

A Method to Facilitate Automatic Learning-Object Assembly

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Abstract

With the advent of the Web and its transition into 2.0, computer-based learning has shifted from stand-alone, proprietary applications to freely available web pages and blogs/wikis. In response to this change, certain standards (e.g., Learning Object Metadata) have been introduced in an effort to catalogue these ubiquitous and diverse learning objects in a manner that will facilitate their retrieval, use, and evaluation.

At present, it remains difficult to assemble such objects, especially if obtained from heterogeneous sources, into meaningful larger-scale units of learning (e.g., lesson or module).

Relying on existing work as a foundation, our project combines recent research in learning-object representation, assembly, and evaluation into a novel assembly method with unique challenges needing to be overcome, as currently explored for the application domain of elementary geometry. To date, a prototype has been built to assemble existing learning objects, from a repository of over 100 such objects (e.g., websites, video files, and pictures), based primarily on semantic metadata, into four geometric learning topics: perimeter, area, surface area, and volume. We expect that, given a user's desired topic and duration, a meaningful module will be assembled from the repository. However, the prototype is presently incomplete, as prerequisite and evaluative information (e.g., user ratings) still need to be added.

The successful completion of this project will result in an assembly method that assists educational researchers, teaching professionals, and self-learners in semantically organizing and assembling learning objects from existing repositories.