

Increasing International Capacity for CSCL: CoReflect, an Example of Sharing and Adapting CSCL Environments across Europe

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Abstract: We report on differences in collaborative processes that took place when CSCL environments originally developed in one European country were adapted and enacted in another European country as part of the Digital Support for Inquiry, Collaboration, and Reflection on Socio-Scientific Debates (CoReflect) project. We describe what differences were designed and emerged as part of the adaptation process, and discuss implications for principles for cross-national adaptation of CSCL environments.

Adapting Collaborative Learning Environments to Different Contexts

Considerable research in CSCL explores the ways in which collaboration can be facilitated, and the ways in which collaboration contributes to knowledge construction and skill development. Less research examines how collaborative processes change when the same curricular materials or learning environments are used in disparate settings. Yet, this is an important question to consider. The development of CSCL environments is typically resource-intensive, thus the ability to share materials across many settings is important in order to advance the goal of wide-spread dissemination and routine use of CSCL environments. Yet, using the same learning environment in different settings is not unproblematic, and such reuse may require some localization and adaptation in order to succeed (Koper, 2003), including changes related to collaborative processes. Thus, if collaborative processes are key to learning, any changes in these dynamics may also impact learning.

This issue becomes especially challenging when sharing learning environments between different countries as concerns about language and culture contribute to an already complex problem. In this poster, we explore differences in collaborative processes as part of the adaptation of CSCL environments between European countries. On a descriptive level, we present what differences were designed and emerged as part of the adaptation process, and on a prescriptive level we discuss implications for principles for cross-national adaptation of CSCL environments, with special emphasis on how to ensure that collaborative processes are framed in each context in a way that best supports learning.

The CoReflect Project and Cross-national Adaptation

In the work described and discussed in this poster, we collectively report on a coordinated European-based effort to implement web-based computer-supported collaborative learning. The Digital Support for Inquiry, Collaboration, and Reflection on Socio-scientific Debates project (CoReflect, www.coreflect.org) is a project funded by the 7th Framework of the European Commission ("Science in Society", activity 5.2.2 Young People and Science). It is a collaboration of eight partners from six European countries (Cyprus, Germany, Greece, Netherlands, Sweden, United Kingdom) and an associated state (Israel). Its goal is to explore mechanisms for addressing some of the local problems in science education, focusing on the examination of the transfer of empirically-validated successful CSCL practices to other contexts.

Seven inquiry-based learning environments (LE) were created using the STOCHASMOS (Kyza & Constantinou, 2007) web-based teaching and learning platform. Each LE presents learners with a problem or driving question that asks the students to make an evidence-based decision or recommendation concerning a socio-scientific issue, for example, would you allow the cultivation of genetically modified organisms in your country. The seven environments that were created address the topics of: biotechnology; global climate change; nicotine addiction; sustainable development; fog and humans; astrobiology; and water quality. In each learning environment students work in small groups and access a variety of data sources available in the online learning environment, which also includes a reflective Workspace in which learners can lay out their arguments and connect them to evidence. The learning environment also supports online collaboration through tools that allow

the asynchronous sharing of the groups' WorkSpace pages and a chat tool. Some of the learning environments structured aspects of collaboration and activity around these tools, such as designating pro and con argumentation teams that prepare their arguments through online discussions, and sharing and commenting on their online work using web-based collaboration tools.

Each partner developed a learning environment in collaboration with practicing teachers. Using a design-based research methodology (Design Based Research Collective, 2003), each learning environment was enacted in a pilot study, revised, enacted a second time, and revised. Afterwards, the learning environment was translated to English and passed on to a partner in one of the other participating countries. The adopting partner translated the learning environment into the local language, and created modifications, if needed, in order to accommodate cultural or local school system needs. Hence, each web-based learning environment was enacted in authentic classroom contexts at least three times: twice in the national context for which it was initially designed, and once in a different national context. In all enactments data such as pre- and post-tests, teacher interviews, students' collaborative artifacts from the web-based platform, and audiovisual documentation of students' discourse were collected. In the final, cross-national enactment, analysis also addressed the adaptation process involved in the transfer and implementation of a learning environment into another national context.

In the poster, using our learning environment enactments as case studies (Merriam, 1998), we synthesize and report on successful collaborative practices as well as challenges presented during classroom implementations. We also report on the adaptations, if any, which were undertaken by each adopting partner, focusing on adaptations that relate to CSCL practices. We describe the original design, and explain the rationale for making the reported changes. A broad range of changes were identified during the adaptation of the LEs: from mere translation to an extensive re-conceptualization of the task that included compilation of new content. Criteria for change included the time allotted to specific topics in the curricula of different countries, or the pedagogical style that is typical in different countries.

Cross-national Adaptation of CSCL Environments: Issues & Implications

Based on our analyses, we consider issues that arise from the attempt to build CSCL capacity and possible implications and principles for sharing and adapting CSCL environments between disparate settings:

- *From Prescriptions to Questions* – Adaptive CSCL environments from more directed settings to more autonomous settings can be accomplished by reframing prescriptions as guiding questions.
- *Orchestrating Whole-class and Small-group Collaborations* – Adapting CSCL environments from settings that emphasize skill over content to settings that emphasize content over skills may require a shift to more whole-class collaborations, perhaps reducing small-group collaboration time.
- *Primary and Secondary Adaptations* – Adapting one aspect of a CSCL environment in order to better meet local learning goals (primary adaptation) may require additional changes (secondary adaptation) in order to create better coherence in the resulting, adapted, environment. For example, shifting from a joint deliberation of a moral question to argumentation around a cost-benefit analysis of the same topic (primary adaptation) may also require a shift in the way collaboration is structured (secondary adaptation), but maintaining a design approach while broadening the topic area does not necessarily require additional changes to the mode of collaboration.
- *Best Practices of CSCL* – Despite similarities in rhetoric, different teachers support collaboration in different, ways, and at times, in discrepancy with what is considered collaborative, inquiry-based learning, in the CSCL research community. This can be explained, in part, by the paucity of best practices addressing important classroom issues such as managing, monitoring, guiding and assessing collaborative learning. Thus, in considering how to build CSCL capacity it is important to also direct efforts towards establishing a repository of such practices.

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