Components of an EML Proposal for Collaborative Learning Modelling

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1 Introduction

Up to 2003, most e-learning standards related with learning contents have followed a well-established educational model: a learner receiving or accessing information and resources under the control of a computational system [9]. This is the most common model in the majority of existing e-learning systems. Furthermore, it is suitable for the needs of the great part of schools, companies and users. Nevertheless, there exist many pedagogical approaches that cannot be supported on this particular model. As an example, pedagogical approaches based on collaborative learning ideas are not supported.

To overcome this limitation, the Open University of the Netherlands (OUNL) developed several years ago a proposal named as Educational Modelling Language (EML) [6]. A main purpose of this EML was to support the computational modelling of educational units (e.g. a course, a lab practice, a seminar) in accordance with different pedagogical approaches. Among them, the support of pedagogical approaches based on collaborative learning was one of the main goals. In 2003, the efforts of the OUNL produced the publication of the IMS Learning Design (LD) specification [7], currently EML de facto standard. This standard does not impose the pedagogical approach of educational units. Nevertheless, IMS LD has not achieved a definitive solution to support the computational modelling of collaborative learning educational units. Some authors have described extensions to LD supporting collaborative
issues [4, 10]. Anyway, they consider a narrow view of the problem and comprehensible solution remains to be developed.

This chapter introduces the main components of an original EML proposal to support collaborative learning pedagogical approaches. The main idea underlying this proposal is the separation of concerns: instead of attaining the computational modelling of educational units as a whole it considers its decomposition in several separated and independent concerns, named as perspectives. The obtained EML proposal, Perspective-oriented Educational Modeling Language (PoEML), has been developed to enable the evaluation of this separation of concerns approach. The chapter contains a description of PoEML main components in relation with collaborative learning requirements.

The rest of the chapter is organized as follows. Next section briefly introduces some of the main requirements needed to support collaborative learning approaches. In Section 3, the main components of the PoEML proposal are introduced, distinguishing among perspectives, entities and behaviours. The paper finishes with some conclusions.

2 Collaborative Learning

Broadly speaking, collaborative learning involves a situation in which two or more people learn or attempt to learn something together [1]. Despite of this definition, there is not agreement on a common interpretation of what collaborative learning means. Depending on the application collaborative learning may involve two or several participants, interactions may be produced freely or in a constrained way, synchronous or asynchronously, the collaboration may involve communication among participants or the performance of an activity in conjunction, etc.

Computer-Supported Collaborative Learning (CSCL) is concerned with the development of computer-based systems to support collaborative learning. Similarly to collaborative learning, CSCL involves a great variability and heterogeneity of approaches and solutions. The literature in this field [3, 8] can be approached by considering the following three main functionality areas:

- Communication. Communication encompasses the process of transfer and exchange of information that takes place between participants. Typical communication tools are: e-mail, desktop conferencing systems, chat, etc. In education, the provision of communication functionalities usually involves mechanisms to control the management of communication functionalities (conference model) and the participation of users (conversation model).