SECTION 2: IMPACT.

LEARNING: HOW IS GOING TO BE CHANGED BY TECHNOLOGY; SOME ALTERNATIVE LEARNING MODELS AND SYSTEMS AND OTHER ALTERNATIVES TO THE TRADITIONAL CLASSROOM. FOCUS IN THE LEARNING PROCESS.

It is generally accepted that the implementation of distance education (DE) will require a radical redesign of the whole "learning" activity.

One may as an exercise set aside all considerations of costs with the purpose of establishing the potential advantages of DE without any reference to its feasability.

DE means that the learner has access to a variety of knowledge providing systems. Besides learning institutions (colleges, universities) and the information currently available in Internet, one should expect that other agents, e.g. publishers, industries and political or religious organizations will be offering teaching and/or information. The system would them have a natural tendency to be underlined learner-oriented. (Oriented by the interests and biases of the learner).

However, the large amount of information available and the inevitable limitations of time would create a degree of bewilderment or disorientation unless effective gate-keepers of information can be devised. This gate-keeping should be consistent with the notion that what is expected of them is to behave not as owners of information, but rather as connections to information. Thus a role often foreseen for the university, is that of sorting and selecting knowledge.

For the moment, in some places like Monterrey, the "virtual university" is thought of mainly as an instrument for continued education, while distance, personalized and traditional teaching are destined to more elementary levels.

This way of presenting things overlooks the inner tensions within the universities. Overspecialization has caused learning institutions to burst. It is more and more frequent to find that the genuine counterpart of a university professor is not his colleague next door, but a set of colleagues distributed all over the earth. Internet connections allow the network of specialists to operate in real time, and draws them even farther away from the local teaching community. This should imperil the advantages of a university as a sorter of information or knowledge.

Besides it should not be forgotten that DE is particularly effective at instruction, but that university education includes aspects mores complex and subtle than the transmission of information or the acquisition of technical skills. It is possible that personal attention to the student or the guidance of small student groups may become a prominent role of the university staff. This will require in time a reassessment of the features desirable in a university professor.

In the long run it may be thought that the process of advanced learning may become comparable to a loosely guided "navigation" through a network of predetermined information "chunks" connected to the large information world of conventional databases, virtual libraries or museums and the like. The "navigation" should of course include multimedia sessions, both alive and recorded. The actual "navigation course" followed by the student, as well as the depth and breadth of the information/knowledge reached, should be an eminently personal decision helped and guided by interpersonal contacts. This would be an essentially 'learner-centered' study in which distance education is faced in a total systems perspective, which takes into account among other factors, the possible sources of knowledge, the structures of knowledge (instructional and course development), the media, the facilitators and learners.

Such an approach seems to be rather far off at present. Just as the first automobiles were fashioned after horse driven carriages, it is inevitable that for some time DE should be influenced in more or less subtle ways by the traditional modes of teaching. There is a natural tendency to give "more of the same" . This will be shown in the development of more sophisticated teaching actions, destined to make available to larger numbers of students very refined technical and pedagogical improvements. This is of course a very desirable result, but it entails some dangers that shoul be kept in mind.

By this approach the teaching system may come to freeze again into "teacher oriented" study. For instance, a history course may be enormously enriched with audiovisual documents including presentations of actual recordings or films of the events studied. There are however two risks: the first one is to allow the "picturesque" to take advantage over a more soberly conceptual (if less entertaining) approach: the "formative" role of university studies would necessarily be impaired; the second risk is that it is inevitable that a complex multimedia effort would transmit a "teacher's perspective" and defeat the goal of a learner oriented process.

An interesting road to explore would be (after the initial steps have been taken to ensure massive interactive courses) to try "multilevel" courses, with differentiated modes of interaction and even navigation. It is perfectly possible to imagine a Biology course for instance, where students of different levels and/or profesional needs would be able to interact and navigate in various ways. Such an approach might put to good use few orienting short lectures, as well as sophisticated material : the same video of an ecosystem or of tissue culture may be profitably studied if proper guidance and/or library support are ensured, by a graduate student or by a freshman.

This suggestion should perhaps not be taken too literally. It is only presented to emphasize that the only way to acquire mastery of the oncoming technology is to explore its possiblities by putting them to use in every direction in which it might offer novel ways of approach. This "on going " style of getting acquainted with the technique seems to be a good manner of not being surprised by future developments.This so-called "inductive approach" may be worded by saying: we have a powerful solution (tool); what are the problems it can solve? It has been noted that inventions have not been properly assessed even by those best acquainted with them: Edison thought that

one important use of the phonograph would be to record for posterity the last words of moribunds; Marconi did not recognize the potentials of broadcasting etc.