THE TUNISIAN UNIVERSITY E-LEARNING EXPERIENCE: FOCUS ON PERCEPTIONS OF THE PRINCIPAL ACTORS

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Introduction

E-learning (EL) is a training method based on communication and information technologies (ICT). It is the focus of current reflections in the academic and the business community. Courses using ICT, called EL courses, are developing in institutions of higher education as well as firms. This new method of teaching via ICT is regarded as an innovation on the technological, pedagogical, organisational, social and cultural levels.

Reflection on EL should be carried out by paying attention to the most important capital of the training experience: the learner and the teacher. They are believed to be proactive actors and, to a certain extent, customers. It is in this "marketing" mindset of constant concern about needs and wants of the customers (here learner and teacher), that the study of perceptions of these actors is deemed important. These perceptions determine their predisposition to accept or refuse such courses.

Review of the literature

As the literature relating to the perception of the EL by the various actors remains limited to date, it seems suitable to explore the environment of EL and to detect the benefit of EL and the barriers that hinder its diffusion as well as the strategies recommended to surmount them. But the definition of EL is a necessary step before carrying on with those developments.

Definition of EL

Lehmann and al (2005) ascertain that EL, a concept in constant change, does not have a unanimous definition among its users. The common denominator among specialists reveals that it as a mode of training that is independent of time and place thanks to the use of new technologies such as the CD-ROM, the Internet, the video conference, the DVD or the Intranet.

Bellier (2001), distinguishes between five types of EL methods: (a) the wholly distance method without tutorial intervention, (b) the wholly distance method with tutorial intervention, (c) the mixed distance/face-to-face with distance self-training, and (d) the mixed distance/ face-to-face without distance self-training.

Benefits of EL

The majority of the researchers in EL agree on the benefit of adapting contents to the profile of the learner, the reduction of training, the evaluation and the development of knowledge, the reduction of costs, and innovation.

- *Contents of training adapted to the levels, expectations and objectives of the participants*

On the basis of a precise diagnosis of his/her competencies, the learner chooses the modules that develop aspects he wishes to reinforce (Booker, 2000). EL makes "just in time" training

possible. It allows the learner to make his choice when need be rather than in preparation for future potential needs as it is the case with standard training (Lehmann et al, 2005). Thus, the learner becomes the principal actor of training: he builds personalized courses, sets his own objectives and controls the process of training. EL enables him to manage his personal career and to guarantee his own employability on the long run (Booker, 2000).

- *EL, a means of propagating and of deploying training*

At the time when networking develops, EL constitutes an effective solution to training quickly a significant number of learners in France, in Europe or in the world (Booker, 2000). Organization can work out training courses that help learners acquire a common vocabulary, to exchange "best practices", to reach a base of shared knowledge, and to develop competences. This is the advent of Knowledge Management (Lehmann et al, 2005).

- *A real time evaluation of knowledge*

Throughout the training process, the learner can evaluate at any time his degree of mastery over the acquired knowledge. The participant and the organization can then directly measure the effective performance of the specific trainings (Lehmann et al, 2005). In this framework of coached training, one can reinforce reactivity, update contents, or modify the teaching methods so as to support the real acquisition of knowledge (Choy et al, 2000).

- *An innovating teaching approach*

While being based on multi-media resources, the EL supports evolution or revolution of the teaching methods. More pleasurable, simulations, self-evaluation tests, and exchange of synchronous" or "asynchronous" messages "create an interactivity which places the learner in the centre of training. Getting rid of the passivity of in face-to-face training, the learner is directly put in situation that guarantee training effectiveness (Lehmann et al, 2005).

- *A reduction of costs*

EL is a solution which makes it possible to reduce significantly training costs in comparison with the face-to-face method. Indeed (a) the transport fees of learner which burden the budgets considerably are removed, (b) the expenses related to the service of the trainer are also reduced or removed, (c) the time of personal training is reduced to help the learner save time and concentrate only on aspects of particular interest; (d) it is possible to amortize important teaching investments because the courses can be dispensed to theoretically unlimited number of students.

Indeed, there are no more geographical or space constraints (the number of places in an auditorium is always limited). It consequently becomes possible, thanks to additional incomes, to reach high quality teaching by calling upon the best existing professors or by engaging a team of confirmed specialists (Lehmann and al, 2005).

- *A personalized training*

EL offers a great flexibility. It allows the learner to plan more easily his training path, to better reconcile the time devoted to training and to the requirements of his activity (Booker, 2000; Misko, 2000). The students learn better in an on line program because they can learn according to their own rate, in their own environments and at the moment of the day which is

most appropriate to them (Schulman and Sims, 1999). The training improves in flexibility insofar as it can be followed regardless of time and place (Lehmann et al, 2005).

On line training can be synchronous or asynchronous. With asynchronous courses, the students can have access to the lessons and constantly accomplish tasks independently of the moment to which the other students connect. With synchronous courses, the students and the teachers take part in the process of training at the same time (Owston, 1997).

- *The acquisition and the development of knowledge*

The tools provided by new technologies (like discussion forums, collaborative tools, etc.) confer to learning a more participative aspect to the acquisition and the development of knowledge (Houze, 2004). It is a believed to be a much motivating mode of training (Choy et al, 2000). The activities of on line training do not only provide sharing of collective work or creating social relations, but are also facilitate attaining specific objectives of knowledge acquisition (Northrup, 2001).

EL has certainly many advantages. However, like any technology, it has also certain disadvantages. Indeed, some learners give up training because of the barriers that hinder the diffusion of EL. These are explained in the following section.

