Distance Education and the WWW

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Abstract
Examines the evolution of distance education and learning via the use of communication technology. Focuses on distance education as a way of preparing returning adult students to meet demands of the labor market, and reviews uses of the World Wide Web as a communication tool to create electronic classrooms and deliver instructional materials.

Reference
PERAYA, Daniel. Distance Education and the WWW. Education at a Distance, 1995, vol. 9, no. 7, p. 20-23
DISTANCE EDUCATION AND THE WWW

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A Position Paper

This draft paper first 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 WWW. Furthermore this paper examines and discusses some theoretical and methodological aspects concerned by the educational use of technology.

My main research interests are: mass media and communication, communication theory, pragmatics and mediated communication for distance learning. I will try to consider the WWW under those points of view too.
Introduction

Distance learning is changing for the following well known reasons:
the economical and social contexts have changed;
the number of unemployed workers is increasing and all they need to be retrained;
knowledge has became one of the most important economical forces ("forces productives");
knowledge is rapidly expanding and its life time becomes increasingly shorter;
to survive in the market, companies need to change, to train and retrain their employed;
investing in the human resources seems to be the only way for a sustainable development.

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

1. Distance education evolution: the main features in the field

The first question is: "what are the main features of this evolution?" As far as I know, one can characterize the distance learning development by the following key features:

a) Teaching vs. learning

There is a new vision developed during the past 15-20 years, 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." (Pea, 1992:77). In addition, the classical view of teaching as telling or delivering curricula has turned into "modelling expert practice, and promoting learning conversations that negotiate meaning to promote change in learner concepts and strategies toward proficient performances." (ibidem). For instance, teachers then will gradually become advisors, managers and facilitators of learning rather than providers of information (Bates, 1993). Necessarily, distance education has been involved by this evolution.

One can obviously find the trail of this general evolution in the terminology used. For instance, in French we used to speak about "enseignement à distance" but we now speak about "formation à distance" or "apprentissage à distance". The same change could be found in the English expressions: "distance learning" has replaced "distance education". Finally, the european terminology reflects the same change. The title of the EEC report SEC (91) 897 was "Enseignement supérieur ouvert et à distance dans la communauté européenne" whereas the one of the famous "Memorandum" is "Memorandum sur l'apprentissage ouvert et à distance dans la Communauté européenne". So we can say that even the official approach of the EC reflects this evolution.

b) "Closed" distance learning vs. "open flexible" distance learning (OFDL)

In the frame of the TEMPUS european project initiated by the EEC, one of my colleagues and I have made a study that compares two european distance universities: the FernUniversität of Hagen (FU, Germany) and the Open Universiteit of Heerlen (OU, The Netherlands) (Peraya, Haessig, 1993). The main difference between these two universities can be defined by this opposition: "open university" vs. "closed university". The FU tends to resemble classic German and European universities, limiting in principle access to studies to only those students with a secondary school diploma. Contrary to that model, the OU is, as its name indicates, a university open to any interested person over 18 independently of his or her qualifications. The OU philosophy is grounded on the "four openness": access, curriculum and program, study organization and management, duration and flexible timetabling.

Those two universities are proto-typical examples of the two different distance learning institution types. Their features are the centre of an important debate both theoretical and methodological.
c) Full degree vs. 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.

On one hand, students are interested in a complete curriculum to obtain a new degree, a new diploma. Those students generally are engaged in the professional life and they are working already: distance education is for them the only way to begin - to pursue- a high level full degree curriculum. So, distance education appears a "second chance education". For those students, assessments, examinations, curriculum, and all the constraints that are those of a classical university are important.

On the other hand, some students do want to acquire some new knowledge, a new qualifying 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 then don't care much for obtaining a diploma after a full degree curriculum. To be better qualified seems to be their main, their only goal.

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

d) Teaching and research university vs. teaching university

What are the priorities of the distance education institutes? What is the respective importance of research and teaching in each distance institution or university? In our study mentioned above we analyse the official mission that the two universities are intrusted with. One other main difference between those two universities lays in the conception of the teacher role and his duties. The identification of the Fu with a classic university model has as consequence the involvement of titular professors in fundamental research as much as --if not more than -- in teaching. As to the OU, it is primarily dedicated to teaching and broadcasting knowledge; research is thus an accessory activity for its teachers.

The specificities of these general view points have repercussions not only on the organizational forms of these institutions but especially on the methodology of designing teaching documents.

2. Distance learning, WWW and communication theory

Distance education has always taken advantage from the development of communications. In the past, post service and new forms of mail delivery have allowed a big rise of courses by mail (see e.g. Pitman). To-day 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 this 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 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, 1993:2). Describing this situation, the sociologist A.A. Moles has proposed the following french expression: "l'opulence communicationelle" (communication wealth).

The same kind of arguments are developed for instance by the Edinburg Parallel Computing Centre (see file: XXXX).

