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Clarifications concerning Aspects of Coherence and Impact of the COLDEX Project (IST-2001-32327)

Dear Mr. Oliveira,

With reference to comments and questions raised during the second COLDEX project review on Sept. 10 in Växjö, Sweden, I want to formulate the project's position regarding the aspects of coherence and joint impact of COLDEX. The following statements take into account the reviewers' comments as documented in the review report:

Critical issues

Whereas aspects such as technical quality, scientific dissemination, general level of activitiy and output were considered positively, the reviewers pointed more critically to aspects of coherence in the project. Based on the joint presentation, this was less seen as an actual deficit in the project's practice but more as a deficit in making coherence explicit, visible and easily understandable. Evidently, this has a bearing on assuring longer-lasting impact of the project in both the fields of science and technology as well as in educational practice. In this respect, also dissemination strategies are an issue.

Overall rationale and originality

First, it is important to clearly state the overall rationale of COLDEX. The general orientation is well expressed by the title „Collaborative Learning and Distributed Experimentation", i.e. the project takes up issues and current challenges in the area technology support for collaborative learning in science and technology with a special focus on experimentation-based learning. Access to experiments can be both local and remote. In our understanding local experiemnts should be preferred if these are easily replicable. The strength of remote experiments is seen in areas in which local experience is practically impossible. Originally, seismology and astronomy (using telescopes) were chosen as fields of remote experience.

Yet, also learning experiences and results based on local experimentation in personalised local communities are considered to be subject of exchange in a broader community including long-distance communication. In this sense, the aim is to provide and explore exchange mechanisms between local communities in Europe. This is extended towards local communities in Latin America through the instrument of the Open User Scheme. Here, direct communication (e.g., by e-mailing between learners here and there) is not excluded, but it is not the primary and original goal. Instead, we focus on content orientated or result based exchange mechanisms.

The central medium for exchange is the so-called „Learning Object Repository“ (LOR). It provides both group and community navigation tools as well as mechanisms to detect similarities of interests in terms of the objects or artefacts produced. This is clearly related to current scientific challenges around „contextualised information retrieval“ and „social navigation and community support“ (the latter in a particular CSCL perspective).

Research and practice in CSCL („Computer Suppported Collaborative Learning“) shares a basic experience with other groupware applications in that using group oriented software tools puts additional demands on the users. I.e., the use of group or community orientated tools comes with an additional cost. Accordingly, from a motivational point of view, there should be a clearly „visible“ benefit in using these tools. For example, if the explanation of an experiment is standard content of textbooks it is quite unlikely that learners would engage in time consuming communications with people around the world to discuss such standard topics. On the other hand, if the problems dealt with are non-standard and of really open-ended and exploratory nature, there is an obvious incentive to engage in such an exchange. This is the basic argument for concentrating on what we call „challenge-based learning“ as an educational approach. Challenge-based learning is a specific form of problem-based learning that capitalises on a specific class of problems (challenges) charcterised by being attractive, curiosity stimulating, non-standard, a rich source of experience and open-ended.

So, the specific COLDEX approach can be characterised by the three basic elements:
- extending „communication through objects or artefacts“ from local to global learning communities,
- contextualising community information bases with thematic and task-orientated parameters,
- using challenge-based learning as an overall educational design principle.

These themes have an innovative potential, both from a scientific point of view (in CSCL and Community Information Systems) as well as for educational practice. Although the basic orientation has already been described in the Technical Annex, some conceptual details have further evolved and have been sharpened through the concrete COLDEX practice.

Software development and design principles

Also from a technical point of view, the LOR is the focal point of the COLDEX software environment. The axiom is: Any learning object (esp. including student results) should potentially reside in the LOR and be indexed in such a way as to support re-use within the community based on „congruence of interest“. I.e., we strive for interoperability of content orientated tools on the level of the LOR. The technical common denominator is to use XML for external data structuring. In some cases, web services are used to support direct tool-to-tool interoperability (e.g., the connection from a telescope to the Cool Modes modelling environment). In general, the interoperability follows the principle of supporting heterogeneity and loose coupling as an opposed to a more monolithic view of one big software environment.

We believe that the focus on loosely coupled heterogeneous tool environments is a strength rather than a weakness, when it comes to introducing technology in practical settings. Our approach aims at co-existing with other specialised or standard tools and this allows for local evolution without dealing with a big comprehensive system.

Dissemination and take-up

COLDEX ideas will be further pursued after the end of the project itself in the context of the ongoing CONNECT project (IST-2002-2.3.1.12) which is associated with a number of dissemination activities on the European level. The soon coming dissemination activities are these:

- CELDA IEEE conference (15 – 17 Dec 2004)
- IST Event Den Haag (15 – 17 Nov 2004)
- School foresight project (2004, final events at European Science Week 8 – 14 Nov 2004)
- Sky watch project (FP6−2003−Sc−and−Soc−7 / European Science Week 2005− 4.3.4.1)
- Final events "Mission possible" and exhibition of the german-wide "Year of technology" for students (18 – 21 Nov 2004)

Also, the project coordinator (UDUI) is strongly involved in the Network of Excellence „Kaleidoscope“, and here particularly in the CSCL related activities. UDUI will organise the first general Kaleidoscope symposium which strives for public outreach beyond its large community of members towards industry and educational policy makers. As part of the exhibit, results from 5th FP projects will be demonstrated. COLDEX will be one of these.

Taking into account the above considerations and the reviewers' comments, we suggest the following adaptation of deliverables and schedule:

- A revised version of D2.3.2 Evaluation Plan I: Methodology and Examples is included with this letter
- The final of D8.1.1 Evaluation Plan II: Specialised Evaluation and Test Plan will be submitted by the end of November
- A workshop on dissemination and evaluation will be held in Lisbon, Portugal (13 – 14 Dec 2004)
- 2nd OUS workshop will be held in March 2005

We are also constantly observing the relevant events that would cover the broader audience suggested in the review report and we will reflect this in the upcoming quarterly management reports (future conferences, etc.)

Yours sincerely

H. Ulrich Hoppe