Barriers to the diffusion of EL

According to Harris et al (2001), there are four barriers to the diffusion of EL. First of all, the cost of the products of EL is quite high for the majority of training institutions. Second, it is rather difficult to integrate into a coherent system various products of EL. Moreover, much time is spent in the process of implementation. To some extent, courses contents are believed to be of lesser quality.

Bersin (2003), refers to three categories of barriers to the diffusion of EL: contents development, infrastructure, and deployment. First of all, he believes that the organizations have often difficulties communicating with the expert and could not tolerate the time spent for the development of EL courses. As for the infrastructure, the cost issue seems to be the major barrier. Lastly, it notes that organizations still find difficulty to measure the activity, the results, and the impact of EL.

Through a review of the literature, Levin & Sun (2002) identified some barriers to EL diffusion throughout higher education. They announced that the teachers had difficulties with applying EL in their courses; they missed suitable pedagogy to teach on the Internet; they could not provide additional efforts to manage and maintain courses on line, and then, the institutions of higher education did not have a sufficient budgets to continue developing EL courses.

The barriers underlined by Choy et al (2000) are: reliability, speed of access and cost of technology. According to Harper et al (2000), many professors think that several platforms are under-utilized or are not used at all. In addition, certain professors claim that synchronous technologies are perceived as being a bit of a problem for those who do not like time constraints and for those who lack competences in data processing.

Choy et al (2002) identify other problems associated with learning on line. They believe that EL training is characterized by the difficulty of the access, the overload of information, the passivity of the interaction, the absence of socialization, the cost and the time invested in file loading.

Harper et al (2000) noted that the lack of adequate infrastructure is a major problem for learners located in the rural and remote areas. Although the potential advantages of on line training are apparent, access from such remote zones is not only slow and un reliable, but also very costly.

In the same order of ideas, Sidoti (2001) declares that the access to training is increasingly dependent on the access to the Internet. In particular, the Internet offers extraordinary occasions for people situated in isolated areas and offers occasions to reducing inequalities. But, the access to the Internet remains expensive and not very reliable particularly in some inaccessible zones. The technological infrastructure requires the mobilization of qualified people to maintain and support these systems.

In a study on 48 professors belonging to 12 institutions situated in 11 Mediterranean countries and among 50 French professors, Humbert (2005) managed to classify the barriers related to EL into four categories: quality, time, technical expertise, the development of roles and vision. Humbert estimates that the problems of quality represent one of the major problems for professors. The quality of the interaction seems to be the principal problem. Indeed, according to Humbert, the professors believe in the richness of the face-to-face interactions and are afraid that the loss of such interaction will not be compensated by on line interaction. The problems involved with the quality of contents and the difficulties related to on line evaluation are ranked second.

As for the time problem, it is linked with preparation and with interaction. Humbert notes that an organization cannot succeed in the implementation of a project of EL without adequate technical assistance. He also ascertains that a project of EL requires modifications in the work processes of faculty and in the roles of institutions.

Strategies recommended to surmount the barriers

Certain authors recommend strategies to promote the EL that hinge around pedagogy and marketing.

- Pedagogical *strategies*

Certain authors note the importance of suitable teaching designs to the needs of learners. So they emphasise the development of an interactive approach which takes into account and which adapts to the learners' expectations (Mitchell, 2001; Meissonier and Houze, 2004).

In this context, Oliver et al. (1997; quoted by Harper et al., 2000) made recommendations during the implementation of an EL project. They suggested: (a) To work carefully on the composition of the team; (b) To require a feedback from learners to ensure development and completion of the learners' activities; (c) To launch training after ascertaining that learners were really accustomed to the environment of the World Wide Web.

The challenges of EL will be to overcome the fear of technology and the insulation of the student by the support by setting up a clear documentation and an adequate technical aid (Choy et al., 2002).

The learners' and the professors' profiles involved in on line training are worth considering. The professors who teach on line are generally self selected and tend to be very organized individuals. The challenge for them is to imagine different ways to manage the students because the student on line, in the majority of cases needs personalised coaching (Curtain, 2002).

Besides, Mitchell (2001) suggests that the individuals who will be learning on line effectively: are active adult students, are sure about the advantages of on line training and are self directed; believe that on line training help them save time and improve work; often have access to the Internet from home; benefit from on line training, and are ready to be registered in on line courses when the opportunity arises.

❖ *marketing strategies*

On the one hand, Curtain (2002), notes the need for a revaluation of the development and delivery of courses, infrastructure and costs of the structure. In addition, Mitchell (2001) notes the need to understand the training technology systems. He stresses the idea of making changes in order to bring more effectiveness to on line training, such as, relationship marketing, management of the relationship with learners and with partners. Moreover, he mentions the lack of marketing effort in the development of the sector of on line training and stresses the importance of small niche marketing for a better understanding of user behaviour.

Research Objective

The objective of this study is to understand perceptions of EL by the main actors. More specifically, it aims at the identification of the benefits and the barriers related to the adoption and the acceptance of the EL as well as the conditions of success of such a project.

Research Methodology

Our research aims at appreciating EL and its relevance to the Tunisian context and to possibly help the Tunisian Virtual University in the development of a marketing action plan aimed at promoting and at improving acceptance of EL.

This research is interested in the principal actors of EL: professors, students and people working for the official supportive structure of the project (VUT). An exploratory study was committed. It was divided into two parts:

- part one focuses on a diagnosis of the current situation of EL in Tunisia and on the study of perceptions of the benefits and barriers related to the diffusion of such a project. The case study of the VUT was based on a mixture of quantitative and qualitative evidence and on interviews with people in charge for the VUT.
- part two was devoted to an investigation among teachers and students to apprehend perceptions of these actors relating to the determinants of the diffusion and the acceptance of EL. Thus the same interview guide was used in order to highlight the similarities and the differences of perceptions of these actors (See Appendix 3). On the other hand, a

"focus group" with students was conducted. 10 respondents exchanged ideas regarding EL.

