



Proposition of a Content Model for Simulation Based E-Learning

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Abstract

E-learning contents nowadays are used in almost all higher education and workplace training fields. The composition of these contents vary a lot depending on learning objects mix used by the authors, the structure or morphology of the objects them self and their compatibility with e-learning widely referenced standards. Efforts of recognized organizations and consortia are continuing to formalize reference models and standards for E-learning contents and learning objects. These efforts are oriented to the description of learning objects with metadata but also to production of specifications and guidelines of content aggregation, run-time environment, navigation sequencing and tracking of the learner progression. All these efforts aim to specify and standardize e-learning objects and contents in order to be accessible, interoperable, durable and reusable.

During last decade, there were a growing interest of consortia and E- learning community, to e-learning contents integrating simulation as a learning activity. Learning contents based on simulation; either as the main learning activity or as a training supplement; are widely used. The existing literature on simulation based learning activity, considers it to have a great ability to transfer skills into real-life and job situations and to produce positive learning outcomes, compared to other learning activities. In some engineering and technical higher education fields, as well as in high risk workplace training (medical, nursing and aviation), simulation based e-learning contents are considered to be the most cost effective to acquire transferable skills.

However, contributions on Simulation based e-learning contents are mainly focusing on simulation as the core content using either a simulator or a game generally running out of the LMS (Learning Management System) environment. There are very few contributions and integrated learning models containing simulation activities completely running on LMS execution environment.

This article (and our communication) first objective, is to contribute in more specifying simulation learning objects with additional metadata to be more easily incorporated in LMS and standard e-learning contents generally. On the basis of the current release of LOM standard (Learning Object Metadata) we will discuss how well, the standard matches with simulation objects specification requirements. The second objective is to propose a new content model for Simulation based E-learning content, especially mixed content which uses simulation as a supplement activity (among others) and in which simulation activity should be executed by the learner, monitored and tracked by the tutor completely on the LMS. The model will be based on Social constructivist approach and on experiments on simulation based e-learning contents administered to students in an engineering school.