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E-LEARNING: DESIGNING NEW BUSINESS EDUCATION

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2) Develop a conceptual framework that will help enable the world of business to understand and control the impact of the Internet and e-business.

3) Diffuse the knowledge generated by research in this field through the usual scientific and professional media.

4) Develop up-to-date, quality teaching materials.

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Abstract

Business Schools are under intense competitive pressure, and one way for them to differentiate themselves and compete distinctively is by adopting innovative uses of information technology. However, incorporating information technology in business education is no trivial undertaking. This research is intended to provide some guidance about the effect that new information technologies can have in the field of high-level executive education and provide a conceptual framework of the key factors that need to be taken into account for efficient and effective course design in executive education.

Keywords

e-learning, information and communication technology, executive education, learning, business schools, on-line teaching, residential learning, ethnography.

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1. Introduction: Motivation of this research

Over the past two decades, developments in the economic, social and technological environment have led to far-reaching changes in the way organizations operate. In particular, advances in IT have assisted the emergence of new organizational forms, work practices, and training methods. As a result, in recent years teaching and learning methods have started to change in educational institutions in general, and in business schools in particular.

Business schools are engaged in a process of innovation and continuous improvement (Mowday, 1997) that has stimulated business education in international and multicultural contexts and has led to the establishment of strategic alliances between business schools (Porter, 1997). Business schools are under increasing competitive pressure, and one way in which they can differentiate themselves and compete distinctively is by adopting innovative uses of information technology (Leidner & Jarvenpaa, 1995). There has been a boom in distance education, in particular, as advances in IT have made it easier to transmit content and have facilitated communication between education providers and learners. However, incorporating information technology in management education is no trivial undertaking. It is not simply a matter of giving faculty and students access to computers and computer training (Alavi et al., 1997); rather, it demands far-reaching changes in logistical aspects such as course design and delivery. Nevertheless, some institutions, such as Warwick University and Phoenix University, have launched distance learning courses (Leidner & Jarvenpaa, 1995), while other, such as IESE Business School and Fuqua Business School, have introduced a combination of residential and distance formats.

Despite these highly publicized efforts, we have scant empirical knowledge of the impact of new information technologies on high-level executive education (Arbaugh, 2000; Dumont, 1996; Frand & Broesamle, 1996; Morissey, 1997; Salmon, 2000). Accordingly, one of the primary purposes of this research is to develop a conceptual framework for the key factors to be taken into account for efficient and effective course design in executive education. A further interest is to gain insight into differences in course design depending on the type of knowledge to be transmitted. Based on existing literature, I first develop a framework that helps to describe the key factors.

2. Research Objective

The goal of this research is twofold. First, I wish to gain a deeper insight into the e-learning phenomenon in executive education in order to understand the meaning and implications of e-learning and its implementation in business schools. The questions

addressed in this study therefore have to do with the broad definition of learning in the specific context of a business school; the pros and cons of the different models of executive education; and the various ways of delivering e-learning effectively in a business school.

I also aim to develop a conceptual framework that will help to understand how best to deliver e-learning in harmonious combination with traditional face-to-face education. In other words, *what are the success factors or key components of successful e-learning?* Accordingly, I set out to answer certain questions that the use of information technology in the delivery of education have made hot topics in academic circles: *How can high quality "on-line teaching" be guaranteed in a business school context? Under what conditions can "on-line teaching" be a satisfactory substitute for traditional face-to-face teaching? Or is a combination of the two the most effective option for executive education?*

3. Content And Format Of This Research

The central focus of this research is on how IT impacts education in business schools, and how to find appropriate ways of delivering e-learning in executive education. This question cannot be addressed without considering the nature of the knowledge to be transmitted, as existing literature shows that explicit knowledge can be transmitted very efficiently using information technology in distributed learning contexts, while highly tacit knowledge requires teacher-apprentice or case-based teaching approaches. Therefore, taking into account that executive education consists of teaching and learning a combination of explicit and tacit contents, I start this research with the hypothesis that the most appropriate way of delivering executive education is to combine on-line or distributed learning with traditional classroom approaches.

Based on existing literature, I first develop a framework that helps to identify the key factors to be taken into account in the design of an effective executive education course. In a second step, this framework will be redefined in light of an examination of an executive MBA program that relies heavily on the use of information and communication technologies, aimed at pinpointing and understanding the main relations and dynamics between these key factors.

As very little is known about this issue, a narrow and tightly controlled research methodology, with well defined, operational variables and testable propositions, is premature and would obscure rather than illuminate the relationship between the key factors. That is why I opted to develop an exploratory conceptual framework based on theoretical rather than empirical findings. In order to gain a deeper insight into the phenomenon and obtain some practical understanding of it, I combined the development of the model with a contextualized interpretative study.

4. Literature Review

During the past two decades changes in the economic, social and technological environment have brought about profound changes in the way organizations function. In particular, new developments in the IT field have contributed to the appearance of new organizational structures, different work practices, and new training methods. As a consequence, in recent years both teaching and learning methodologies for management education have started to change in educational institutions in general, and in business schools in particular. In this section I will review the most relevant issues related to learning in the field of high-level management education.

Three main bodies of literature inform this research. Firstly, I analyze the different models of learning, and learning and teaching in the specific context of a business school. Secondly, I review the key factors for an efficient design of a management program. And finally, I consider the pros and cons of existing management education models.

4.1. Theories of Learning

In the first step of this literature review, I review different learning models, although not in an exhaustive manner, merely to highlight major differences among the more widely accepted models of learning. Following the work of Leidner & Jarvenpaa (1995), we find that, first, learning models are often classified as being either behavioral (objectivist model) or cognitive (constructivist and offspring models and sociocultural model):

4.1.1. Objectivist Model

This model is based on Skinner's stimulus-response theory: learning is a change in the behavioral disposition of an organism (Jonassen, 1993) that can be shaped by selective reinforcement. This model assumes that there is an objective and agreed upon reality, and the goal of learning is to understand this reality and modify behavior accordingly (Jonassen, 1993). The purpose of teaching is to facilitate the transfer of knowledge from an expert to learners. In other words, learning is a process of uncritically absorbing objective knowledge of reality. This model makes some assumptions: that there exists a reality that is agreed upon by individuals; that this reality can be represented and transferred to a learner; that the purpose of the mind is to act as a mirror of reality rather than as an interpreter of reality (Jonassen, 1993); and that all learners use essentially the same processes for representing and understanding the world.