The professors and the students selected for the study belong to various disciplines and institutions. Finally, the answers of the interviewees were coded and analyzed.

Results

Case study of the VUT

The creation of the VUT in 2002 lies within the scope of the policy of modernization of the Tunisian higher education. It reflects the development of ICT in Tunisia and the adaptation of these technologies to the needs of higher education as well as their insertion in the society and the economy of knowledge as a whole.

The VUT is assigned with the task of control and diffusion of numerical culture and of ICT among teachers, researchers and students, and of opening the university education up to broader professional categories. It also follows a policy of development and production of updated contents of training by sponsoring the producers and the users of knowledge and by sensitising them to the proper use of ICT for research and training purposes.

For these three strategic tasks, it is necessary to add the quantitative objective of VUT to contribute to solve, albeit partially, the problem of the increasing number of students which is expected to reach 500.000 in 2010 (see appendice1). To face this challenge, it is necessary to offer a chance of training to all students, the VUT laid down the objective of digitalization of 20% of the training contents at the university. However, the number of registered students on line remains very limited. In 2006, it reaches hardly 10% of the student's population (see appendix 2).

- *contents analysis of the interviews*

The remarks of the professors and the students were transcribed for content analysis. The transcript was then divided into units of meaning. These were defined as the smallest units which provide significance (Mucchielli, 1988). Lastly, these units were put in homogeneous groups of meanings called categories of meaning. These categories deal with the benefit of EL, the barriers to its adoption and its acceptance as well as the conditions of success of EL projects. The various categories of meaning are presented in the following table:

Topics	CATEGORIES	RANK	
		Professors	Students
Benefit related to the EL adoption and acceptance	• Flexibility in time and space	1	1
	• Richness of the media	2	4
	• the individualization of training	3	3
	• Propensity to competences acquisition	4	2
Barriers related to the of the EL adoption and acceptance	• Technological barriers	1	1
	• Psychological barriers	2	5
	• The loss of time	3	6
	• Legislative barriers		

	• The deterioration of the quality of the learner-teacher interaction • The isolation of student • Lack of communication • Lack of valorisation of the career of the teacher via EL	4	-
		5	2
		5	3
		5	4
		8	-
Conditions of success of a of the EL project	**<u>On the institutional level</u>** • To create an adequate data-processing structure • To create a system of partnership (internal & external)	1	1
		4	-
	<u>On the legislative level</u> • To carry out legislation which govern and organize EL	2	-
	<u>On the teaching level</u> • To offer to learners openings towards outside and propose modes of re-motivation • To design tools of EL which decrease extra work	2	2
		8	-
	<u>On the human level</u> • To select individuals that have the profile of suitable pioneers	5	3
	• To develop teaching via the EL	6	-
	• To establish a strategy of adequate communication	6	3

N.B: the figures indicate the row of each factor such as it is perceived by each actor.

The absolute frequencies of each category in the respondents' interviews contents were calculated so as to reflect the perception of the various actors regarding the EL benefits, the barriers related to its adoption and its acceptance and the conditions of success of such a project.

Benefits of EL

Content analysis shows that EL is perceived as ***attractive*** by the teachers provided that it be launched carefully and that its advantages and disadvantages be weighed carefully.

The results reveal an ambivalent attitude among students. For some, it is the future. Others fear denaturising of the university education that result from the loss of interactions between professors and students and from the intensification of the impersonal at the university.

We are still at the *experimental stage* of EL. After all, the experience consists in individual productions carried out by professors who are moved and impassioned by new technologies and who get involved on a purely personal basis (with or without the assistance of the VUT) and who, once involved, try to enhance their productions. Consequently, the productions are far from being innovative.

- *<u>Flexibility in time and space</u>*

The major advantage of EL is ***flexibility in time and space.*** Figure 1 shows a strong agreement between perceptions of both populations with respect to this advantage. Several professors mention that EL provides them with flexibility in managing their course: timelessness, possibility of remote follow-up and control, dynamism, updating, variety of resources, possibility of bringing together geographically dispersed competencies.

"People, once they finished work, even late the evening, start working on the contents via the Internet. Thus, on the one hand, there is the absence of the time constraint and, on the other hand, there is the absence of the place constraint. People can connect from various places: offices, homes and public places." (Professor)

For the teacher, the introduction of *EL* can be associated with a major change - even with a transformation in teaching itself. The exercise is detached from the constraint of time and space (Copolla et al., 2002). The students find that EL makes it possible to manage the time devoted to training. The majority of them affirmed that EL enables them to reconcile training with other activities and to have access to contents from any place and at any moment of the day (Schulman and Sims 1999).

- *The individualization of the training path*

The remarks of the two actors agree on the advantage of the individualization of the course. They consider that this training is flexible and supports the personalization of the courses by the adaptation of the process of training to the student rate. Indeed, EL makes it possible for students not only to reconcile training with other activities, to ask questions, and to proceed with self evaluation, but also to re-examine courses that they could not attend on a face-to-face basis.

However, certain professors note that the multiplication of teaching supports may drown the student in a mass of documents that leads to more confusion. In this context, McNulty (2002) recognized that the interesting thing about online training is its capacity to help the professor create an environment that centres on the student.

