Creating Learning Material from Web Resources

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Motivation

Observation:

Learners use unstructured legacy Web resources as learning material, although those resources have not been created as content in formal learning settings.

How can Web resources be structured and enriched with metadata such that they can be linked to e-learning contexts and act as learning material?

Semantic Fingerprints

A semantic fingerprint is a graph which describes the concepts and their relations of the corresponding resource. This fingerprint can then be used to compute the semantic relatedness of resources, which enables us to decide if a resource is relevant for a learning context. With this information we can decide, whether the resource is indeed useful as learning material in this particular learning context or not.

Educational Metadata

Adopting some of the educational categories of the Learning Object Metadata standard (LOM), we will extract and derive data about educational objectives such as interactivity type, learning resource type, semantic density, etc. To obtain this kind of data we will analyze the Web resource itself as well as the corresponding semantic fingerprint.

Linked Learning Items

We create Linked Learning Items (LLI) and make them available as Linked Data. The LLIs contain data from the Web resource, its corresponding semantic fingerprint, and the gathered educational metadata.

These data packages can then be integrated directly in Web-based learning management systems (LMS) and offer learners the opportunity to access this learning material right from within the recent learning context.