The objectivist model assumes that the goal of teaching is to efficiently transmit knowledge from the expert to the learner. Instructors convert reality into abstract or generalized representations that can be transferred and recalled by students (Yarusso, 1992). This model also assumes that the instructor is the source of objective knowledge, which is transmitted, rather than created, during class. The instructor is in control of the material and pace of learning. The lecture method of teaching is based on the pedagogical assumptions of the objectivist model of learning (Leidner & Jarvenpaa, 1995). The efficiency of learning is assessed by the instructor via questions and examinations.

4.1.2. The Constructivist Model

The constructivist model of learning emphasizes the learning process as an active, goal-oriented, and constructive process (Jonassen, 1993; Wittrock, 1986). Constructivism denies the existence of an external reality independent of each individual's mind; it considers reality as constructed either socially or by individuals. Knowledge is created, or constructed, by each learner, rather than transmitted. The mind produces its own, unique conception of events; it is not a tool for reproducing external reality (Jonassen, 1993). So, each person's reality is somewhat different, based on his or her experiences and biases. More moderate constructivists do not deny the possibility that an objective world may exist, but they assume that each individual constructs his or her own view of the objective world (Yarusso, 1992). Learning consists of forming abstract concepts to represent reality; it is what "de-centers" the individual from the material. Learning is reflected in "intellectual growth that leads to scientific reasoning, abstract thought, and formal operations" (O'Loughlin, 1992).

The constructivist model advocates learner-centered instruction. Therefore, individuals are assumed to learn better when they are forced to discover things for themselves rather than when they are told, or instructed. In this model students must control the pace of learning. Constructivism assumes that the learning environment should be controlled by each individual learner.

In a class, the teacher serves as the creative mediator of the process to help learners construct their own perception of reality. Each lesson becomes a project-oriented session in which the instructor provides tools to help learners construct their own view of reality (Leidner & Jarvenpaa). Learning focuses on discovering conceptual relationships, exploring multiple representations or perspectives on an issue, and/or immersing the learner in the real-world context in which the learning is relevant (Jonassen, 1993).

4.1.3. The Cooperative or Collaborative Model of Learning

This is an offshoot of the constructivist model. Whereas in constructivism learning is assumed to occur as the individual interacts with objects, in collaborativism learning emerges through the interaction of individuals with other individuals (Slavin, 1990). This model views learning as a social process that occurs more effectively through co-operative/collaborative interpersonal interactions (Vygotsky, 1978). Learning occurs as individuals exercise, verify, solidify, and improve their mental models through discussion and information sharing. Whereas instructor-led communication is inherently linear, collaborative group work allows more branching and concentricity (Flynn, 1992). An implicit goal of this model is to improve communication and listening skills and elicit participation. This model assumes that knowledge is formulated as it is shared, and that the more it is shared, the more it is learned. Although the main goal of collaborative learning is the sharing of understanding through interaction with other individuals, it implies that communication, listening and participation are key factors in improving learning efficiency. Other pedagogical assumptions are: that learners have prior knowledge to contribute to the discussion; that participation is critical to learning; and that learners will participate if given optimal conditions such as small groups to work in.

In a collaborative learning environment the role of teaching is to facilitate maximum information and knowledge sharing among learners rather than controlling the content and delivery of learning; and to provide feedback during class, although feedback from the learner's peers is similarly critical, as is the need for cooperative assessment strategies.

Learners tend to generate high-level reasoning strategies, greater diversity of ideas and procedures, more critical thinking, and more creative responses when they learn actively in cooperative groups than when they learn individually or competitively (Schlechter, 1990).

4.1.4. The Cognitive Information Processing Model of Learning

This model is another extension of the constructivist model and focuses on cognitive processes used in learning. In the cognitive information processing model, "learning involves processing instructional input to develop, test, and refine mental models in long-term memory until they are effective and reliable enough in problem-solving situations" (Schnell, 1986). This model assumes that learners differ in terms of their preferred learning style. Instructional methods that match an individual's learning style will be the most effective (Bovy, 1981). This suggests the need for individualized instruction. The cognitive processing model also assumes that the individual's prior knowledge is represented by a mental model in memory and that the mental model, or schemata, is an important determinant of how effectively the learner will process new information (Leidner & Jarvenpaa, 1995).

4.1.5. The Sociocultural Model of Learning

This model is an extension of and a reaction against some assumptions of constructivism. Socioculturalists do not agree that the goal of learning is to form abstract concepts to represent reality. In their view, knowledge cannot be divorced from the historical and cultural background of the learner (O'Loughlin, 1992). The more meaningful, the more deeply or elaboratively processed, the more situated in context, the more rooted in cultural background and metacognition, and the more personal knowledge is, the more readily it is learned (Iran-Nejad et. al., 1990).

In this model, learning is seen as something that negates the subjective voices that students develop from their own culture and becomes an instrument of power, perpetuating the social class inherent in society and forcing all students to participate in the dialogue that is acceptable to the instructor and peers (O'Loughlin, 1992). The major implication of socioculturalism is that students should participate on their own terms. Instruction should not deliver a single interpretation of reality nor a culturally biased interpretation of reality.

The following table summarizes the learning theories.

Leidner & Jarvenpaa (1995) declare that no particular model is the best approach, different learning approaches will be appropriate depending on the circumstances (course content, instructor profile (goals, skills and preferences), student profile (experience, maturity, intelligence), among others.