- *Richness of the media*

Figure 1 shows a remarkable difference of perceptions of the two actors relating to the advantage of the richness of the media. Indeed, for the majority of the professors, resorting to varied modes of training is clearly appreciated because of the richness of the media (text, images, animated sequences, etc.) and of its interactive nature. This advantage is ranked second.

The richness of the media is reflected in the possibility of offering varied resources, facilitating interaction between the various actors regardless of time and space, integrating testimonials of geographically distant experts, and offering opportunities for less formal exchanges. However, this advantage was mentioned only 5 times by 3 students.

This difference between both perceptions is explained by the fact that professors are more knowledgeable about the richness of the media. The majority of the professors confirmed that they occasionally took part in training sessions and seminars or in international EL experiences. That is how they could discover the richness of the media. However, this richness is not properly exploited. This is due to the technical barriers evoked previously on the one hand and to the fact that the EL experience was recent on the other hand.

The majority of the students mentioned that the courses lack animation and interactivity tools and insist on the necessity of making use of certain tools like the Webcam. In general, the students are not informed and trained enough to make use of all the possibilities offered by EL.

- *EL: a pedagogy geared towards the acquisition of competencies*

Another difference in the perceptions of the actors has to do with the advantage of the acquisition of competencies. This advantage is more salient among the students. It deals with the development of certain competencies such as autonomy, pro-activity, responsibility, sharing, and familiarisation with information systems tools. Houze (2004) affirmed that the functionalities offered by new technologies (like forums, chats, and other collaborative tools, etc.) seek to confer to learners an increasingly active role in the process of knowledge acquisition or development.

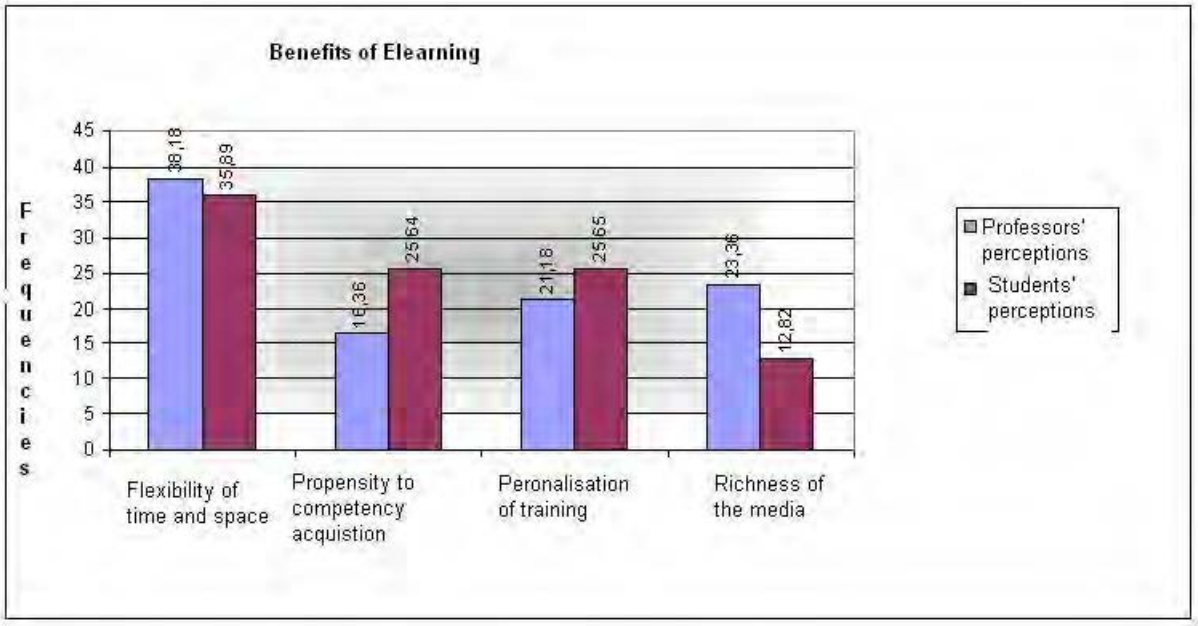

Figure 1: benefits of EL

Barriers to adoption and acceptance of EL

- *Technological barriers*

Fig 2 shows that professors and students rank "technological barriers" first. These are related to the *availability of technological resources, the cost of access to the Internet, the reliability and the speed of technology, and the mastery of data-processing tools***.** The students and the professors do not all have portable computers and fast connections. The rate of students endowed with equipment and the conditions of use of computer rooms at the university are barriers to the development of EL.

"In EL, there is a persisting problem whatever the experience: connection. Not all students have a computer. Most of them find difficulties in getting connected. They also support the

cost of access to the Internet. Even the professors support such cost as they connect from home…" (Teacher).

"The mastery of the data-processing tool remains a problem. Frankly, at the beginning I encountered problems to familiarize myself with the data-processing tool and the platform. There are people who did not take part in such an effort because they think that EL is complicated and that it requires competencies in data processing." (Student)

The high absolute frequency of this category reveals that problems of technological infrastructure persist in Tunisia. The two actors affirm that such a barrier should be surmounted. Moreover, they underline the need for organising training sessions to control the to become familiar with such tools.

- *Lack of communication*

Figure 2 shows that communication is a category which frequency of appearance is not very high as well in the answers of the students as in the answers of the professors. However, the respondents insist on the need of motivating the various actors in order to encourage them to adopt EL.

The majority of the respondents did not explicitly mention the lack of communication as being a barrier to the diffusion of EL. However, when the various respondents were asked about the way they took part in the experience, one noticed a deficit on the communication level. For the majority of the respondents, information was received either by a nonofficial channel (colleague), or by newspapers. As for participation, it was decided out of personal motivation (interest in a given discipline).

