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# e-learning : stakes and tendencies

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**Abstract** - Information Technology has drastically shattered the general frame of education and training and has deeply modified the basic concept of education. In this paper, some important stakes of e-learning for institutions and companies are listed and the relevant issues related to the implementation of e-learning are identified. The last tendencies are discussed and to significant examples in which iode consulting is involved are presented.

## 1. INTRODUCTION

Information and Communication Technology (ICT) strongly favours communication and access to information. Consequently, the pedagogical innovation is speeded up; in the last few years ICT has drastically shattered the general frame of education and training and has deeply modified the basic concept of education.

E-learning simply means using ICT for the various tasks associated to education or training: advertising, administrative registering, document production, synchronous or asynchronous communication between teacher and learner, assessment. This leads to renewed pedagogical approaches which are possibly independent in time and location and to tailor-made programs involving networks of institutions or companies.

## 2. STAKES

Apart from the economical aspects directly related to the educational act (it is now possible to evoke the concept of a World e-Education Market), there is for companies and public institutions some major stakes in implementing e-learning. Some of them are listed below.

- There is a constant need for renewed pedagogy.
- Universities wish to reach new types of students (remote students, foreign students, disabled students, continuing education students).
- Corporate managers are constantly looking for more cost-effective ways to deliver training to their employees.
- The existence of disciplines (ICT is an example) for which a certain shortage of skills (due to the rapid evolution of the techniques or due to a

certain disinterest of students for scientific career) is considered as critical. E-learning could help to better and faster train employees and students.

## 3. RELEVANT ISSUES

The implementation of e-learning within a company or a public institution is characterized by multiple issues. Some of them are technical issues:

- what type of pedagogical process should be implemented ? (in particular, what are the respective parts of traditional teaching, self-learning, distance tutoring); what type of assessment ?
- what is the general architecture - learning platform and communication media - which will be set up for communication between all actors of the educational program - learners, tutors, administrators ? (commercial or self-developed platform, satellite or Internet media)
- what type of pedagogical contents should be produced ? (static, animated or dynamic HTML pages; CD-ROM)
- what is the normative frame ? (particularly for ensuring interoperability between platforms and durability of pedagogical contents)
- what is the legal frame ? (particularly property rights)

According to the know-how of the company or the institution, one has to deal with methodological issues:

- how should the project be managed ? (organisation, planning)
- what type of external partners should be involved in the project ?

In addition to this, financial issues have to be considered:

- how can the project be supported ?
- what is a reasonable economical model ?

And by no means, human issues are not the least of our problems:

- what type of accompanying program should be implemented ?
- in a general way, what type of management for the mutation as to be set up ?

#### 4. THE RESPONSE OF THE SYSTEM

There is clearly no unique answer to these questions. Actually, there is a large panel of solutions in which one will have to choose according to many criteria like the initial budget, the project duration, the initial skills of the actors (learners, tutors, administrators), the nature of the disciplines, the level of the courses...

The e-learning market is hence not only a market for publishing companies or specialists of the pedagogical act, but as well a luxuriant technological market for software companies (learning platforms, communication software, content editors) which main characteristic is to be strongly instable due to the rapid evolution of its standards.

With respect to the methodological and human frames, one finds the traditional actors of the consulting.

#### 5. PRESENT STATUS, TENDENCIES

##### For the companies

Continuing education for employees becomes a major stake for companies. Moreover, corporate managers are constantly looking for more cost-effective ways to deliver training. This explains somehow the strong interest in e-learning one experienced those last years. Basically, the characteristics of this first phase are:

- Some companies have spent large amounts of money on new e-learning efforts whereas some other (particularly in Europe) are still testing the concept.
- Training programs often cover ICT itself, office software, languages; recently appear technical and scientific programs.
- Pedagogical resources are produced by subcontractors whereas the technical platform is being developed internally.

After some experiments, more companies are now uncertain about initial paradigms. Despite the financial efforts, they have not received the desired economic advantages. Actually, recent studies about the status of e-learning show a certain disappointment which seems to slow down the craze about e-learning. Main evoked reasons for this disappointment are:

- technical ones: choice of an adequate platform is difficult, interoperability between pedagogical intranets and pre-existing information systems is not easy;
- human ones: e-learning deeply questions the traditional way of teaching, which was originally managed by a specific department of the company and requires now transversal action between the human resources people, ICT teams

and managing teams: the key notion seems to be here "the management of transition";

- pedagogical ones: e-learning implies a strong overhaul of the pedagogical processes and of the concept of education itself; a new domain of expertise is emerging which deals with the management and the accompaniment of the needs of the companies in providing pedagogical engineering and coaching;
- at least, some Europeans companies argue cultural problems: Anglo-Saxon products seem not to fulfil their requirements for a high quality e-learning (not only online hypertext pages and multiple choice questions !).