Nevertheless the theory pertaining distance education and learning has generally paid very little attention to the communication theory. The importance of the "communicational relationship" for learning and especially for distance learning has been already stressed by Moore (1973, 1980, 1983 quoted by Sara and Shearer, 1994; see also Peraya, 1993 et 1994) who identifies three sub-systems in a learning system: a learner, a teacher and a "method of communication". Moore has proposed a "theory of distance education that defines distance 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." (Sara and Shearer, op. cit.: 37). Communication becomes thus the focus point of a distance learning system.

In this context, what can we say about WWW? The World Wide 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. I believe that in the field of the educational technologies innovation and new technological object are thought as completely original and rarely put into perspective. For example, the most important questions that have been arising about CAL and or in the foreground to-day around multimedia have been extensively developed in the '60 together with the rise of the audiovisual media (e.g. TV, radio) and mass communication.
a) WWW as the Mac Luhan's global village implementation

WWW appears as the implementation of the old dream and utopia of the first theoreticians of communication theory. Networking makes available asynchronous or synchronous communication between people wherever they may be and no matter when. WWW as all the developments of communication technology (internet, the news groups, and so on) constitutes virtual communities of researchers, scientists, and teachers. Even if this technology concerns only a restricted community (mainly universities & research institutions), it nevertheless appears as a new concretization of the global village on a world wide scale.

Our working methods have been changed by this kind of technology and all of you can find hints of this evolution in your own daily practice.

b) WWW as a communication tool for "Emerec"

Remember the book of Jean Cloutier (1973) La communication audio-scripto-visuelle à l'heure des self media. The author has imagined one "communicational human being" able to receive and to send messages as well. In French Emerec is composed by the first parts of "Emetteur" and "Récepteur". At the 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 communication mode and to really become someone like Emerec.

c) WWW as the Cloutier's self-media

In the same book Cloutier defined the self-media concept. For a long time the only widely shared self media was handwriting. It was the only way for answering and sending messages. Cloutier thought 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 personnel 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. Consultation of hypertexts on a screen incites the reader to integrate reading and writing activity into one sole process. Out of my own little experience, it rapidly becomes necessary to write his own hypertext to classify the information and to create his own information structure. Furthermore, to process read text on a common display (the screen) materially abolishes the border line between the writer's text and the reader's text (Barbier Bouvet, 1993).

d) WWW as textual media

With the big rise of television and mass media in the '60, researchers proclaimed that the image civilization has been born. Contrary to that assumption, linguists and semioticians (see for example Benveniste and Barthes) 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 errings and developments, we still are in a textual civilization. Written and printed material have yet a very long time life: experts estimate that the printed material globally constitutes around 80 per cents 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 remain the main vector of information.

e) WWW as "intertext"

The concept of "intertext" has grown out of poetry, literature theory, and discourse analysis (see Bakthine, 1952-1953): "le mot (le texte) est un croisement de mots (de textes) où on lit au moins un autre mot (texte)" (Kristeva, 1969: 145). (one word (text) always refers to one other word (text); in which we can read an other word (text)). The main idea developed by Bakthine is that each text is composed as a mosaic of quotations, as the suiting of other's texts towards a new text. Each text thus belongs and refers to its context: no text without context. The
most famous literary example quoted was Finnegans Wake (J. Joyce), "Une nouvelle approche des textes poétiques se dessine à partir de ce terme que la sémiotique littéraire peut adopter. La logique que le "dialogisme" implique est à la fois: 1) Une logique de distance et de relation entre différents termes de la phrase ou de la structure narrative, indiquant un devenir en opposition au niveau de continuité et de substance qui obéissent à la logique de l'être et qui seront désignées comme monologiques. [...]" (Kristeva, op. cit.: 153).

The sole idea I want to underline in this french and philosophical quotation is that each literary text may be considered as a growing text. That's also the case of all the others texts and this concept can be applied to other contexts, especially to WWW.

Indeed WWW typically makes available a growing and changing text composed as a mosaic of texts selected by each reader/writer: I think that the old concepts of "intertextuality" and "dialogueism" have something to see with the new one "dynamic hypertext".

f) WWW as a "multi-person managed text"

Discourse analysis (see Bakhtine; Bronckart, 1985) defines two types of text management. The first one is called "planification monogérée" (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 seven following 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's the meaning of this expression "a model of the future".

The second one is called "planification polygérée", "multi-persons managed text": it mostly frequently appears in a situation of a discourse in act. A good example of this kind of "multi-persons managed text" is conversation, studied among others by Goffman (1973), Grice (1973), Roulet (1980, 1981, 1985). A "multi-person 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 t randomly according to the participant's communication acts. That's the reason why in goal-oriented situations a moderator or a chairman is so often needed.

If we consider the WWW under a dynamic hypertext angle, it certainly can be classified as a "multi-persons managed text".