"I went by chance to the VUT and I intended to enquire about EL. I got information on the spot and ended up enrolling in the masters program". (Student)

"I happened to speak about EL with a colleague who, on the basis of a personal satisfactory experience with the VUT, advised me to prepare an EL course" (professor).

- Legislative barriers

The majority of professors are afraid to lose their copy rights from the time their contents are put on line. Certain professors evoked their fear of plagiarism. Other professors mentioned the problem of remuneration and the splitting up of sessions into face-to-face and distant interaction. They agree on the fact that there are no clear texts about all these issues when it comes to an on line course.

"The fact that people can reach contents on line frightens the teachers in the sense that they are afraid to lose their copy rights on the contents. They are afraid that their contents become public". (Professor)

- lack of valorisation of the career of the teacher via EL

Another barrier mentioned by faculty is the valorisation in the process of university careers. This is primarily based on research and on the production of articles while efforts made in EL are not properly appreciated. There is no recognition in the promotion system for those who

invest in EL. Certain professors prefer deploying effort in publishing an article rather than in developing an EL course.

"When digitized courses are produced, it will not be recognized in our career. Certain professors prefer to publish an article rather than to invest in a digitized course. The production of the course must be recognized in the career of the professor." (Professor).

- *The loss of time*

The barrier of time is a category overestimated by the professors in comparison with the students. It was granted fifteen units of significance by the professors and only three by the students.

The barriers most often evoked by the teachers are those related to the **time devoted to production** (the resources devoted to develop a course, to tutoring and the energy needed to update contents and the **time devoted to interaction, follow-up and assessment).** Both teachers and students believe that there is **extra work** associated with EL.

According to Wlodkowski (1999), in a virtual environment, to provide authentic answers to the student questions, repetition and feedback at the same time requires more planning from the professor in comparison with the common verbal exchanges in a traditional class.

The difference between perceptions shows the crucial importance of the time factor for the professors. The majority of the professors note that they deploy so much effort and devote much time in the design of the course, in tutoring, and in revisiting contents at the expense of other activities (publication of the articles for example).

"EL requires more responsibility and organization from the student. It is a continuous process which requires skills of time management." (Student)

- Psychological barriers

This category appears more frequently in the professors' interviews than in the students'. The psychological barriers are rooted in **the culture of the students, the teachers and the institutions**. The majority of the professors evoke the need for having a shared belief, a conviction, about the interest of EL.

In order to implement properly EL, teachers think that one needs a more positive attitude is badly needed. Teachers who prepare a doctorate feel sorry about the time they devote to the design of exercises, illustrations or to tutoring on line. The **culture of "publication" is** overwhelming in the professors' attitudes.

They also feel a lack **of commitment** from their **institution** which should provide the appropriate environment for such methodology. Today the computer rooms are under-equipped and over-populated. It is not a favourable environment for EL.

"EL is another state of mind. It is necessary to convince and persuade the decision makers first. This year I found many difficulties because of the resistance of the director who did not encourage me to involve in EL". (Professor)

Fullan (2001) confirmed that the phenomenon of "change" must be considered carefully before beginning a transition to a Web based training. Even if directors of institutions can feel the emergency for such change, the resistance of the learners remains a big issue.

"EL is a new phenomenon. It is difficult to communicate via the Internet at the beginning. We run into many problems. Certain students gave up because they got frustrated." (Student)

- The deterioration of the quality of the learner-teacher interaction

This category is overestimated by the students in comparison with the perceptions of professors. For the majority of the students, the deterioration of the quality of the interaction is a serious problem. They mentioned the need for the face-to-face interaction in order to clarify things and to meet professors and colleagues. They consider that EL mediates **the relation** with their professors and their colleagues. The charismatic role of the **professor is over.** This is why many respondents prefer a "blended learning" formula.

"There are many things which the professor knows and cannot transmit via platforms. The physical contact and the teacher-student exchange makes it possible for students to profit from interaction". (Student)

- The insulation of the student

According to certain professors **insulation** is a major risks as it may lead to breaking up as well as to the **loss of motivation**. The majority of the students strongly fear the **social distance** and the consequent **psychological stress** generated by the use of EL. They expressed their concern of being lonely behind the screen and of losing contact with their colleagues.

This category is overestimated by the students but not by the teachers. As mentioned by Northrup (2002), the nature of EL can lead to the insulation of the student. So he recommends some forms of collaboration and group work to overcome such a problem.

