

E- and Distance Learning in an African Context

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At the University of Ngaoundere, we carried out a small experiment with colleagues at the Department of Mathematics and Computer Science which consists of using e-materials in teaching. Also we launch a programme for distance learning which encompasses an access to a local database. One of the evaluation goals is to study how, in a context of poor industrialization and reduced access to e-technology, students consume e-learning and what difficulties occur. Students who have no access to libraries find themselves lost during and after the lectures. They had no way of relating keywords and keynotes used in e-materials to literature contexts or textbooks. Accustomed to their old way of learning (dictating the course in full sentences, followed by examples), they had to make a big step towards accepting the lectures presented that way. These results fall in a bigger and more complex context where african Universities in general and Cameroonian Universities in particular face challenges stemming on one hand from the structural adjustment programs imposed in the nineties and on the other from the infrastructure dilemmas.

Dilemma of Lecturers: Many of the lecturers at African Universities are themselves e-illiterate. Sometimes students have better skills than the lecturers themselves. This causes a big problem of knowledge transmission, when it comes to the central point of using e-learning methods to transfer knowledge to students.

Old versus New Pedagogies: This leads to a pedagogical rupture with the traditional way of face to face learning. At the beginning of the experiments, we had the feeling of an overwhelming pleasure from 17 year old students who were very excited with the new methods. For them, it seems more or less as game, with the lack of seriousness linked to learning new concepts. But soon the feeling reveals itself as a mistake.

Experimental Distance Learning: From these experiences, we face a new challenge of presenting e-learning in a way that relates the materials to old experience of face to face teaching. For instance, the keywords can be linked to explanation where, by clicking, one gets full text or picture explaining in details the notion behind the keyword. This needs an ontology of the domain of teaching, where super classes are related to their subclasses. The MMiSS approach could be very interesting here, but it should go further by including structures behind the nodes. Different levels can be included where the first one can be a shallow structure where only keywords are presented. The second level introduces ontologies where keywords are linked to their classes. The third aspect should

integrate full text, pictures, voices, etc. to the whole document. Furthermore, there is a need for repositories, databases, integration of formats and styles etc. In fact, in a course where standalone learn processes are required, one should get the capability of waking curiosity by visual effects. For instance, the field of learning can be presented as follows:

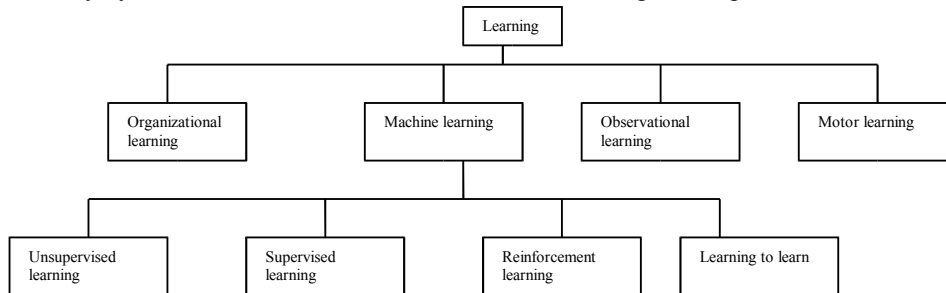


Figure 1.1: Ontology of learning in full context

One may then need to open the node **machine learning**. This should be possible and should lead to the following bubble text

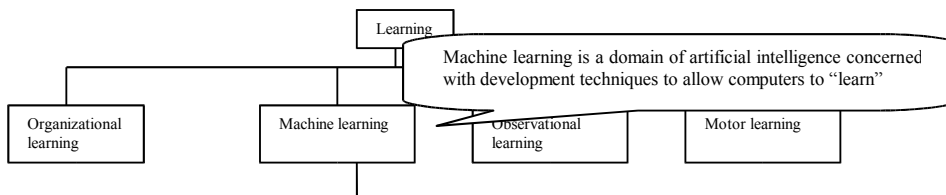


Figure 1.2: Explanation linked to an ontology node

At the end of these experiments, where slides of the MMiSS project were used to teach courses in the Bachelor Degree course “Sciences et Techniques de l’Informatique”, we came to the results that E-learning reposes on prerequisite of traditional learning environments. Furthermore, there is a need for verbose E-learning platforms where ontologies play an important role and different levels of complexity and details are presented. Furthermore, the lack of traditional libraries, missing e-skills by students and lecturers build high handicaps to successful e-learning. E-learning in a context of poor e-technology reveals challenges that should interest developers to build tools that respond to basic needs. The future of e-learning in third world countries goes this way.

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