

# Information Communication Technology: A Key to Distance Learning

Waseem Jeelani Bakshi, Muheet Ahmed Butt, Majid Zaman

*Abstract:- Computer and Information Communication Technologies (ICT) offer the possibility of global access to education. These new technologies should allow potential learners to access any course they want, at any time, from anywhere in the world. Above all, through widening choice, the new interactive technologies could empower individual learners on a global basis by making education more focused on their needs rather than on those of the local providers of education. This paper gives an overview of the state of art in the distance learning domain and its recent evolution. Within this frame we will discuss the educational use of World Wide Web (www).*

## I. WHY DISTANCE LEARNING

The role of Distance Learning in our society is gaining importance for the following well known reasons:

- The economical and social contexts have changed;
- The number of unemployed workers is increasing and they all need to be retrained;
- Knowledge has become one of the most important economy;
- Knowledge is rapidly expanding and its life time is becoming increasingly shorter;
- To survive in the market, companies need to change, to train and retrain their employees;
- Investing in the human resources seems to be the only way for a sustainable development.

So, the labor market is changing and the need for training and retraining is strongly increasing. In this frame, distance education seems to be one of the most adequate and attractive means to face these changes. All those arguments are well known and does not need to be further develop.

## II. MAIN FEATURES OF DISTANCE LEARNING

One can characterize the distance learning development by the **following key features:**

### a) **Learning in place of Teaching:**

In the past 15-20 years a new vision has emerged, strongly influenced by the social and cognitive sciences. The educational system is now focused on learning rather than on teaching. The developments of learning theory have changed the nature of learning and the perception of the learner. Knowledge is considered as "socially constructed through

action, communication and reflection involving learners". In addition, the classical view of teaching as telling or delivering curricula has turned into "modeling expert practice, promoting learning conversations that negotiate meaning to promote change in learners concepts and strategies towards proficient performances". For instance, teachers then will gradually become advisors, managers and facilitators of learning rather than providers of information. Necessarily, distance education has been involved by this evolution.

### b) **Full degree or Qualifying?**

Why do the students learn? What do they wish? For instance, in the university context we can show two main trends, related to two kinds of (re)training needs:

#### i) On one hand students who are engaged in the professional life and are working already are interested in a complete curriculum to obtain a new higher degree or diploma. Distance education is for them the only way to begin - to pursue a high level full degree curriculum. So, distance education appears to be a "second chance education". For those students, assessment, examinations, curriculum and all the constraints that are those of a classical university are important.

#### ii) On the other hand some students do want to acquire some new knowledge, a new qualification related to their professional practice. They are only interested either in one matter or in one technical ability that they need for updating their competencies or enhancing their professional practice. They do not care much for obtaining a diploma after a full degree curriculum. To be better qualified seems to be their main and only goal.

In the field of distance education, those two kinds of needs allow to trace a border line between two types of learning projects that can be developed by two particular types - institution and organization.

### III. DISTANCE LEARNING, WWW AND COMMUNICATION THEORY

Global access to education has been made possible by the technological advances in the world of computers and telecommunication. This global access offers the possibility of a truly global classroom unlimited by race, religion or nationality with multi-ethnic courses, students and teachers. Teachers and students can be drawn from many countries and study the same course together at the same time. Through widening choice, the new interactive technologies could empower individual learners by providing an education that focuses on their needs. These new technologies encourage active learning and interpersonal communication, independent of time and distance. They encourage the development of higher order learning skills, such as critical thinking, knowledge construction and collaborative learning. Distance education has always taken advantage with the development of communications. In the past postal service and new forms of mail delivery have allowed a big rise of courses by mail. Today the communication technology plays the same role. In the developed countries, the technological developments already available or currently under development will result in a useful and friendly workstation in every home. Several experts think that these developments will be available on a mass scale within the next 10 years. *"The implications for education and training are immense; learning can be independent of time and place and available at all stages of a person's life. The learning context will be technologically rich. Learners will have access not only to a wide range of media but also to a wide range of sources of education"*. (Bates A.W : (1993) Educational aspects of the telecommunications revolution in Teleteaching North Holland : IFIP) The theory pertaining to distance education and learning has generally paid very little attention to the communication theory. There are three sub-systems in a learning system: a learner, a teacher and a "method of communication". Distance may be defined in terms of the "responsiveness" of an educational program to the learner, rather than in terms of the physical separation of the instructor and the learner. Communication becomes thus the focus point of a distance learning system. The World Wide Web (www) underlines and puts on the foreground several topics drawn from the communication theory. We might add that these ideas can be found in other contexts. In the field of educational technologies innovation and new technological object are thought as completely original and rarely put into perspective.

