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The development of multimedia supports for teaching and training as a learning process

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PROBLEMATIC

The advent of multimedia and networked environments for teaching incites to constitute multidisciplinary teams for the realization of new (teaching) materials. In regard to the traditional courseware production, this way of sharing knowledge and resources give rise to a **novel situation** of work in education and training. Thus, the process of designing computers based courseware is a learning process for the different partners involved in the projects.
This poster illustrates the matter by three projects of development of courseware based on the use of computer's technologies and presents the lessons learned from the participation in their development.

THREE PROJECTS

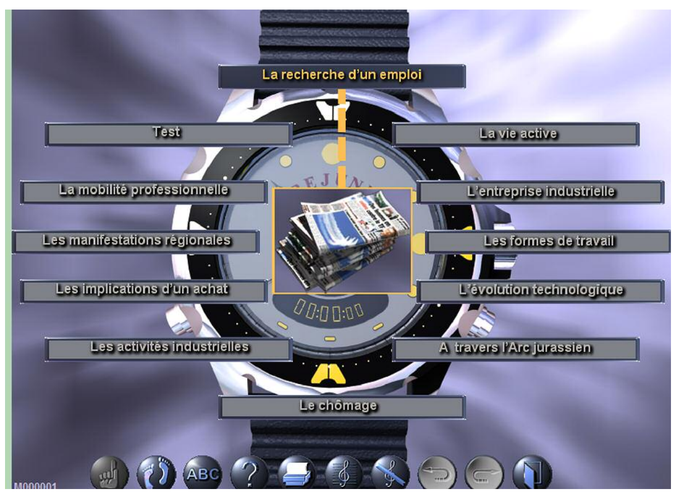
The projects concern the secondary school. They require for their realization technical, pedagogical, didactical and organizational skills.

Project 1 : SUMUME

Students (8th level, Centre secondaire du Bas-Lac) of the project SUMUME at work

This project concerns learning sequences in Mathematics, French, History - Geography for the 8th level of the secondary school. Being a joint cooperation between the State, a private industry and a University Institute, the SUMUME project has merged geographically distant and professionally different structures -political, industrial, teaching, university- who have had to learn to work together.

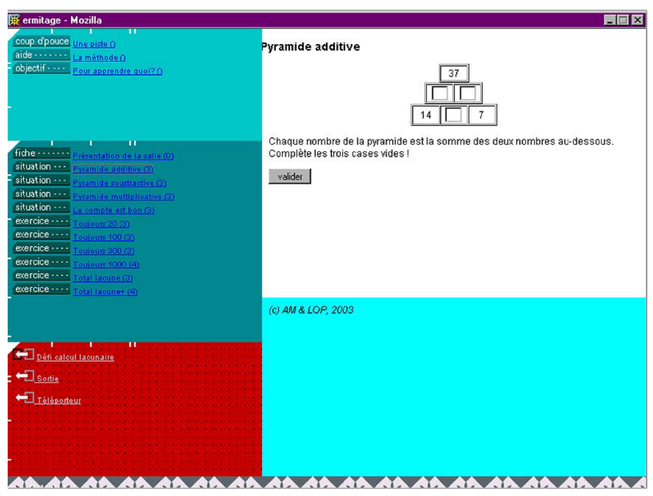
Project 2 : SYNERGIE



Some topics at disposal concerning the working world of the "Arc jurassien"

In this project, a didactical CD-ROM presenting the economy of the region "Arc jurassien" has been realized. This project has necessitated different steps in reaching agreements between the partners from the educational or the financial world. It has fostered creative dynamics between the offer of unknown technical possibilities and the suggestions of pedagogical activities.

Project 3 : ERMITAGE



The activity *Pyramide additive* in the "room" *Calcul lacunaire*

This project will offer mathematical activities on the Internet adopting a spatial metaphor. Each activity is located in a room of a "virtual" museum. This project constitutes a nice opportunity to observe how users modify their attitudes depending on whether they find themselves in the position of a lay user (as a student) or of a professional user (teacher) or of a designer. (www.projet-ermitage.org)

This poster has benefitted from the collaboration of : Christian Berger - Yves Delamadeleine (Conférence intercantonale de l'instruction publique - CIIP) ; Martin Lehmann (Consulting engineer – initiator of the project) ; Enzo Offredi (Ecole secondaire régionale de Neuchâtel) ; Jean-François Perret (Institut de psychologie, Université de Neuchâtel) for the SUMUME project and of the collaboration of Martin Lehmann (initiator of the project) for SYNERGIE.

LESSONS LEARNED FROM THESE PROJECTS

Some lessons have been learned from collaborative working and sharing of know-how to produce multimedia supports for teaching from these projects. They concern the actions of the design teams and their relations with the users and the technical devices.

About the collaboration

- Don’t forget to time needed to solve **unexpected problems**. They are always more numerous than expected.
- There is provide spaces to overcome **mutual ignorance of the professional cultures of the partners** who are not accustomed to working together.
- The teams must be able to create a **common culture** and each partner must learn to know the culture of the others.
- **Technical potentialities** are differently evaluated by pedagogues (who might unusefully limite by technicians, by politics and this can have budgetary incidences).
- **Time** at disposal to work out a common language and common references between the various partners is often too limited.
- **Pre-established standards and diagrams** can improve the sharing of knowledge.
- **Written communication** raises more difficulties than the oral one. Use phones, videoconferences and trains and avoid writters assignements from one team to the another.
- **Face to face meetings** improve communication and mutual understanding.

About the end-users

- Don’t forget that the **expectations of the targeted public** remain often implicit. The same occurs for the subjacent theories of learning. These unsettled situations can be sources of misunderstanding. Provide spaces to discuss them !
- The end-users (teachers, students) should be regarded as **partners** of the design and be integrated in the design process.
- The **realization of a learning tool** is a strong motivation for its use and this interest will then diffuse among colleagues.
- The first users of a novel system **might get discouraged**. But, in contrast, it is often observed that they start using more the other “simpler” tools available.
- **Development should include a phase of** follow-up of the users. During this process, the designers can learn a lot from the lay-users.

About resources and know-how

- Don’t forget **to document** the project ! This will help future users and developers.
- The **culture of the memory** of the projects is not developed. Its importance seems often underestimated.
- The fruit of a project is not only the software **but also** its documentations, its modes of uses, ...