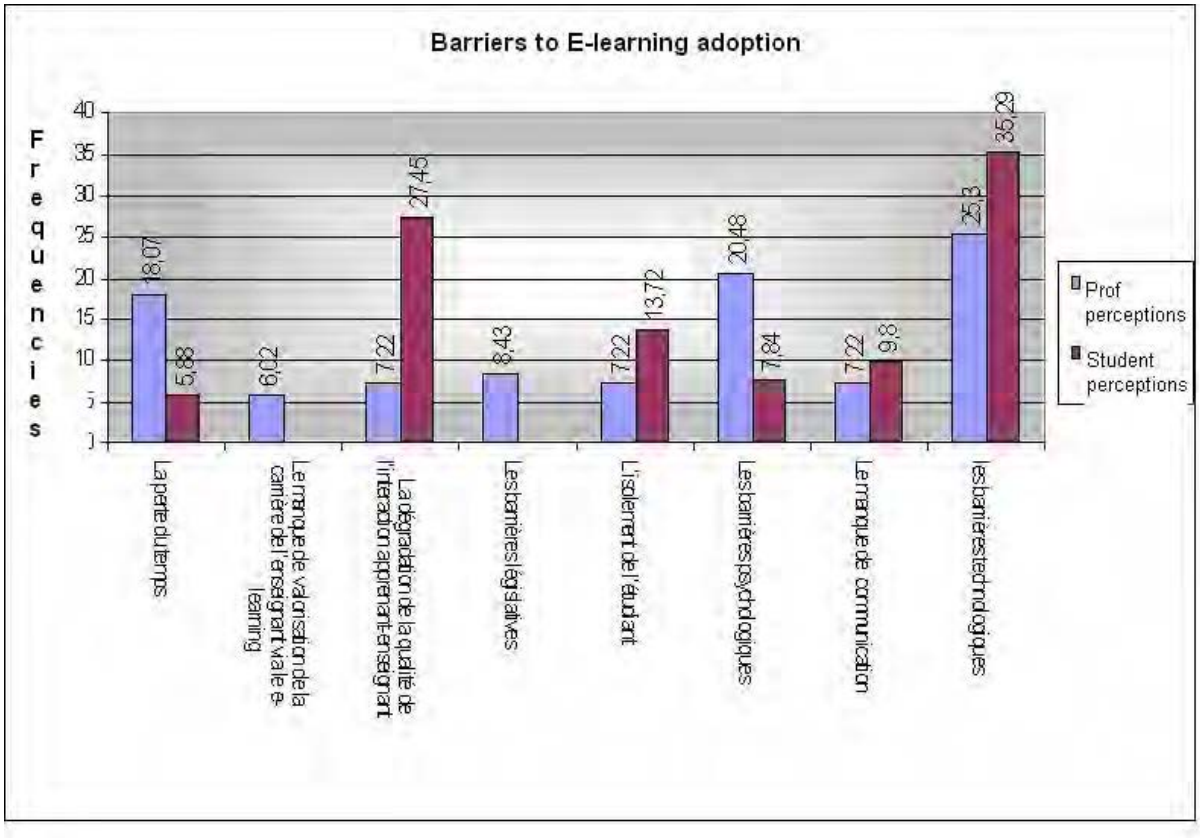

Figure 2: barriers related to the adoption and acceptance of EL

Conditions of success of an EL project

On the pedagogical level

- **To offer to learners contacts with the outside world and to propose modes of re-motivation**

Figure 3 shows that the professors as well as the students agree on the importance not only of the tool of EL, but also of the teaching environment. Learners need to have contact with the outside and means of re-motivation. For example, it is essential to ensure a good tutoring system around an EL course.

The two actors agree on the fact that the learner may give up if left on his own. It is necessary to strike a balance between autonomy and assistance, on the one hand, and between distance and face-to-face training on the other hand. According to Bellier (2001), this hybrid formula has all the advantages of EL: autonomy, reduction in displacements, personalisation of training.

- **To design tools of EL which decrease extra work**

The EL can lead to various types of overload for the actors. For the learner, the cognitive overload related to "uninterrupted" training is a serious problem. For the teachers (developers of contents) and tutors (coachers of training), there may be an increase in the workload compared to the face-to-face mode.

"EL requires enormous work. It is necessary to find tools of EL which overcome this problem and to decrease the resulting extra work". (Professor)

On the human level:

- **To select individuals that are suitable pioneers for EL**

It is about another category which reveals convergence in the perceptions of the two categories of actors (See figure 3). Certain professors suggested the selection of the appropriate profiles of individuals in order to improve results of online training. They consider that these people are capable of motivating others.

The students mentioned the lack of motivation as a cause of abandonment of EL training. Maeroff (2003) ascertains that EL requires students who are endowed with maturity. The success of on line training requires self motivation from disciplined students.

"To minimize the abandonment rate, the selection of the right candidates is very important. It is necessary to choose motivated people." (Professor)

- **To set up a strategy of adequate communication**

The strategy of adequate communication is another variable which determines the success of an EL project**.** However, this category is not as frequent in the professors' answers as in the students' (see figure 3). For certain professors, the dissociation of the roles of "transmitter" of knowledge and "tutor" can lead to problems which cannot be solved without an adequate strategy of communication. An effective marketing strategy is considered to be very useful to improve acceptance of EL and to motivate the various actors. Certain students insisted on the importance of communication in diffusing this new training mode and to emphasize EL benefits.

- **The valorisation of teaching via EL**

The majority of the professors expressed concern about the valorisation of teaching via EL. For them, EL is still too often lived like an additional workload, without real benefits in terms of career advancement (research and publications) and work environment. Several solutions were proposed in detail through the study. Most of them lie on the institutional level.

"It is necessary to reward people who teach on line". (Professor)

On the institutional level

- **To create an adequate data-processing structure**

According to figure 3, the professors as well as the students rank the category "To create an adequate data-processing structure" at the top of the determinants of the success of an EL project. The high absolute frequency of this category in the answers of the students as well as in the professors' reveals the concern of the two actors about the data- processing barrier to the acceptance and the adoption of EL.

The two actors insisted on the need for respect of certain standards, the deployment and the maintenance of equipment, the creation of a structure of instructional support and technical aid, the presence of computer rooms.

"It is necessary to prepare the adequate infrastructure; it is necessary to ensure continuity in the use of the platform" (student)
"It is necessary that the band-with be improved significantly. We should make sure that the students have a computer at their disposal." (Professor)

- **To create a system of partnership**

According to professors, this category is ranked 4th in the conditions of success. Certain professors underlined partnership as a condition of success in an EL project.