#### a) www as the Mac Luhan's global village implementation

Networking makes available asynchronous and synchronous communication between people independent of time and location. Www, as all the developments of communication technology (internet, the news groups, and so on), constitutes a virtual community of

researchers, scientists and teachers. Even if this technology concerns only a restricted community (mainly universities and research institutions) it nevertheless appears as a new concretization of the global village on a worldwide scale. Our working methods have been changed by this kind of technology and hints of this evolution can be found in daily practice.

#### b) www as a communication tool for "Emerec"

In a book called *La communication audio-scripto-visuelleal' heure des self media*, the author, Jean Cloutier, has imagined one "communicational human being" able to receive and to send messages as well. He has named this communicational human being **Emerec**, a French word composed by the first parts of **Emetteur** and **Recepteur**. At that time this fancied creature was a new concept because usually the mass media receivers and end users were not able to send messages: mass media communication like broadcast television was characterized by a one-way communication mode. www increasingly gives to each of its users the possibility to communicate on a two-way communication mode and to really become someone like Emerec.

#### c) www as the Clothier's self-media

For a long time the only widely shared self media was hand writing. It was the only way for answering and sending messages. Cloutier defined the www-self media concept. According to him, only self-media could improve both individual and social communication. He asserted that several technologies, at the time mainly photography, magnetic sound recording and videography, could turn the passive receiver into an active sender and producer of personal messages. Communication education and communication for education should aim to improve these skills and competencies for all the citizens. Www is a good example of self media. Consultations of hypertexts on a screen incites the reader to integrate reading and writing activities into one sole process. It becomes necessary for him to write his own hypertext to classify the information and to create his own information structure. Furthermore, the need to process and read text on a common display(the screen) materially abolishes the borderline between the writer's text and the reader's text.

#### d) www as textual media

With the big rise of television and mass media in the 60's, researchers proclaimed that the *'image civilization'* has been born. Contrary to the assumption, linguistics and semioticians thought that we were more than ever in a textual civilization arguing that language is absolutely necessary for decoding and understanding the image's meaning. Today despite the multimedia erring and developments we still are in a textual civilization. Written and printed materials have yet a very long time life: experts estimate that the printed material globally constitutes around 80 percent of all the available distance education material. The main actual change certainly is the rise of electronic writing and delivery of books or

pedagogical material. The www is part of this general evolution: text and the linguistic system remains vector of information.

**e) www as a "multi-person-managed text"**

Discourse analysis defines two types of text management. The first one is called "planification monogeree" (badly translated as "one-person managed text"), and is characterized by "a model of the future". It mostly suits both narrative and theoretical texts. For instance, the narration is composed by the following seven classical stages: synthesis, setting forth, intricacy, solution, result, assessment and "coda". It is comprehensible that the narrator aims to create one suspense and to clear up the plot. So he knows what will happen. That is the meaning of this expression "a model of the future". The second one is called "planificationpolygeree" ("multi-persons managed text"). It mostly appears frequently in a situation of a discourse in act. A good example of this kind of "multi-person managed text" is conversation. A "multi-persons managed text" is constituted by a succession of interventions. These texts are always under construction but paradoxically they do not present a model of the future. They are partly set up randomly according to the participant's communication acts. If we consider the www under a dynamic hypertext angle it certainly can be classified as a "multi-persons managed text".

**f) www as an information flow**

Networking is typically concerned with a "flo culture". It implies that the reading process has changed. In the past we used to read intensively: only a few books but read and exploit in depth. This reading process has progressively turned into an extensive mode: "a great number of books and leaflets, printed on various supports, multiplied and ephemeral". The information mass to be read and studied has grown too much. Consequently, if in the past the culture of someone could be defined as the capacity to keep, memorise and recall information, today it should be defined as the capacity to wisely loose information; in other words to be able to retrieve the information when it appears necessary.

**g) From the writing communication to the electronic communication**

Electronic communication at its first level is not really far apart from oral communication. Email is a kind of personal communication using a familiar style and language level. For certain kinds of short messages, linguistic correctness could even be weak. We write as we chat. We need to identify different levels of email communications according to the aim of the communication, its recipients, the nature of the information transmitted and so on. We will find a scale of styles beginning from the oral and rough style to a more formal style. But should an electronic message (directly written in the mail) and the same text (firstly written in a word processor and then imported in the email) have the same language level. In other words, the constraints of

the email writing process imply some stylistic features and that "email style" is less structured and neatly turned than the others. This is also pertaining to the "flow culture". Let us recall that oral speech has been always considered as a flow.