Some experts forecast therefore a second phase for the implementation of e-learning which will be characterized by two items:

- a revolt against prohibitive costs and too complex products and a comeback of easy and low cost solutions (in particular, open source platforms);
- companies will become aware that e-learning as a limited value because people also need to learn by help of paper content and through human interaction; a readjustment of the pedagogical methods is unavoidable which will imply more human interactions and the use of video on Internet.

##### For public institutions

(This paper focuses on higher education.)

For public institutions, e-learning means a double disruption: pedagogical disruption because of the reasons mentioned before; managerial disruption because e-learning implies more transparency within the pedagogical act, more reactivity, and a certain redistribution of power within traditionally closed areas strongly marked by research.

Public institutions are facing a growing competition; two threats: private companies and Anglo-Saxon universities; and the targets are both initial and continuing education students. This area is characterized by strong governmental pressure and financial support (several requests for proposal, direct subsidies).

The impact of the EC is growing: education Ministries recently agreed to a Memorandum of Understanding (MoU) which defines a common strategy for e-learning; the EC supports a lot of initiatives and speaks in favour of the creation of joint ventures involving industrial partners.

One can say that the major technical issues mentioned before are here well mastered. However, public institutions face difficult methodological and human problems:

- difficulty for traditionally closed systems to manage multi-partners projects,

- difficulty to deal with the sometimes individualistic and “small-scale” “craftsman-like” characteristics of academics.

The stake is here the professionalization of the teams involved in the project: Information Service, Continuing Education Service, Dean for Pedagogy.

economical model	not clear	stake is mainly of political nature
accompanying program	not formalized	too much partners
management of transition	communication, empathy	different cultures, language

## 6. TWO EXAMPLES

The two examples presented below are two projects in which iode consulting is involved. The idea is here to try appreciate what type of answer these two projects gave to the issues mentioned before, and what are the main reasons for these choices.

### The e-m@ths project

The partners: 12 Indian and French public institutions

The discipline: Applied Maths

The objectives: 24 modules of 50h each, bi-national degree in Applied Maths

The stakes: of political nature

The funds: Indian and French government, institutions

The consolidated budget: 1,5 M€

Duration: 4 years from 06/00

See [4] for more details.

Issues	Choice	Reason/remark
pedagogical process	<b>video-conferences self-learning tutoring</b>	wish to reproduce traditional act in Applied Maths
pedagogical contents	streamed and synchronized video	no expensive media because of fast evolving scientific content and because of the very few time scientists can devote to the project
General architecture	satellite for video Internet for streaming no platform	geographical constraints
normative frame	XML	Standard
legal frame	at present, national MoU only	problem of internat. frame
project management	light: 1 academic + 1 consultant + project group	Concept of “project” not really understood
external partners	French Space Agency	satellite expertise
Support	1,5 M€	request for proposal

### The LIMA project

The partners: 3 educational centres in Germany and Austria, 5 companies

The discipline: Microelectronic Design

The objectives: strengthen three educational centres in MD with active support, guidance and feedback from industry

The stakes: shortage of skills in ICT

The funds: EC and private companies

The consolidated budget: 3,4 M€

Duration: 2 years from 09/2001

Issues	Choice	Reason/remark
pedagogical process	<b>self-learning tutoring</b>	used by students, employees and customers
pedagogical contents	animated web pages	Already existing PPT content
general architecture	internally developed Web based training platform	existing environments and software
normative frame	HTML + Flash	Standards
legal frame	LIMA consortium	
project management	professional	existing skills
external partners	EADS, Nokia...	mixture of expertises
support	1,7 M€	EC request for proposal
economical model	yes	econ. opportunity
accompanying program	no	already existing projects
management of transition	no	already existing culture

## 7. CONCLUSION

Companies and institutions face the same types of issues when attempting to implement e-learning. Issues are of multiple nature: pedagogical, technical, methodological, financial, human. After the heavy financial effort consented in the last years, some companies think they have not received the desired economic advantages. e-learning seems now therefore to enter a new phase, characterized by less expensive solutions; introduction of

pedagogical engineering should as well be a key-factor for the success of the project.

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