Any EL project implies a rather high financial cost and requires the mobilization of various competences. In this context, the professors mention that partnership can be a prerequisite for "successful" EL. This partnerships can take several forms. Internal partnership brings together the necessary competences and motivates the various actors around a joint project. External partnership allows the deployment of sufficient resources, the sharing of experiences, and the mutualisation of costs.

"It is necessary to share the experience with other partners on the national as well as on the international level. Personally the international experience of partnership I committed myself to was very enriching. I learned how to motivate students to use the plate-form, how to interact, how to evaluate work, etc." (Professor)

On the legislative level

- **To create laws and texts which govern and organize EL**

It is a category which was mentioned only by the professors. This is an expected result since the problem of remuneration and of copyright are specific to the professors. The high frequency of its appearance reveal the importance of creating texts and laws that organize EL. It is determinant of the success of an EL project. The professors mentioned that written texts foster adherence to EL training.

"There must be texts and laws to manage EL properly. If one wants to integrate EL well in the educational system, it should be well organized!" (Professor)

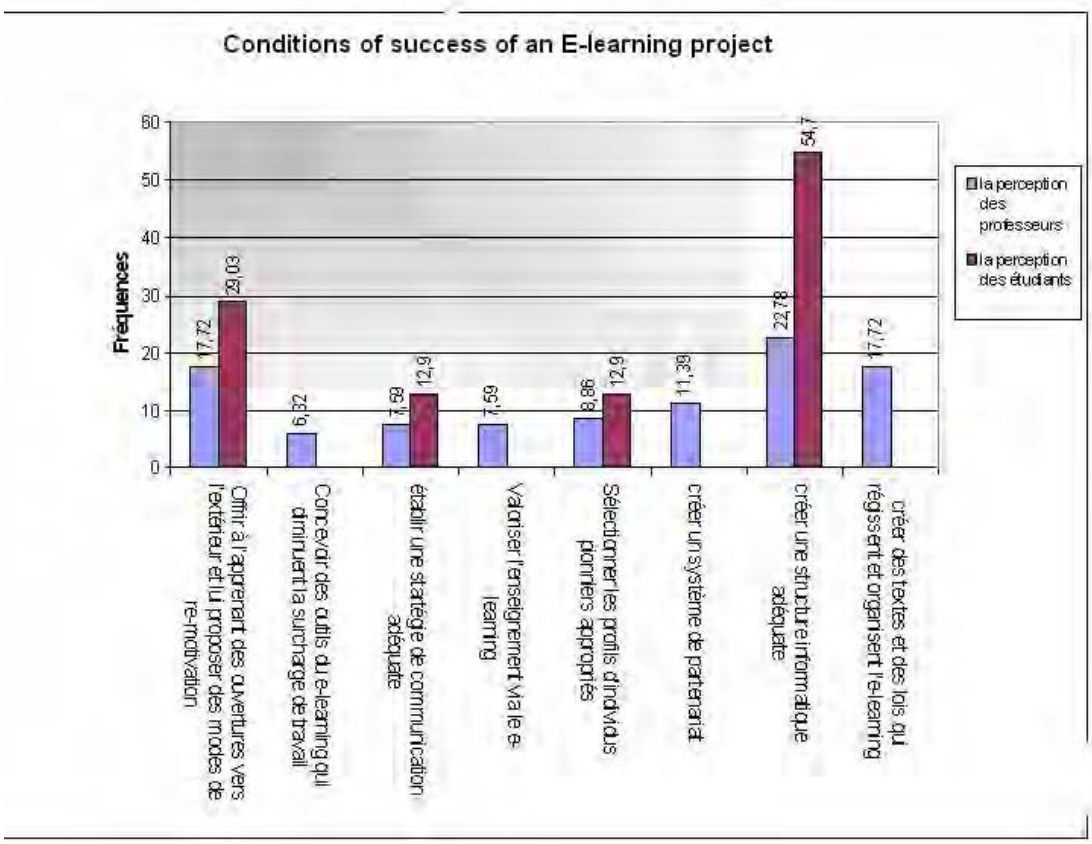

Figure 3: Conditions of success of a project EL

Conclusion

The first conclusion which arises from the opinions of the respondents is the ***homogeneity of perceptions*** *among professors and students of the advantages associated with EL.*

Thus, each category perceives the ***richness of the media*** *as materialised by the possibility of offering varied resources, of standardizing and providing more flexibility in courses management, of facilitating interactions between the various actors irrespective of time and space, of integrating testimonials of experts that are geographically dispersed, and of offering opportunities for less formal exchanges.*

Flexibility in time and space *provides an advantage in the management of courses which is inherent to the advantages of the media.*

For all respondents, the ***individualization or the personalization*** *of learning path is an obvious advantage.*

They all recognize that this methodology fosters the development of ***competences*** *such as autonomy, initiative taking, familiarisation with the data-processing tool and responsibility in the process of training.*

One of the major disadvantages remains the risk of ***insulation*** *of learning and the loss of contact with colleagues and teachers which may decrease* ***motivation*** *and increase abandonment rate.*

Teachers and students perceive ***extra work*** *associated with EL. More especially as there is no "valorisation" of work in the academic career of the professors (publication), the professors perceive overload in the design of EL courses. They fear the reduction of their interventions of explanations, motivation and follow-up as well as the difficulty related to the*

adaptation of the exercises to on line format. In addition, the students perceive EL as a ***more demanding methodology****: it consumes time and energy.*

The study reveals also that EL faces resistance from teachers, students and institutions:

- *The teachers hesitate to modify their course to adapt to the requirements of EL because they do not feel that this effort is worth the deal in an environment of publication and research.*
- *They fear the dramatic changes required by tutoring on line.*
- *The students, as a result of a face-to-face tradition, are not well equipped for EL and are not ready to invest more time on line lest they deter their life and socialization.*
- *The university institutions are not always ready to set up organisational and technical changes (culture of the verb in opposition with the current culture of the image).*
- *The difficulties resulting from the lack of equipments and computer rooms and of data-processing tools are also barriers to the development of EL.*

What should be done so that a project of EL is made successful?

