Granularity of Learning Objects

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Abstract

Traditional methods for developing digital learning content usually produce very large, monolithic content that barely can be reused even in similar contexts, despite of the quality they can have. Nonetheless, digital learning content can be described as a set of highly reusable, low-coupled learning objects that can be put together in order to build adaptive, learner-focused content

Nowadays, in spite of all technological evolution, it cannot be affirmed that content development in computer-aided teaching/learning process had evolved the same way. This is, indeed, the most expensive, time-consuming undertaking among all tasks demanded by computer-based course building. One of the reasons for this is that digital learning content reuse, even nowadays, is frequently done through copy-and-paste mechanisms that transpose digital learning contents from a context to another.

A vary of explanations can be arisen to justify this fact: first, digital learning content is often modeled in an ad hoc manner, in order that all content is very specific, going about some determined knowledge domain. Besides, such development often utilizes tools and techniques – like HTML – that aren't concerned about separating content from presentation. A possible solution for this is to develop digital learning contents in function of the set of potential learning objects they can be made of. Thus, there will be analyzed a set of frequently used learning objects in order to classify them on types and discuss some possibilities for diminish their coupling to other learning objects, thus leading to finer granular contents, augmenting their potential for reusability.

Learning objects' development usually include a wide range of tasks, like instructional design, multimedia design and text production, as well as audio, video, graphics and pictures' conversion to machine-readable formats. In addition to these tasks, there are other ones, like course authoring, software development, content integration and testing, modification/adjustment, training; and so on. Defining a reusable architecture for semantic retrieval of learning objects would noticeably diminish costs related to the development of new courses, thus contributing to make the task of create new learning objects faster through reuse. Indeed, the finer granularity such learning objects would present, the higher would be their usability potentials, as well as the simpler would be the metadata needed to describe it, so reducing searching time.

This presentation will show how content development could be done in order to achieve more reusable learning objects by means of describing content as an aggregation of low-coupled, fine-granular learning objects. The use of ontologies as a way to organize learning objects, so making their storage and retrieval easier by using semantic-based strategies, will be also presented.