Although there is no such thing as a "best" approach, some authors have tried to define the attributes of an effective learning process, and I think is worthwhile to review them. Building on the work done by Alavi (1994), three attributes of effective learning processes can be identified:

1. *Active learning and construction of knowledge.* Cognitive learning theory defines learning as an active, goal-oriented, and constructive process (Shnell, 1986; Wittrock, 1986). According to this theory, individuals do not learn by "copying" the information presented to them, but by constructing meaning from information by processing it through existing mental models. Then, the processed information is stored in long-term memory for future access and possible reconstruction (Johnson, et al., 1991). Therefore, learning is best accomplished by actively involving students in the construction of knowledge and understanding through the acquisition, generation, analysis, and manipulation of information.

2. *Cooperation and teamwork in learning.* Some learning theories (such as collaborativism or the cooperative model) view learning as a social process that occurs more effectively through cooperative interpersonal interactions (Vygotsky, 1978; Piaget, 1967). Being exposed to alternative points of view can challenge an individual's initial understanding, which in turn motivates learning (Glacer & Bossak, 1989). Numerous studies have established the positive motivational and effective cognitive aspects of social learning processes (Brown and Palincsar, 1989).

3. *Learning through problem solving.* Problem solving can be seen as a mental activity leading from an unsatisfactory state to a desired "goal state" (Kurfiss, 1988). In problem solving, there is no known route from the current state to the

goal state, which requires searching through a space of possibilities. Thus, learning through problem solving results from a process of building and transforming mental models (Ansari & Simon, 1979; Neches, 1978; Siegler, 1986). Knowledge of a domain and general problem-solving strategies are acquired by solving domain-relevant problems (Pellegrino & Glaser, 1982; Resnich and Glaser, 1976).

Table 1. Summary of Learning Models (Leidner and Jarvenpaa, 1995)

Model	Basic Premise	Goals	Major Assumptions	Implications for Instruction
Objectivism	Learning is the uncritical absorption of objective knowledge.	Transfer of knowledge from instructor to student. Recall of knowledge.	Instructor possesses all necessary knowledge. Students learn best in isolated and intensive subject matter.	Instructor is in control of material and pace. Instructor provides stimulus.
Constructivism	Learning is a process of constructing knowledge by an individual.	Formation of abstract concepts to represent reality. Assigning meaning to events and information.	Individuals learn best when they discover things for themselves and when they control the pace of learning.	Learner-centered, active learning. Instructor for support rather than direction.
Collaborativism	Learning emerges through shared understandings of more than one learner.	Promote group skills – communication, listening, participation. Promote socialization.	Involvement is critical to learning. Learners have some prior knowledge.	Communication-oriented. Instructor as questioner and discussion leader.
Cognitive Information Processing	Learning is the processing and transfer of new knowledge into long-term memory.	Improve learners' cognitive processing abilities. Improve recall and retention.	Limited selective attention. Prior knowledge affects level of instructional support needed.	Aspects of stimulus can affect attention. Instructor needs feedback on student learning.
Socioculturism	Learning is subjective and individualistic.	Empowerment. Emancipatory learning. Action-oriented, socially conscious learners with a view to change rather than accept or understand society.	Anglos have distorted knowledge and framed information in their own terms. Learning occurs best in environments where personally well known.	Instruction is always culturally value laden. Instruction is embedded in a person's everyday cultural/social context.

One strategy that encompasses all three attributes of effective learning is *collaborative learning* (Alavi, Wheeler & Valacich, 1995). Collaborative or group learning is an interpersonal process by which a small group of students work together cooperatively to complete a problem-solving task designed to promote learning (Alavi, 1994). According to Alavi (1994) the collaborative learning concept is based on the three premises of effective learning – active, cooperative, and group problem solving.

In collaborative learning situations, through conversations, discussion and debate, participants offer explanations, interpretations, and resolutions of problems which lead to social construction of knowledge, as well as development and internalization of meaning and understanding. Moreover, group discussions reveal different views and allow a more comprehensive conception and understanding to emerge. A lot of empirical studies have demonstrated the superiority of collaborative learning over traditional models of learning (Johnson, et. Al., 1991; Johnson & Johnson, 1989).

As Alavi, Wheeler & Valacich (1995) pointed out: "Collaborative learning procedures have also been shown to enhance student satisfaction with the learning process and classroom experience". Students who are exposed to collaborative methods (e.g., discussion groups) have a more favorable evaluation of their classroom experience (Kulik & Kulik, 1979). Research has shown that compared to traditional classrooms –the lecture model of instruction– collaborative learning situations promote considerably more linking among students (Johnson & Johnson, 1989; Johnson et. al. 1983).

As I mentioned before, no particular model is best; it will depend on the circumstances and particular context, and maybe it is a good idea to use a variety of different models. Bearing this in mind, now is the time to see how learning takes place in the particular context of a Business School, and how all these models apply to business education.

4.2. Learning in Business Schools

The role of management can be described in terms of decision-making. Management decisions may be structured or non-structured. To solve structured problems, managers need to possess both specialized knowledge, and structured and explicit knowledge. To solve non-structured problems, however, managers also have to have the ability to integrate the enterprise functions with the economic, organizational, political, social and anthropological demands of the environment. Therefore, to solve structural problems we can use the objectivist model and the cognitive information processing model; and to solve unstructured problems it will be better to use the constructivist and the collaborativist model.

To train managers to solve structured problems, learning programs aimed at acquiring theoretical knowledge are the norm. Theoretical education is associated with the passive methods of transferring knowledge; for example, through professorial lectures or readings. However, the usual method to train managers to solve non-structured problems is through educational programs in which the learning objective is, first, to acquire theoretical management knowledge; second, to develop attitudes; and finally, to enhance social skills for action (Jauregui, 2003). To achieve these goals, education in management programs is linked with practical exercises and is related with active educational methods (Collins, 1983; Kolb, 1984; Schank et al., 1999; Christensen, Garvin & Sweet, 1991). The case method is such an active method, and is the one most widely used in business schools. Since most of the problems that managers have to resolve are non-structured, the case method makes students act and experiment.