An additional note in French: Une conséquence c'est aussi le principe du "cut and paste" qui fait perdre la généalogie du texte: texte sans origine, même entre ses propres textes (Bouvier Barbier).

g) WWW as an information flow

Networking is typically concerned by a "flow culture". It implies that the reading process has changed. In the past, we used to read intensively: only a few books but read and exploited 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, memorize 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. (Barbier Bouvet, op. cit.: 229).

h) From the writing communication to the electronic communication

Following my own experience and I guess that this assumption is globally shared by each of us, electronic communication at its first level is not really far apart from oral communication. E-mail is a kind of personal communication using an 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 e-mail communication according to the aim of the communication, its recipients, the nature of the information transmitted, and so on. My believe is that we will find a scale of styles beginning from the oral and rough style to a more formal style. But I don't know whether an electronic message (directly written in the e-mail) and the same text (firstly written in a word processor and after that, imported in the e-mail) should have the same language level. In other words, I believe that the constraints of the e-mail writing process implies some stylistic features and that "e-mail style" is less structured and neatly turned than the others. This is also pertaining to the "flow culture". Let's recall that oral speech has been always considered as a flow.
i) From the printed book to the electronic book

The electronic book is really different from the printed book. 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, margins.....

With an electronic book, all these hints are lost, the text is like a flow unfolding on the screen.

3. Questions and topics

In compliance with all these issues, I want to point out a few questions and topics.

It's 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 were believing that reports and filmed courses should invade all the classes (see Perriault, 1991). 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: one video recorded course can be sent and virtually received everywhere in the world. Video conferences and teleconferences are equally if not more helpful.

To deliver textbooks on a mass scale, WWW can certainly be compared to 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?

Theses questions are linked together and it's difficult to isolate them. Nevertheless, I'll state them one after each one, just to be clear. But take note that it is an explanatory artifact.

a) Delivery 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 notices, and so on) to fully take advantage of the material and to exploit it?

In a distance learning system, delivering courses is often not sufficient: we have to organize a learning environment in which tutors, facilitators have to be involved. In our nomograph mentioned above we have shown that at the OU, 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.

This topic has hardly been discussed for example in the context of the French satellite TV project OLYMPUS. I think that we'll find the same situation in all the distance education using satellite or broadcast TV (Europace, for example).

b) Existing courses or "ad hoc" courses

Pedagogically speaking, is it 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?

Text books or reference books are often produced to support face to face teaching. They may be completed by the information provided by the teacher within 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 mean that it has to include all the informations needed by the learner: contents, explanations, applications, autocorrected exercises, learning aids, explanatory notices, glossary, and so on. I can ensure you that the most important part of our university "syllabi" do not look like this ideal model.
I have two different personal experiences to relate: A few years ago I was working as corrector at the French Community of Belgium Distance Teaching Office. The teachers and the course producers are teachers of the face-to-face education system. It's really difficult to have them produce a good written course for distance education. In a classroom they can chat and that's impossible in producing written material. The second one is the OLYMPUS project. In this context, a great methodological debate was developed amongst both the managerial and educational staff about the "filmed course". Some thought that a course "naturally" filmed just like the teacher taught was efficient enough. The others thought that to be efficient a filmed course had to be played and adapted for the screen.

These two examples put on the foreground the importance of the "mediatization process" and of the "communication organization". Take note that "communication organization" means not only technical factors and aspects but mainly a human and discourse aspect.

c) Hypertext, writing and reading process

I have pointed out a few issues related to the evolution of the writing and reading process. They belong to the information flow analysis. If my assumptions are true, to be efficient, electronic communications urgently need a meta communication code for helping and structuring the processes both of writing and reading. That's not a really original idea. But it needs to be theoretically grounded.

I'll briefly comment the historical evolution of hand writing. The first Roma writing has something particular. Words were not separated. To be understood, to be read, the written language was entirely dependant of the voice and the oral language; therefore it has to be spoken, orally translated. In the first stage of its history, hand writing 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 spatially structured and organized whereas the making up of the text became a tool 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.

A great number of questions I've read in the drafts proposed to our workshop are related to this set of problems:
how to write a good hypertext?
how to help the reader to navigate?
how to usefully represent the paths and the reading links traced by the reader?
which research tools are needed?
how to make e-mail communication, exchanges and interactions, more efficient?
how to automatically store, classify and retrieve information and messages?
how to pedagogically take advantage of the e-mail communication?

For example, in one of the European projects in which we are involved, JITOL (Just in Time Open Learning), the "reification process" is the focus of the debate both theoretical and methodological. The "reification process" referred to extracting knowledge and competencies of e-mail and news messages into a dynamically growing knowledge base.

What happens on 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.

Conclusion

To conclude, let me quote Bates about defining the limits of technology: "To do this means being aware of the limits as well as the potential of 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." (1993: 6-7).

All the questions I'd like to bring into our debate are related to this advice.

Bibliography
