

SUSTAINING LEARNING DESIGN AND PEDAGOGICAL PLANNING IN CSCL

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Extended Abstract – Category ->Position Paper

Introduction

Presently the broad field encompassing instructional design, learning design and pedagogical planning, even though by no means new, is one which still attracts a lot of attention in the TEL (Technology Enhanced Learning) research area. The reason for this is not only that its importance is becoming ever more strategic but also that the difficulties faced are growing, encompassing the needs for personalization and orchestration of technology rich environments, to mention a few. Olimpo et al.(2010) point out that nowadays the term ‘learning design’ is intended in a variety of manners in the literature and that researchers have delineated different concepts to denote the artefacts resulting from the learning design process (learning design, learning scenario, pedagogical scenario, didactical scenario, pedagogical plans, lesson plans, etc.). Pernin and Lejeune (2006) provide one of the broadest definitions of these artifacts as “a description of the playing out of a learning situation or a unit of learning aimed at the acquisition of a precise body of knowledge through the specification of roles and activities, as well as knowledge handling resources, tools, services and results associated with the implementation of the activities” (Pernin & Lejeune, 2006). As it is well known, a great impulse to the research around in this field, was given by the creation of the IMS-LD specification (Koper, 2006), which captures *who* does *what*, *when* and using *which* materials and services in order to achieve particular learning objectives. The specification describes the constructs of the language and gives a binding in XML. The XML document instance is “loaded into” an IMS-LD-aware application and “played” (Cameron, 2009). Directly stemmed from this and other educational languages, or in reaction to these, a number of tools have been implemented, aimed to produce and manage ‘runnable’ design artifacts (e.g. Coppercore, RELOAD, LDshake, LAMS, CompendiumLD).

In addition to these systems, other kinds of tools have also been implemented in recent days, which can be categorized under the label of “inspirational” tools (Falconer et al., 2007), whose main characteristic is to be more educator- than learner-oriented, and, as such, to be closer to the pedagogical plan concept (Olimpo et al., 2010). These tools are meant to support sharing and reuse of pedagogical plans by other humans, rather than to produce runnable artifacts that can be “played” by a computer while interacting with students. The so-called ‘pedagogical planners’ usually have the aim to document and describe a learning activity in such a way that other teachers can understand the rationale behind it, as well as the context where this had been created. The focus of attention is on the process of designing learning, and the importance of the artifacts this process produces lies in their reusability by other designers. A learning design (or pedagogical plan) of this kind may be of any degree of granularity, ranging from a course to an individual activity (Cameron, 2009).

Under this latter category we can certainly place several tools designed and developed at ITD-CNR, aimed to support teachers and educators in the design, sharing and reuse of learning activities (Olimpo et al., 2010; Earp & Pozzi, 2006).

Pedagogical Planning for CSCL

The issue of how to design effective learning activities has been debated for a long while within the Computer Supported Collaborative Learning (CSCL) research field too (The Cognition and

Technology Group at Vanderbilt, 1991; Scardamalia & Bereiter, 1994; Dillenbourg, 1999; Paloff & Pratt, 1999).

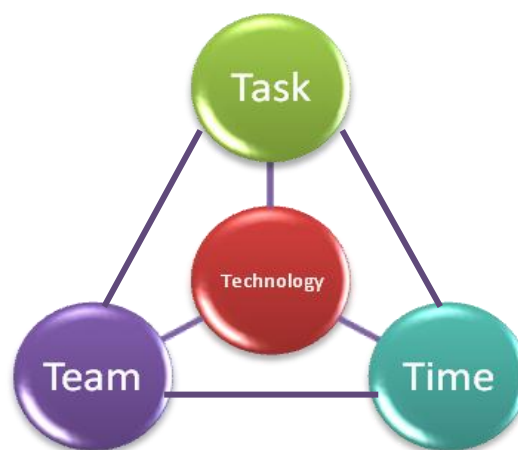
In analogy with the general panorama sketched above, research in this specific field has also resulted in a number of different approaches and systems. However, the challenge of designing CSCL events is even harder to face, mostly due to the fact that the socio-constructivist paradigm underlying CSCL requires the designer to devise pedagogical plans embodying a large amount of flexibility, adaptation and personalization and that, in addition to individual responses, the designer needs to consider the rather unpredictable dynamics of a community of learners.

