Work in Progress - The use of Templates to Support Learning Design

Isabel Azevedo, Eurico Carrapatoso, and Carlos Vaz de Carvalho
iazevedo@dei.isep.ipp.pt, emc@fe.up.pt, cvc@dei.isep.ipp.pt

Abstract - This paper discusses the use of IMS Learning Design based templates to illustrate how to utilize a learning object, providing one or more scenarios that incorporate the learning object, giving a pragmatic characterization of it. The adopted notation for the templates is quite similar to the IMS Learning Design Extensible Markup Language binding, also incorporating abstract elements of the specification, like title, learning objectives and roles, for example. The generation of the pre-defined templates has been following the 8 Learning Events Model.

Index Terms – IMS LD, templates, learning design, reuse of learning objects.

INTRODUCTION

We believe that it is necessary to know how to use a learning object, and what learning outcomes to expect, in order to make it widely used by persons other than those that have developed it and know exactly how to successfully apply it.

To design an effective learning process it is necessary not only to consider the learning resources, but also the activities and interactions that will support the knowledge transfer, and the whole learning situation. The IMS Learning Design (LD) specification [1] can be used to sustain this approach and state how to use a Learning Object (LO), given a pragmatic characterization to it.

In the second section we discuss a project that uses IMS LD templates to allow an instructional approach to be used and reused many times with different learning materials. Finally, in the third section, we make some final remarks and present future work.

CASPOE PROJECT

CASPOE is an acronym to “Semantic and Pragmatic Characterization of Learning Objects” in Portuguese. It is a three-year project (http://gilt.isep.ipp.pt/caspoe), started in November 2007, funded by FCT – the Portuguese Science and Technology Foundation, and with two Portuguese Higher Education institutions as partners.

Figure 1 highlights the envisaged functioning for the system under development. Learning objects are semantically characterized using domain ontologies for informatics subjects, the chosen area for the initial prototype evaluation.

IMS LD templates are partly completed Units of Learning [2]. In CASPOE project we consider that they also encompass a pedagogical model. IMS LD templates are used to accommodate the normal situations under learning environments.

In the creation of the templates we have been using a notation very similar to the IMS LD XML binding [3], representing common situation in learning processes. The 8 Learning Events Model (8LEM) [4] has been followed, a pedagogical framework developed under the European project iClass (http://www.iclass.info), which considers teachers, students and their interrelations. The eight events are: inform, imitate, explore, practice, discuss, reflect, create and experiment. This model was chosen because of its simple but very usable approach in modelling common situations in learning processes. This phase will be completed in April 2008.

Each event has associated a set of verbs that are used to draft the expected learning objectives, which are only accomplished through the practical examples generated from the template. The set of verbs can be formed by one or two words. For example, the event discuss has associated the following one-word verbs: discuss, decide and interpret.
Then we will implement a system to semi-automatically choose which template to apply to learning objects, through a series of refinement steps. An IMS LD ontology [5] has been developed to assist in that generation. These generated examples can then be edited to better fit a desired situation or can be used as they are in any IMS LD player.

The search and retrieval capability will be based not only on contents characteristics; but also on learning design properties allowing the searching for learning designs by learning purposes, for example.

Other projects are trying to facilitate the use of the IMS LD specification through templates that can be personalized to a specific situation, as LearningMapR [6]. The netUniversité platform [7] also has an authoring subsystem, based on predefined educational templates.

Under DialogPlus [8], a five-year project that ends on 31 January 2008, a toolkit was developed, available at http://www.nettle.soton.ac.uk/toolkit/. It uses "nuggets", activities/elements used in the toolkit to guide in the creation, alteration and share of learning activities and resources.

CONCLUSIONS

It is common sense now that the semantic, often ontology-based, description of a Learning Object (LO) is not enough to promote its reuse, but it is also necessary some information related to how to apply it. We believe that a substantial effort is necessary to make practical issues be considered in the representation of LOs achieved in repositories. The CASPOE project aims to put semantic and pragmatic concerns in the full representation of an LO, in order to promote reusability beyond its development group.

Actually, not only most learning design tools are not easy to be used by teachers, but also the diffusion of learning designs is not a reality yet, despite many important research projects that have worked on these topics over the few last years.

Based mainly on the characteristics of learning objects and templates, we plan to, as automatically as possible, generate practical examples that demonstrate, not all, but some different ways to use a learning object.

An initial prototype is under-development and after its evaluation, the system will be further implemented. The outcome of the system to be developed will be learning objects or simple learning designs ready to be used, without personalization concerns, but attending to the needs indicated by the end-user.

ACKNOWLEDGMENT

The work described in this paper has been funded by FCT – the Portuguese Science and Technology Foundation - CASPOE Project (PTDC/EIA/65387/2006 - CASPOE - Semantic and pragmatic characterization of learning objects).

REFERENCES


AUTHOR INFORMATION


Eurico Carrapatoso, Faculdade de Engenharia da Universidade do Porto, emc@fe.up.pt.

Carlos Vaz de Carvalho, GILT Research Unit, Instituto Superior de Engenharia do Porto, Instituto Politécnico do Porto, cvc@dei.isep.ipp.pt.