Above all, a "well designed institutional project" which considers an adequate data-processing structure and training sessions so as to familiarize users with the data-processing tool and platform.

Then, partnerships with institutions to foster exchange of experiences. In addition to looking for technical and teaching skills, it is necessary to establish links with institutions that have gone through EL experience in order to minimize the risk of making the same mistakes.

The selection of appropriate candidates is crucial to the success of EL. It is necessary to engage the most motivated people. In this context, marketing efforts must be deployed to promote EL and to motivate actors. It is necessary that the various actors be trained, sensitized and informed about the advantages of EL.

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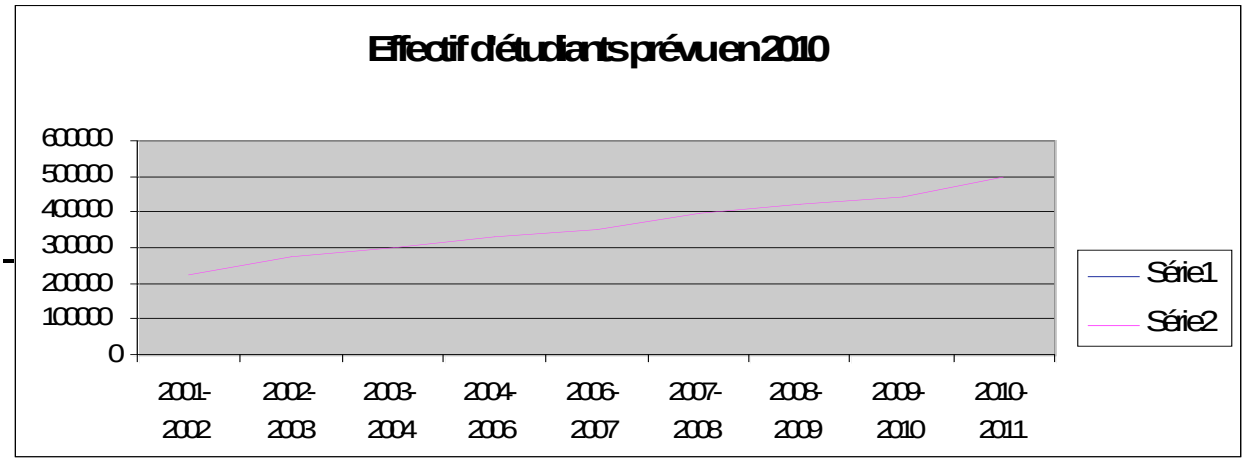
Appendices

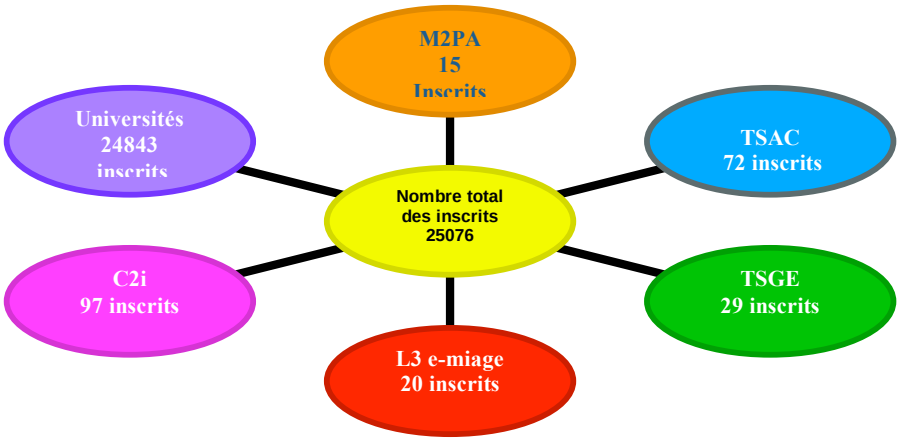
Appendix 1: Evolution of university student population in Tunisia

Year	2000-2001	2001-2002	2002-2003	2003-2004	2004-2006	2006-2007	2007-2008	2008-2009	2009-2010
A number of students	207388	226102	272316	302313	326734	346000	394000	420000	444000



Source interns VUT

Appendix 2: students populations registered on line in Tunisia



M2PA (PMD): Professional Masters Degree in "prospective applied Techniques"
TSAC (TAC): Techniciens in administration and communication
TSGE (TBM): Techniciens in business management
C2I (CIDP): Certificate in Internet and data processing
E-Miage (DPMBA): data-processing methods applied to the business management

Appendix 3
Guide d'entretien

1. Thanks for collaboration
2. Inform about the context of the study
3. Presentation of the interviewee
4. Topics

Topic 1: experience with EL

Did you take part in an experience of teaching (training) on line? How?
Can you describe me this experience?
Do you consider this experience as satisfactory or not? On what bases?

Topic 2: benefits of EL

Which are the benefits of E learning according to you?

Topic 3: barriers related to the diffusion of EL

Which are the disadvantages of EL?
Which are the barriers to the diffusion of EL?

Topic 4: conditions of success of an EL project

What are the conditions of success of an EL project according to you?