In summary, because in a Business School program managers are called upon to deal with both structural and non-structural problems, different learning approaches are appropriate: a more objectivist procedure (e.g. lectures) for solving structured problems, and a more constructivist or collaborative procedure for solving non-structured problems (e.g. group work and the case method).

4.3. Design factors for an executive education program

From the literature review, I have identified five factors that should be considered when designing a management education program: learning objectives and course content; instructor profile; student profile; technology; and educational institution.

4.3.1. Learning objectives and Course content

In the context of a business school, it is important to determine, first, the learning objectives to be achieved; for example: knowledge transfer (facts, figures, defining data or describing concepts); comprehension (understanding deeper meaning or significance of concepts); application (relevance of concepts for practice); analysis (understanding motives, causes, logical associations between concepts); synthesis (understanding the big picture, being able to predict and solve problems on the basis of existing concepts); evaluation (being able to appreciate or evaluate the quality of certain realities on the basis of a clear set of criteria) (Bloom et al., 1956); and developing or enhancing abilities, interpersonal skills for action, and virtues (Jauregui, 2003).

Technologies that promote communication and interaction can be effectively used to develop higher-order thinking skills and build conceptual knowledge when following a constructivist or collaborative learning model (Leidner & Jarvenpaa, 1995). Technologies that promote participant communication are best suited for subject matter or course designs that emphasize discussion, brainstorming, problem-solving, collaboration, and reflection (Wells, 1990).

When the instructor's main objective is to transfer knowledge from "instructor" to students (a more objectivist model of learning), traditional face-to-face residential education is more efficient, due to the fact that the instructor is an expert with valued time. However, with the new technologies it is not as necessary for instructor and student to come face-to-face, given that it is possible to record the session and transfer it via the Internet or CD-ROM, without the need to bring professor and student together. Nevertheless, this may not be appropriate if students want to develop certain skills such as presentation and negotiation techniques, which are very difficult to transmit by Internet-based distance education.

The difference lies in the type of knowledge to be transmitted, as different types of knowledge require different types of learning. A first distinction is between encoded and non-encoded knowledge. Encoded knowledge is fully explicit, conveyed by signs and symbols, and can be easily shared between the educational program participants. However, some researchers consider that it is neither possible nor desirable to encode all knowledge (Polanyi, 1962); as Polanyi says, people know more than they can say and thus not all knowledge can be made explicit or encoded. On the other hand, Blacker (1995), Collins (1993) and Sieber (1998) establish that non-codified knowledge can be either "embodied", "embedded" or "embrained". While embodied knowledge refers to individual know-how, embedded knowledge is rooted in working routines or top management schemes (Granovetter, 1985;

Nelson and Winter, 1982), and thus has a collective, context-dependent component. Therefore, when we wish to transfer this type of knowledge, the collaborative context is very important, and training through information and communication technologies, without a high collaborative environment, may not be enough, as a more collaborative learning procedure is required. Finally, embrained knowledge is purely tacit, in the sense that it is that portion of knowledge that individuals possess, but which they are not able to articulate.

4.3.2. Instructor Profile

Collins (1995) concluded her literature review on the impact of the media with this observation: "It is not the technology, but the instructional implementation of technology that determines its effects on learning".

There are many aspects to be taken into account when a person analyzes instructors to decide which is the best for a particular course. Not all professors have the right attitude to deliver a residential class, and the same with education via the Internet. Instructors need to develop different ways to deliver course material using this medium, as it has been suggested that the skills that make an instructor successful in a physical classroom may not be directly transferable to Internet-based teaching (Dede, 1990; Dumont, 1996). The instructor is a key factor in the success of learning at any level, although with distance learning he/she acquires a different role than the traditional one. The instructor in on-line learning acts as a facilitator of the learning process, given that the essence of on-line learning is self-guided (it is more related to the constructivist model of learning). The instructor's teaching style (interactive teaching style related positively to learning outcomes (Webster & Hackley, 1997)), control of the technology and technology attitudes (Dillon and Gunawardena, 1995; Leidner & Jarvenpaa, 1995), self-efficacy, initial motivation, and availability (time the instructor assigns to on-line teaching) could be decisive in the course design (Piccoli, et. al., 2001). Webster and Hackley (1997) have found that the instructor's ability to handle the equipment, his teaching style and his attitude towards technology have a bearing on learning outcomes. For instance, in a case discussion via the Internet the professor will usually need to invest more time and dedication than in a residential class, which will be limited to one or two hours. In order to have a good case discussion via the Internet, the instructor has to control the discussion at all times, to be present, and to ask the right questions and guide the discussion, while the discussion takes place. Karp and Yoels (1976) found that students' participation in the classroom is affected by their sense of whether the professor truly wants communication. Accordingly, the instructor's training style should relate to learning outcomes for these reasons (Webster & Hackley, 1997): interaction is key in all learning processes (Dillon & Gunawardena, 1995), and in particular in learning through multimedia (Collins, 1995) and with distance technologies (Bobely, 1994; Latchem et. al, 1994). Instructors need to learn a different set of teaching skills for transitioning into this role of discussion facilitator and manager (Berge, 1995; Brandon & Hollingshead, 1999). This includes intentional efforts at achieving verbal immediacy (Freitas et al., 1998; Gorham, 1988) and use of a more conversational style in on-line comments to help enhance student participation and discussion (Ahearn et al., 1992).

