should include the use of this type of IT to improve the learning process. But,

to what extent is this true? Are management students advanced users of the Internet? Our own experience is that, students, contrary to the general perception, do not all react positively to an IT based process of teaching-learning management. Some prefer the traditional process.

An understanding of the level of usage of IT by management students would contribute to explain this situation. Several differences exist between the use of IT by university students and the typical user of Internet-based technologies and these are possibly affecting the success of this learning strategy. Consequently, if the students are found not to be sophisticated users, the use of IT for management teaching-learning could be more an obstacle than an advantage. All in all, our objective in this article is to describe the e-collaboration usage by management students and to compare their profile with the profiles of the advanced user of the Internet.

The article is organized as follows. After a literature review, the research design and data analysis are described. The discussion and implications, along with some limitations and preliminary conclusions conclude the article.

## BACKGROUND

In general, two different approaches have been developed for using IT in education. The complete substitution of normal learning (based on a physical classroom) by using IT all the time, that is, e-learning, is the first one. This type of learning has been amply criticized in teaching management skills, so a blended learning approach has been proposed. The second use is to employ IT to complement traditional learning methods. In this case, the communication technologies (mainly Internet based) have been used for gaining a

bigger interaction of professors with students or even to promote more contacts between them in order to improve its collaboration.

Interestingly, contrary to general idea, statistics about e-learning show a relevant utilization of these tools in past years. According to the results of the Grupo Doxa study, e-learning accounted for 5.2% of total business training in Spain during 2004, rising to 7% when looking at only big companies (Grupo Doxa, 2004). Compared to other European countries, Spain is below the mean but ahead of nations such as Italy or France. The most advanced countries are the UK and Germany (Telefonica, 2004). But, when looking at universities, only 4.1% of their total budget is used for e-learning based training. Moreover, the majority of universities (50%) use *WebCT* as the e-learning platform (Barro, 2004).

In response to the increased importance of IT, several studies analyzing IT use and acceptance, from different theoretical perspectives, have been developed. In this sense, the Technology Acceptance Model (TAM) is very well known (Venkatesh, 2000). In particular, several studies have been done in the context of the application of TAM to management education (Martins & Kellermans, 2004).

As special technologies, we will concentrate in this paper in the e-collaboration technologies. These are technologies that support e-collaboration. An operational definition of electronic collaboration (e-collaboration) is to consider it as collaboration using electronic technologies among different individuals to accomplish a common task (Kock & D'Arcy, 2002; Kock, 2005a). Among these e-collaboration technologies we have several internet-based technologies, such as e-mail, forums, chats, and documents repositories that will be considered in this research. In a historical revision of those technologies, Kock and Nosek (2005) consider the e-mail as the first real e-collaboration technology and today they have evolved towards two different types: browser-based (i.e., run on Web or browser) and nonbrowser-based. The browser-based e-collaboration tools are for example WebEx and eRoom, and e-learning tools as Blackboard and WebCT. As mentioned before this latter one is the most used e-learning tool in Spain. The nonbrowser based are either peer-to-peer e-collaboration tools (for example Groove) or client server e-collaboration tools (for example, MSN Messenger, ICQ, AOL Instant Messenger, or Skype). The integra-

tion of IT-supported learning helps students acquire the necessary skills and knowledge for their future job. As these IT are e-collaboration technologies, many positive implications for business process improvement could arise in the future (for an in-depth analysis on e-collaboration technologies effects on business process improvement, see Kock, 2005b).

## RESEARCH DESIGN

A Web-based course was used as an environment to study the e-collaboration technologies usage by students. This system has been used for four years for the topic "management control systems" (<http://campusvirtual.uma.es/contgest>). Over the past 12 months more features have been added, and special support from the IT for education centre at the university has been received. The objective is to adapt the course to the European Space for Higher Education by seeking a greater collaboration between and among students and professors. Consequently, the particular objectives of this virtual classroom have been: (1) put on line the contents of the course; (2) encourage and facilitate students work in groups, using the university's virtual campus e-collaboration tools; and (3) conduct a continuous assessment of student work using this tool.

As mentioned before, apart from the description of the level of use of e-collaboration technologies by students we also compare this usage with the typical use of the advanced Internet user. To do this, we selected a well-known reference such as the results of the study of the AIMC (Association for the Research in Communications Media). This association carries out an annual study from 1996 to the present day about Internet use in Spain. They collect general data on population (computer use and Internet use), and access to the Internet (place of access, frequency of use, most used services, computers utilized, etc.). The methodology in the AIMC questionnaire consists in an auto-administered interview online at a Web site linked to users who visit Spanish Web sites. The interviews were carried out in 2004 (AIMC, 2005). The final size of the sample was 53,647 answers. The most advanced users analyzed in this study will be considered as the advanced users in Spain and we will compare with them our students IT usage.

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