**h) From the printed book to the electronic book**

The electronic book is really different from the printed one. The first difference is that the screen is a neutral object" to recognize and identify a book we have hints like the color of its cover, the binding, its size and its thickness, the fonts and the typography, the label of the collection and so on. Within the book we can retrieve one information because we remember on what side it lies; on a left or a right page. We know whether it is in the beginning or in the end: we do have some spatial and visual hints, like typographical marks, paragraph, and margins. With an electronic book all these hints are lost. The text is like a flow unfolding on the screen.

#### IV. QUESTIONS AND TOPICS

In compliance with all these issues we want to pint out a few questions and topics. It is a fact that new communication technologies are an effective tool for an extensive diffusion of courses and pedagogical material. They are yet an additional tool... We already encountered the same situation with both radio and television broadcast. In the beginning of the "talking movies", some visionaries have asserted that teaching was going to be completely changed by this new technology. They believed that reports and filmed courses should invade all the classes. The radio has played the same role in many countries where geographical distance made necessary the use of distance education systems. Now with the rise of satellite television we face the same situation: new video-recorded course can be sent and virtually received anywhere in the world. Videoconferencing and teleconferencing are equally more helpful. To deliver textbooks on a mass scale, www can certainly be compared with those technologies. But it puts the same questions related to this following essential choice: do we want to set up an information system or a learning system? These questions are linked together and it is difficult to isolate them. Let us state them separately one by one, just to be clear.

**a) Delivering or learning environment**

If we consider the users and the receivers, what are they able to do with the sent material? Don't they need a pedagogical context and environment (tutors, advices, explanatory notes, etc) to take full advantage of the material and to exploit it? In a distance learning system, delivering course is often not sufficient. We have to organize a learning environment in which tutors and facilitators have to be involved. In an Open University, tutors and facilitators are considered as essential as the other media. A course is then designed taking into account the respective role of each of those media: tutors

and human resources, classical and electronic technologies.

#### b) Existing course or "ad hoc" courses

Pedagogically speaking, it is sufficient to pick up the existing material and to deliver it without having made any changes related to its conception, general structure and language. In other words don't the mediated communication resources (whichever media has been used) have any specific forms and stylistic features? Textbooks or reference books are often produced to support face-to-face teaching. They may be completed by the information provided by the teacher in the classroom. Despite lacking face-to-face situation, distance learning and self-learning share the same constraints and characteristics mainly because the learner is working alone. First of all the learning material has to be composed as a modular structure. In the second place it has to simulate a communication situation. Finally it has to be entire, i.e., it has to include all the information needed by the learner: contents, explanations, applications, auto corrected exercises, learning aids, explanatory notes, glossary, and so on. However, the most important part of our university "syllabi" do not look like this ideal model.

#### c) Hypertext, writing and reading process

Writing and reading processes belong to the information flow analysis. To be efficient electronic communications urgently need a Meta communication code for helping and structuring the processes both of writing and reading. That is not really an original idea. But it needs to be theoretically grounded. As per the historical evolution of handwriting, the first Roman writing had something peculiar. Words were not separated. To be understood, to be read, the written language was entirely dependent on the voice and the oral language. Therefore, it had to be spoken and orally translated. In the first stage of its history, handwriting was a flow. The formal marks of the written language were progressively invented: the blank between the words, the margins, the paragraph marks, the titles and subtitles, the footnotes and so on. The page was specially structured and organized whereas the making up of the text became an aid to make it understood. All these conventional marks and hints have turned hand writing and its reading into an independent system. They represent a Meta code allowing a better use of the writing code: they allow the flow to be framed and in consequence a more efficient use of written communication.

**The common questions generally encountered in this context are:**

- 1) How to write a good hypertext?
- 2) How to help the reader to navigate?
- 3) How to usefully represent the paths and the reading links traced by the reader?
- 4) Which research tools are needed?

- 5) How to make email communication, exchanges and interactions more efficient?
- 6) How to automatically store, classify and retrieve information and messages?
- 7) How to pedagogically take advantage of the email communication?

What happens to the www seems to be an interesting experimental field because it links in the frame of a pedagogical project, communication theory, discourse analysis and implementation issues.

## V. CONCLUSION

To conclude let us quote Bates about defining the limits of technology: "To do this means being aware of the limits as well as the potential of the technology. In particular, we need to define very carefully those areas where we do not want to use technology, even if we could. Difficult questions need to be answered about the qualitative differences between face-to-face and mediated social interaction."

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