4.3.3. Student Profile

Many factors influence a student's decision to enroll on a course or program, be it on-line or residential, such as location, family, work restrictions, time availability, etc. Others include: student learning style (learning style describes a learner's preference for particular

types of learning and instructional activities, and the learner's perception of his/her own preferences; Kolb & Fry, 1975); computing experience (Colley et al., 1994; Dych & Smither, 1994); Internet usage skills (Atkinson and Kydd, 1997); familiarity with technology and attitude toward it; maturity and motivation (Piccoli et al., 2001); and whether or not the prospective learner is an independent, autonomous, reflexive, active person, and has collaborative skills. Students attracted by on-line education share the following characteristics (Palloff & Pratt, 1999): they are voluntarily seeking further education, are motivated, have higher expectations, and are more self-disciplined, tend to be older than the average student, and tend to possess a more serious attitude toward their courses. Other characteristics shared by successful students are: they are self-motivated and self-directed learners, they work well in groups, they are usually highly experienced, they bring a variety of real-world examples to their learning, they have the ability to integrate theory with practice, they have computer skills, they have good time-management skills and are able to balance work, study, and family commitments, they are psychologically well prepared for the time commitment and the work, and they have strong family support for their goal of studying while working (www.petersons.com).

In on-line education, participants have to be more responsible for their own learning and share certain other values such as: fairness, willingness to build an atmosphere of trust, respect for classmates and professors, and openness.

4.3.4. Technology

Webster and Hackley (1997) argue that reliability, quality and medium richness are key influences on learning outcomes. Technology reliability and quality are important attributes of task-technology fit (Goodhue & Thompson, 1995), and they will be especially important for a new technology.

Leidner and Jarvenpaa (1995) suggest that some technologies are better suited than others to support particular theoretical models of learning (e.g., objectivist, constructivist). For example, self-paced, individual computer-aided instruction seems best suited to support an objectivist approach, while classes based on computer-mediated discussion may be aligned with a constructivist philosophy (Romiszowski & Mason, 1996). Electronic teaching technologies can generally be deployed in support of different philosophies, and the same technology can be used to support different learning models depending how it is implemented and used (Clark 1994; Collins, 1995). An electronic forum with discussion board technology is a good example. If the instructor uses it to quickly and publicly answer student questions, as during in-class lectures, the behavior is consistent with an objectivist model. Conversely, if the instructor uses it to foster asynchronous discussion, facilitating student exploration of the subject and engaging them in discourse and construction of meaning, the behavior is consistent with the constructivist model (Piccoli et al., 2001), as the role of information technology in this case is primarily to maximize the availability and accessibility of information that will help learners to construct new knowledge (Li, 1997).

Medium richness theory (Daft & Lengel, 1986) and social presence theories (Sproull & Kiesler, 1991) suggest that recreating classroom learning environments to fit the Internet in its present form would be rather difficult. The relatively low richness of text-based media and the elimination of verbal cues would make accomplishing interdependent, ambiguous tasks such as case discussion and group projects particularly challenging (Arbaugh, 2000).

Webster and Hackley (1997) analyzed the incorporation of interactive video into distance learning, and they expected it to be perceived as less rich than face-to-face instruction for a number of reasons: researchers have considered multimedia as falling below face-to-face instruction (Kydd & Ferry, 1994; Nahl, 1993); and students interact more passively with interactive video than with face-to-face instruction. In their study these authors found that the perceived richness was higher for face-to-face meetings, and the instructors found it difficult to be as involved with students during lectures as they would have been in a traditional course. Students seemed more detached than they generally do in traditional face-to-face instruction. Another finding of the study relating richness and distance was that students at origin sites perceived the technology to be richer than those at remote sites.

The flexibility of technology-mediated distance courses such as Internet-based courses may help groups to reach levels of relational intimacy comparable to face-to-face groups (Arbaug, 2000). Flexibility comes from the medium's being both place and time independent, allowing course conversations to continue over time in the midst of interruptions (Harasim, 1990: Leidner & Jarvenpaa, 1995). Students have the opportunity to be more reflective and thoughtful in their discussion, rather than having to compete for recognition as in physical classrooms (Dede, 1990; Finley, 1992; Harasim, 1990).

4.3.5. Educational Institution

It is important not to underestimate the importance of the administrative and institutional aspects of e-learning. Educational institutions play a key role in administrative support (budget, organization and change, accreditation, information technology services, instructional development and technology services, instructional development and media services, marketing, admissions, graduation and alumni affairs); academic support (adequate and specialized support staff for professors, instructional affairs, workload, appropriate salary, material copyright); and student services (such as pre-enrollment services, course and program information, orientation, advice, guidance, registration and payment, library support, bookstore, social support network, tutorial services, internship and employment services, support network…) (Kahn, 2003).

In the next section we describe the principal management education models in use today and their advantages and disadvantages in this specific context.

4.4. Executive education models

A number of different management education models are in use in the academic world today. Two of them are traditional, with many years' experience, others are more recent models that have developed in parallel with the emergence of the new information and communication technologies. One way to get a clear idea of the range of features is to look at the main advantages and disadvantages of each model[1].

4.4.1. Residential Model

Traditionally, management education has been delivered primarily through residential programs such as full-time or weekend MBAs or shorter management seminars, in

[1] Information about the different models has been taken from university and business school web sites.

which students and faculty convene on campus to work with each other in face-to-face situations. This approach was accepted as the best way to deliver management training, partly because there was then no viable alternative to residential programs.

This model has advantages and disadvantages. The case method is the most widely used tool in management education, and the residential model allows students and professors to come together in the same place and at the same time to use it to best effect. The main advantage of the residential format is that it allows a rich face-to-face exchange of information through a multitude of different communication channels, including voice, mimicry and gesture.

Face-to-face classroom discussion also allows a highly collaborative approach to learning, as students can interact with each other and with the professor in real time. This gives them the opportunity to get to know each other on a personal level both in and out of class. Knowing each other on a personal level, students also tend to trust each other more. Trust helps to create a supportive, collaborative learning atmosphere in which students feel able to take risks and air and discuss their views in front of others (Palloff & Pratt, 1999).

Another advantage of this model is that it builds a learning community in which students know each other personally, which typically boosts motivation (Handy, 1995). It does, however, have a number of drawbacks. First and foremost, it demands great flexibility from participating students to be able to attend at a particular time and place. This is an obstacle for many working managers who would otherwise like to enroll in a program.

