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OPEN PROBLEMS OF E-LEARNING PHENOMENON

E-learning as a new pedagogical paradigma

Currently still most of the education and training on offer is face-to-face and most of the schools and training institutions do not have implemented distance training initiatives. E-learning gives them a way in which they can promote these types of their teaching activities. But although e-learning is a growing phenomenon it is only in its initial stage. On the one hand many learning opportunities have been satisfied through this form of education but on the other hand much has still been made toward both its implementation and research.

While several years ago the main problem connected with the use of e-learning was an appropriate infrastructure, today as the main issues of its implementation and utilization the following are mentioned most often:

- large amount of data,
- unpredictable data distribution,
- sensitive delay and real-time data processing,
- flow control,
- admission control,
- quality of servers,
- new cost/performance requirements.

All of the above-mentioned problems are predominantly of a technical character which should be solved mainly by technicians. However besides them there is a lot of other problems related to e-learning as a new pedagogical paradigma bringing to us qualitatively new teaching, learning and training possibilities. Shifting the perspective from a traditional face-to-face training and education to the distance (electronic) ones is very often reduced only to a mere problem of training the trainers. But the lack of know-how is by no means the only problem to be solved. In fact, those trainers who seek to engage in e-learning face a number of problems deriving from the fact that everything around them is conceived for traditional training: from the way funds are obtained to the way they are supposed to be invested, from the lack of centres for the production of learning material to the lack of infrastructures and management for the delivery of the courses and finally even to the expectations of their students still used to the traditional face-to-face forms of education. In our opinion. it is just this mental approach of trainees and their tutors, still tuned to face-to-face teaching, what must be changed to accommodate the new way of learning.

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E-learning as an electronic and information maze

In the past innovation and modernisation within the school systems used to be mainly a matter of the content of education aiming to bring new knowledge to schools. The key problems regarded new notions introduced into subject matters: which are the most important notions students should be acquainted with, what is an acceptable number of the introduced new notions, how to form an appropriate conception of the known and new notions in students' minds, etc. A possible platform for these problems solving has become notion (content) maps creation offering a guide through a notion maze. Something similar, but in a new background, we are witnesses today in connection with e-learning: what our (e-learning) students definitely need is a guide leading them through an electronic maze of various multimedia material sections and internet websites. Navigational map can be considered of a same signification as the content and notion maps are.

Electronic courses are usually based on the use of learning materials of hypertextual nature containing both internal links from one section to another and external links to other outside web-sites. The creation of learning materials offering the opportunity to try out web sites and out web navigation as a learning technique results in two serious problems.

- The first problem is just the offer of the above-mentioned guide – navigator represented by a careful interface design which would prevent students from „getting lost in cyberspace". That is why the designers should lay down on the page all the instruments which allow students (or users in general) to surf the web easily and among these tools maps of the various sections of the content domain should be made available to the students at all times. A possible way to solve this problem is to create a library of electronic study materials put together forwardly from which the students can „borrow" the materials and study them.
- The second problem is to identify among the huge amount of information offered to students those information, knowledge and notions which are the key ones and which are supposed, or even required, to be learnt and necessary acquired by them.

In e-learning students' knowledge is a product of their interaction with the course and by it offered knowledge resources, other students and e-learning tutors. A teaching model relevant to this situation is shifted towards resource based learning and on-line conferencing. Moving in the direction to a less firm knowledge base makes more difficult to ensure the quality of the learning. More flexible, resource based and student centred approaches require appropriate structures: open curricula, unstructured pedagogy, subjective assessment. The teacher – distance and e-learning tutor - guides students in finding, evaluating and using information through the use of paper based resources (course guides, manuals, textbooks, lecture notes), digital materials (computer-based tutorials, on-line multimedia), networked-learning resources (on-line tutorials, networked study programmes, computer seminars) and media-based materials (audio tapes, video and DVD tapes). A student is put in such an abundance of information available that he/she cannot be expected to find direct-

ly the desired single information. So although a tutor does not provide all information needed he/she has to show the appropriate direction to the student.

In this situation the key problem is (as it was already mentioned) determination of so-called core (key) knowledge which should be acquired by the students. The determination of core curriculum involves establishing those areas of knowledge and behaviour that are essential for understanding the inherent nature of the studied subject, for interdisciplinarity thoughts and for a further progress of the students. Despite of the classical elements of a curriculum theory, e-learning curriculum theory is coming out from so-called competence models, which emphasise that curricula are designed to enable students to acquire a certain competence towards life.

