

Syntax and Semantics of Learning Object Metadata

Michael Sonntag

Abstract:

Learning objects (LO; Ip, Morrison & Currie, 2001) can be annotated with metadata like any other elements like webpages; see also the semantic web (Berners-Lee, Hendler & Lassila, 2001). But similar to these cases, many LO suffer from a lack of metadata in their actual instances. One reason for this is the focus on metadata as a means for discovering LO for reuse (Friesen, Roberts & Fisher, 2002). While this is an important factor, it seems to be not enough to encourage authors to add metadata to their works. Other approaches seem therefore to be needed, of which the most important is to employ metadata to provide immediate and direct benefits to the teacher or learners, regardless of other future uses. Another remedy could be the harvesting of metadata from existing other sources and the derivation of new metadata from the learning material itself.

Several specifications/standards for LO metadata (LOM) exist (Loidl-Reisinger & Paramythi, 2003), but one (group) of them is very prominent and important. This is the metadata according to IMS, which was the basis for and is very similar to the IEEE LOM standard. This chapter discusses the content of the IMS specification and highlights the differences to the IEEE standard. Its syntax and to some degree its semantics are discussed as well. We also provide a partial metadata example. It further discusses the two main bindings for representing the data model of LOM: RDF or plain XML. Interoperability is a main aspect of metadata, as it should be exchangeable between authors or learning management systems (LMS). However, several difficulties exist for this. The roles of taxonomies, solutions and custom profiles are discussed in this context.

The second main part starts with an overview of practical problems of LO metadata. It continues with harvesting and derivation of metadata and discusses approaches for these extractions for all elements of the specification. Regarding the general need for direct benefits of metadata some use cases are presented. The chapter concludes with several practical examples of such use cases for both offline and online LO. An Austrian subset/extension of LOM for electronic schoolbooks is also presented briefly.