A second disdvantage of residential instruction is that it is not readily scalable: management education is heavily constrained by the student-to-faculty ratio (Smith, 2001). In residential face-to-face learning, any substantial increase in this ratio is detrimental to the learning experience.

4.4.2. Traditional Management Distance Education

Distance learning is when a student studies and does course work away from a physical campus setting and a professor. It is not a recent phenomenon but goes back more than a hundred years, with European correspondence courses being the earliest form of distance learning (Sherry 1995). Schlosser & Anderson (1994) state that, at least in the United States, the goal of distance education is to offer students an educational experience as much like the traditional face-to-face classroom as possible. This implies that teaching methods in distance learning should be much the same as in the traditional classroom (Schlosser & Anderson, 1994). However, as distance education is now seen as something quite separate from classroom learning, there is a growing realization that traditional teaching techniques will not work in distance education (Thach & Murphy 1995). The success of distance education depends on interaction between instructors, students and the learning environment, as well as on active learning in the class (Ponzurick, France & Logar, 2000).

With respect to the use of distance learning for management education, a number of advantages and disadvantages have been identified in the literature:

By their nature, distance learning programs offer maximum flexibility. Students receive their learning material, such as printed material or audio and video tapes, by mail and can then work through the assigned materials at their own pace. Because of this flexibility, distance learning institutions have a wide geographic reach. While residential programs are

limited to students who are able to come to campus, distance learning schools such as the UK's Open University or the University of Phoenix, USA, can serve students all over the world. The main drawback of this model, however, is the distance between student and professor, both the geographical-temporal distance and the psychological distance. Another significant problem is the slow rate of information exchange between students and faculty. Because interaction is slow, reaction and feedback to student's learning efforts is typically infrequent, which in turn makes it more likely that students will feel more isolated in their studies (Palloff & Pratt, 1999). Smith (2001) reports that distance learning students stop "going to class" when they are busy at work. Slow interaction between students and faculty, and the lack of interaction among students, makes it particularly difficult to stimulate collaborative learning and create learning communities, thus raising motivational barriers to effective engagement in distance learning programs.

Lastly, the personal bond between student and instructor is almost nonexistent. This means losing one of the main benefits of management education, the opportunity to build personal and social contacts that will be useful in later life.

Working managers face a dilemma: they need to update their skills to remain competitive in a constantly evolving world, yet both of the models described above have high hurdles. Consequently, there has been a need to develop different ways of studying to alleviate the disadvantages of the above-mentioned models while preserving their advantages. ICT (Information and Communication Technologies) models may be the answer, as they have the potential to offer both a high degree of spatial flexibility, while also providing the means to create and maintain an engaging and motivating community of learners.

4.4.3. ICT-based Models of Management Education

Information and Communication Technologies (ICTs) have changed the business world dramatically and continue to do so. Until now, however, the impact of the Internet and ICTs on business education has received little attention, and in recent years there have been calls for more research on the most appropriate ways to use ICTs in management education (Alavi and Leidner, 2001; Arbaugh, 2000; Arbaugh & Duray, 2002; Ellram & Easton, 1999; Freeman & Capper, 2000). It is important, therefore, to explore the main advantages and disadvantages of the ICT-based model.

The ICT-based model has five main advantages. First, it offers a high degree of spatial and temporal flexibility, which is especially important in the context of continuing education programs for working managers, who would otherwise not be able to enroll in a program. Students in full-time employment are the largest segment in the executive market, and the ones who need the most flexibility (Smith, 2001). Second, it makes it possible to integrate various information and communication tools in a single technology. Third, it allows to create communities of learners using asynchronous bulletin boards, e-mail or chats (Palloff & Pratt, 1999). Community building in virtual groups is possible without face-to-face contact. Although at some point in the community-building process face-to-face contact may be helpful, it is unlikely to change the group dynamic created on-line (Palloff & Pratt, 1999). It is, however, possible to build a community without it. Fourth, ICTs alleviate some of the problems formerly associated with distance learning, particularly the lack of interactivity. Students and professors now have the means to post comments and questions on the Internet and receive instant feedback, which is important not only for the learning progress but also for maintaining motivation (Werback, 2000). And fifth, ICT-based communication is becoming increasingly important in the workplace that students will enter on completing their degree.

The ICT-based model also has a number of disadvantages. First, the number of communication channels is limited compared with the residential model, and this diminishes the interaction. Communication in a traditional classroom extends beyond the exchange of messages to include paraverbal factors such as gestures and facial expressions, which with Internet-based technologies are significantly reduced or completely lost.

Second, there are important psychological concerns with the use of ICTs for learning, such as security, navigation difficulties, tired eyes, headache, stress (Palloff & Pratt, 1999), frustration, anxiety and confusion (Hara & Kling, 2000).

Lastly, social interaction is reduced, mainly due to the lack of classroom interaction. Social contacts are normally made during coffee breaks and in face-to-face meetings, and these are difficult or impossible to replicate in an ICT-based environment (Palloff & Pratt, 2001).

The residential model, the traditional distance model, and the ICT/based model of management education all have major disadvantages, which often preclude satisfactory learning experiences. That is why a fourth model, designed to overcome the problems of the previous three models, has been developed: a hybrid model of management education.