E-learning as a communication issue

As results of various explorations and researches have showed (Bianchetti – Persico, 1999) the most appreciated and most frequently mentioned positive features of any electronic courses are their collaborative aspects and their flexibility. In general the most highlighted aspect in regard with e-learning is the individual learning aspect. There are given reasons that it offers each individual (student) a possibility to follow in the subject matter according his/her own abilities and skills, and that it offers also a feeling of safety and intimity without displaying his/her mistakes and failures to any external community. Paradoxically, experiences and research results on the other hand demonstrate that this a-priory proclaimed positive feature of e-learning is by the e-learning participants very often perceived as a negative one, mainly because the e-learning students are not given opportunities to discuss and compare their opinions and ideas on the introduced matters and are not given any opportunity to share their assessments and compare their progress in the subject matters - or compare their obstacles in the desired and expected progress (because collaborative aspects are very often reduced only to the level tutor - student). That is why the e-learning students appreciate integration of learning environments based on website learning materials with a learning management environment what gives a possibility to eliminate the mentioned problem (reduction of the collaboration only on the tutor – student level). Of course, a solution to any educational problem hardly ever lies exclusively in collaborative activities or in individual study of materials: real problems call for an integrated approach. As a consequence, adoption of an approach where the balance is struck between the use of telecommunication technology for interpersonal communication (see figure 1 – item: interactive training) and its use for information retrieval (see figure 1 – items: self instruction, presentation through the network of various didactic materials, presentation of various databases) is the most sensible solution. The graph on the figure 2 shows the potential needs of students in a case of a virtual communication (based on the research carried out by Jozef Hajkr at the Technical College in Brno, CZ).
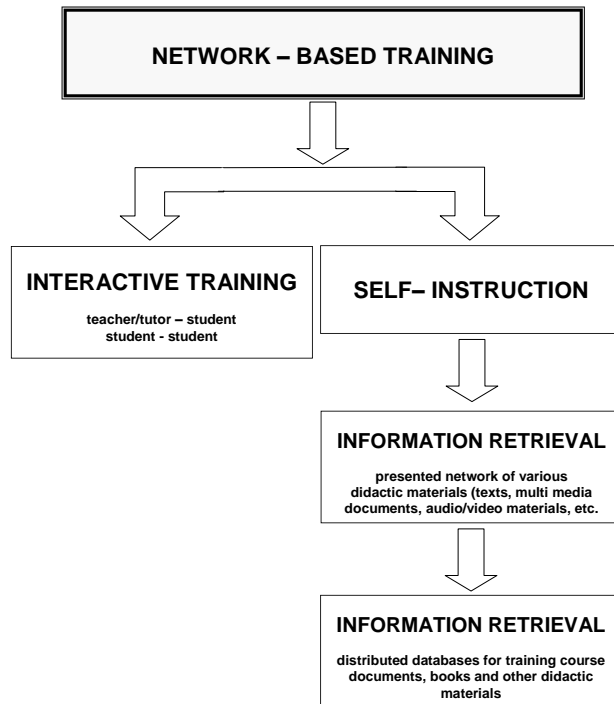
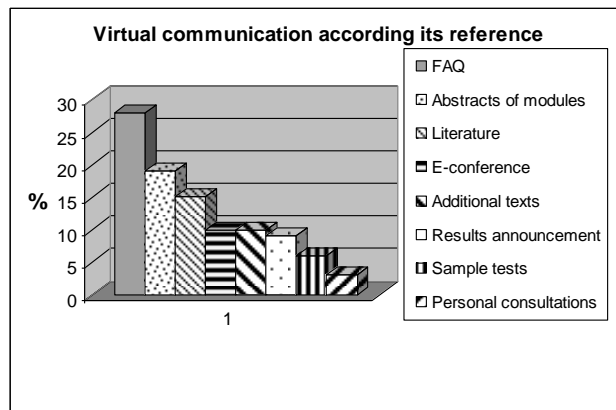*Figure 1: Structure of a network-based training (education)*

Figure 2: Graph of preferences given by students to various kinds of virtual communication

Conclusion

Substantive education acquired by the means of e-learning can be achieved only through an appropriate management of data acquisition and collaborative activities and reinforcement of concepts. Of course, besides the herein discussed problems there are many other aspects regarding e-learning which should and have been solved to improve both e-learning itself and results achieved through its use. This is a challenge calling for a new pedagogy on a base of which students will learn new topics in new ways using digital network systems and their interfaces.

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