Concepts, such as collaborative techniques (Pozzi & Persico, 2011), Design Patterns and CLFPs (Hernández-Leo et al., 2005), as well as collaborative scripts (Dillenbourg, 2002; Dillenbourg & Hong, 2008; Dillenbourg & Jerman, 2007; Kollar et al., 2006; Weinberger et al., 2004; Fischer et al., 2007) have been proposed as ways to describe and provide structure to online collaborative activities; on the other hand, tools, such as Collage (Hernández-Leo et al., 2006) or CeLS (Ronen et al., 2006), have been implemented to reify some of the above mentioned concepts with the aim to support teachers, educators and practitioners in the design and sharing of effective online collaborative learning activities.

This paper focuses on an ongoing effort aimed at providing a framework encompassing these different approaches to pedagogical planning of online collaborative learning events. A tentative formulation of such a framework was proposed by Persico & Pozzi (2011). Originally, the proposed framework identified 3Ts, that is Task, Team(s) and Time, as the main dimensions along which one may look at the structure of an online learning activity.

In March 2011 a workshop was organized at the STELLAR Alpine Rendez-Vous 2011, whose title was “Structuring online collaboration through 3Ts: Task, Time and Teams”. This workshop started by focusing on the 3Ts framework and moved on from it with the aim of refining it and finding a common backbone to the existing perspectives and approaches for the CSCL design, with particular reference to those adopted by the workshop participants, who were all experts in the field. The workshop provided significant feedback to improve and refine the framework (Pozzi et al., 2011), including the idea that the role of Technology should be made visible in the framework and that the importance of student agency should be specifically born in mind when designing CSCL. Starting from this experience, a second version of the model was then conceived, which has its main value in being the result of a joint discussion and negotiation among experts in the field of collaborative learning design.

The new model identifies 4 dimensions as the main elements around which it is possible to design and structure an online collaborative learning activity: *Task*, *Team(s)*, *Time* and *Technology* (see Figure below).



The idea underpinning the model is that – generally speaking – Task, Teams, Time and Technology can be regarded as the main elements characterizing online collaborative activities. Thus a

collaborative activity may be seen as the resultant of: a Task to be accomplished by students, usually envisaging the production of a common output, the Teams which students should be aggregated in to accomplish the Task and their mode(s) of interactions, and the Time schedule proposed to students to carry out the activity. The whole activity takes place within and through a Technology rich learning environment, providing the communication channels through which interactions among participants occur.

While designing an online collaborative learning activity, the CSCL designer has to take decisions concerning these 4 elements, as well as concerning the relationships among them (see Figure above), given that the choices on one element may heavily affect the others. In the picture above, the links between the 4Ts represent this strict interdependence: when a designer takes a decision concerning Task, choices concerning the other Ts are heavily influenced by this original decision. While the Task is often the ruling T, it usually happens that Time constraints and Team composition also exert an influence on the Task definition. Similarly, the choices about what kind of Technology should be used follow from the learning objectives and the Task, but it is also well known that Technology is not neutral and in turn influences the way people interact among themselves and with the environment.

This model can hopefully be used as a conceptual framework to support the design of most online collaborative learning activity, and it is general enough to encompass the existing perspectives and approaches in the field of CSCL design.

By presenting this contribution at the workshop, the authors would like to propose the 4Ts model to the participants, discuss it by providing examples of use and possibly map the learning design tools and resources which are examined by the LDG Theme Team (e.g. Collage, CompendiumLD, Clouds, etc.) on the 4Ts model itself, with the aim to further evaluate whether and to what extent this model is compatible with other approaches and / or to reflect on the possibility to design and implement a new tool (or an extension of existing tools) able to reify the 4 Ts model.

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