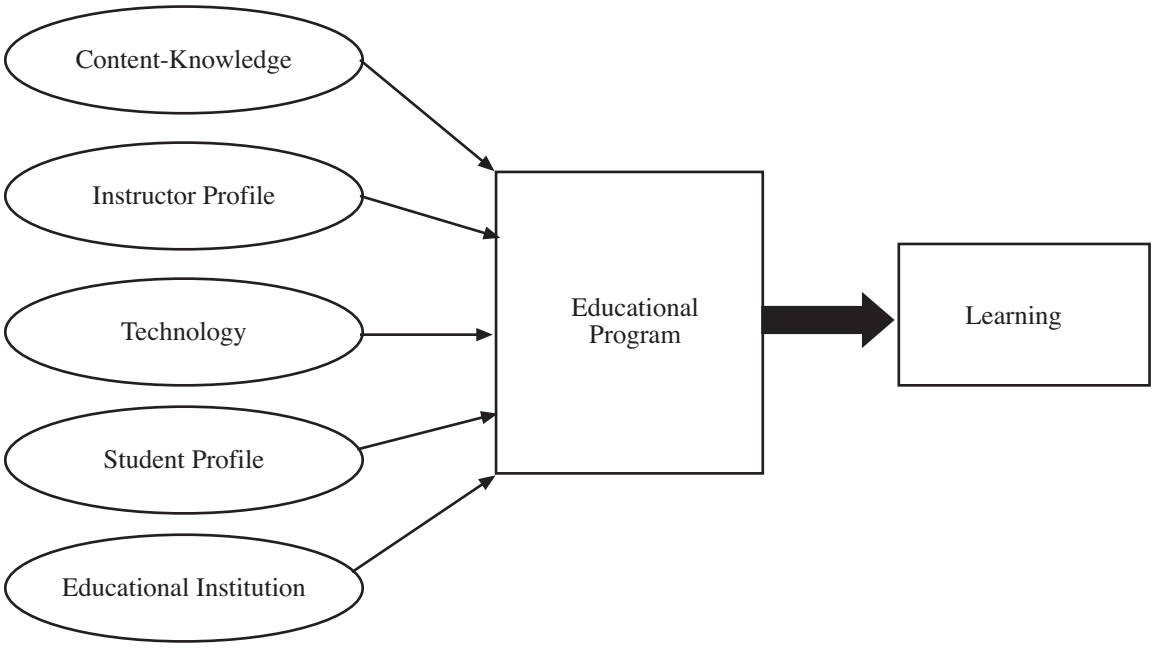
4.4.4. Hybrid Management Education Model

This model is based on combining the best of residential education with the best of the ICT-based model. It is able to reach a wide group of participants, thus overcoming one of the main disadvantages of the residential model's lack of spatial-temporal flexibility. It also increases the depth of discussion, as it allows for more reflection (Carpenter, 1998; McClenahen, 1997). It enables the construction of a strong learning community, a rich learning environment and highly collaborative learning. Face-to-face contact during residential periods helps to build personal ties that can continue in on-line periods, when students are in their work locations. Lastly, this model fosters active learning.

The main disadvantage is that it does not offer as much temporal and spatial flexibility as the distance education or ICT-based models, given that it involves periods of face-to-face learning, for which students have to move to a physical campus, typically involving a full-time intensive learning module.

4.4.5. Towards an initial framework

The literature review serves as a primary input for developing an initial theoretical framework to encompass the main factors that influence the design of an effective management education program using information and communication technologies (see figure below). This is a schematic framework based on factors that scholars and academics have identified as being important.



5. Research Method and Plan

All research is based on underlying assumptions about what constitutes "valid" research and what research methods are most appropriate. Several authors (Miles & Huberman, 1984; Easterby-Smith, Thorpe & Lowe, 1991; Walsham, 1995b) have claimed that to enable the reader to understand the research issue, the researcher should clarify his or her philosophical preferences. The most pertinent philosophical assumptions are those relating to the underlying epistemology which guides the research. Epistemology refers to the assumptions about knowledge and how it can be obtained (Myers, 1997).

Different authors have proposed different classifications of the "paradigms" underlying qualitative research. Guba and Lincoln (1994) suggest four such paradigms: positivist, post-positivist, critical theory and constructivism, while Orlikowski and Baroudi (1991), following Chua (1986), suggest three categories: positivist, interpretative and critical. Positivist approaches are generally premised on the idea that the social world exists externally and that its properties may be measured through objective methods rather than being inferred subjectively through sensation, reflection and intuition. It is assumed that the observer is independent of what is being observed and that the choice of what to study and how to study it can be determined objectively. Positivists generally attempt to test theory in order to enhance our predictive understanding of phenomena.

Interpretative studies start from the assumption that our only access to reality (whether given or socially constructed) is through social constructs such as language, consciousness, shared meanings, documents, tools, and other artifacts. The researcher is considered part of what is being observed, and science as being driven by human interests. The focus of research is on the meanings that people assign to phenomena rather than on facts, and understanding processes and evolution is a central theme. Interpretative research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges (Kaplan & Maxwell, 1994).

Critical research assumes that social reality is historically constituted and is produced and reproduced by people. Perceived reality has been shaped over time by a series of social, political, cultural and economic factors that have crystallized in structures that we now perceive as real. Critical research sets out to critique the existing status quo by exposing what it believes to be deep-seated, structural contradictions within social systems, and by doing so transform these alienating and restrictive social conditions. It therefore focuses on oppositions, conflicts and contradictions in modern society (Sieber, 1998).

The motivation of my research is to understand the e-learning phenomenon in the context of executive education, and to examine the meaning and implications of e-learning and its implementation in business schools. I cannot predefine dependent or independent variables, only understand phenomena through the meanings that people assign to them. I adopt a subjectivist approach and, at the same time, assume the existence of multiple, apprehensible and sometimes conflicting realities that are products of human intellect and may change as the producers become more informed and sophisticated; I cannot accept realism. So, being both subjectivist and relativist, the paradigm of my research is interpretative.

Having positioned my research within the interpretative paradigm, I have chosen the qualitative research method as my methodology. Within the interpretative paradigm, there are different degrees of subjectivity, the hermeneutic school being the one that occupies the least subjectivist region of the paradigm. The hermeneutic school is concerned with interpreting and understanding the products of the human mind, which characterize our social and cultural world (Burrell & Morgan, 1979). From among the forms of interpretative research that adopt the hermeneutic approach I have chosen ethnographic research.

Ethnographic research comes from the discipline of social and cultural anthropology, where the ethnographer is required to spend a significant amount of time in the field. Ethnographers immerse themselves in the life of the people they study (Lewis, 1985) and seek to place the phenomena studied in their social and cultural context. Although traditionally ethnography has been associated with research without the use of prior theory, recently several authors have encouraged the adoption of an explicit theoretical perspective prior to immersion in the field (Miles & Huberman, 1984; Walsham, 1995b). Thus, while informed by theory, such a research approach is nevertheless sufficiently flexible to allow the incorporation of any novel or contradictory insights emerging from the field.

This research consists of an in-depth ethnographic study of one executive education program that combines face-to-face and on-line learning methods. I analyze and compare the design and execution of certain deliberately chosen courses. Analysis of the data will help me to refine and clarify the initial model as a prelude for future research.

The site I am researching is a 15-month executive MBA program combining on-line and residential learning: the Global Executive MBA Program given at a leading European business school. Ethnography relies heavily on multiple data collection methods (Adler & Adler, 1994; Orlikowski, 1991); indeed, this is one of its main strengths. I am gathering data mainly from three different sources. Following Walsham's (1995a) model, the primary data informing this research are in-depth interviews of MBA participants, faculty and program staff, who offered their interpretations of the actions and events taking place, and their views of and aspirations for themselves and other participants.

The interview guide consists of open-ended questions, and the interviews last from twenty minutes to two hours, the average being three quarters of an hour. There are different kinds of interviews. I begin with more open questions, and later on will make the interviews more structured.

Second, I am carrying out direct observations of on-line and on-site interactions. I attend classes and I follow on-line interactions, via the Internet platform: newsgroups, chats, announcements,…

Finally, I have access to selected documentation (electronic and paper). I analyze these documents along with general program documentation: evaluations, meetings, announcements, and so on.

From the above, it should be clear that my data collection activities are guided by the theoretical framework I have developed from the literature review, although I try to remain open to new insights and stimuli from the field data. As a result, the final theoretical conception will incorporate issues that have not yet been anticipated and that may emerge during the study as key issues for a fuller understanding of the phenomenon.

Data collection will continue throughout the 15-month duration of the program, with the goal of gathering the fullest possible range of information, from changes in students' expectations to their actual learning and development of Internet-based social skills. Since I have full access to the program, both residential and on-line, I have a privileged insight into the phenomenon. This research process is highly interactive, as I am continuously re-evaluating the initial theoretical framework. Thanks to this continuous reality check, I expect to be able to contribute some proposals concerning the design of effective executive programs.

6. Expected Contribution

I expect to develop and evaluate a conceptual framework that will help to understand how best to deliver management education through a combination of e-learning and traditional face-to-face education, capitalizing on each method's strengths and offsetting its weaknesses. I expect to determine the key factors or components of a successful hybrid e-learning program and to answer questions such as: How can high quality "on-line teaching" be guaranteed in a business school context? Under what conditions can "on-line teaching" be a satisfactory substitute for traditional face-to-face teaching? Or is a combination of the two the most effective option for executive education? What should be the content?

Early results from my research have confirmed the factors of the conceptual model, but also have brought to light some issues that did not emerge from the literature. Notably, differences in students' objectives influence both their own performance and that of their peers. Some students are more interested in grades than others, and their contribution to distance learning activities and teamwork is different. I have observed intercultural differences in the way participants work and learn, particularly in group work, which affect their learning achievement. There is also evidence of cycles in their performance in and attitude toward the program, due the way they manage the work-family-education conflict in the different stages of the program.

The following are a few examples of these issues:

Some students are able to devote more time to the program, and this affects the way groups and discussions work. One student points out : "[t]hat people in our case that have more free time than others, they have their own business or they can manage their time, or they're in vacations or another circumstance, and they have a clear advantage compared to myself." Sometimes, students who cannot give as much time to the program suffer because they cannot read all the messages or contribute effectively to the newsgroups.

On the subject of instructors, one Global Executive MBA Program student declared: "I think that the commitment is quite different for some professors between the face-to-face module and the distributed learning part; sometimes they were not really active or proactive on the boards, and then what happened is that we felt that completely, discussion was going away from the subject."

Another issue concerns technology. If a member of a group has difficulties with technology, it directly affects the other members, because he/she cannot contribute to the team work efficiently, and so the other members have to do the work for him/her to complete group assignments. One student in a group that was having this sort of problem stated: "[b]ut we have an impression that he didn't speak much English, and he didn't know how to use the computer, we had to start teaching him from zero, and this computer wise and English wise was a first concern that I had… but since we were four we were able to manage, we try to give this person confidence, but we still have our own doubts about what was going to happen during the distance learning…". Although most students do not consider technology a major problem, a minimum knowledge of technology is essential in this kind of program.

This research contributes to research on e-learning in the context of executive education. It is informed not only by the e-learning literature, but also by work in executive education and information technology research. Therefore, the model may be of interest to researchers, instructors and students, and to course developers who wish to efficiently incorporate ICTs in their executive programs.

7. Limitations

This research has a number of limitations. First, the theory is still weak. There is scant empirical evidence on the effect of using information technologies in high-level executive education, or of combining face-to-face and on-line learning. Given the state of the field, the objective may seem over-ambitious. Second, it has been widely suggested that individual, in-depth qualitative studies provide only a weak basis for generalization, which would mean that this study on its own is not enough. After completing this research, in order to gain a more accurate model of the phenomenon, I plan to carry out a comparative study with other similar programs that combine e-learning with traditional face-to-face education. Third, this research focuses on executive education, which for various reasons is rather different from many other kinds of educational programs (student profile, student objectives, teaching methods, etc.). Consequently, there is a need to see what scope there is for generalizing from executive education to other kinds of education. Fourth, the framework is still incomplete, the characteristics of the underlying factors remains to be defined. Fifth, there may be serious problems of measurability.□

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