2 The Learning Design Specification

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2.1 Introduction

The preface and the previous chapter introduced the idea of describing a learning design in terms of “people in specific groups and roles engage in activities using an environment with appropriate resources and services”. To be usable by computers, this language has to be given a concrete syntax and semantics, and this is provided by the Learning Design (LD 2003) specification.

The documents which make up the specification can be quite daunting, and this chapter aims to lower the threshold to their comprehension. It starts with some historical background, examines the intended readership for the specification, then provides a reading guide to the specification documents, before giving an overview of the ideas and concepts in LD and how they are intended to work together when used to represent a Unit of Learning (UOL). The overview is intended to make it easier to understand the specification and the dynamics of a running learning design.

2.2 The Move from EML to Learning Design

IMS Global Consortium Inc.’s (IMS) work on specifications and the Open University of the Netherlands’ (OUNL) R&D Programme into Learning Technologies that resulted in the Educational Modelling Language (EML 2000), both started around the same time in 1997. IMS’s early work developed a number of e-learning specifications, mainly targeting support processes for learning rather than the learning process itself. By early 2001, IMS had reached the point where it recognised the need for a specification that addressed the description of learning processes and set up the Learning Design Working Group. It had an ambitious scope which could only be
met in a reasonable timescale if it was based on an existing work. EML was submitted to the Working Group in the second quarter of 2001.

EML was a very complete and mature specification, focused on the entire learning process and was thus complementary to the specifications developed by IMS. Moreover, the use of SGML as the format in which to cast EML fitted well with the IMS specification development approach, which requires its specifications to be described using XML Schema (W3C 2004b). As a result, EML was accepted by the Working Group as the basis from which to develop the LD specification in August 2001.

The EML specification included both a DocBook-based (OASIS 2002) content specification for marking up materials used in the learning process, and extensions for multimedia, assessments and learner interaction with the runtime system, known as a player (see Chap. 3 for details). The content model and extensions were dropped from LD by the Working Group, which recommended the use of XHTML (W3C 2002) allowing both web content, including typical web-enabled multimedia, and XML extensions. It was agreed that Question and Test Interoperability (QTI 2003) should be used for assessment, but defining how it should integrate with LD was left until a later version of QTI was released. Separate mechanisms were introduced to allow communication between content and LD players (described later in this chapter). A further change involved the integration of LD into the Content Packaging specification (CP 2003) Organizations element. When used for an LD package, it replaces the simple Organization/Item tree structure with a richer, more developed structure.

These modifications were proposed and the IMS LD 1.0 specification was approved in February 2003. Thus, the central concepts of EML were brought into a neutral forum in which members with various business interests and decision-making criteria collaborate to satisfy real-world learning requirements for interoperability and reuse.

### 2.3 Who Is the Learning Design Specification for?

In understanding the LD specification and assessing its relevance and importance, it is important to distinguish between the specification itself and its application in the wider e-learning landscape. The specification is a very detailed document intended primarily for software developers who create the tools and systems that implement LD. However, it is also intended to be understood by technically aware learning and instructional designers to enable them to determine its suitability for their purposes. Generally, the XML format of LD should not normally be visible, in the same way that document formats such as RTF are not normally seen by users but are hidden and processed by software applications such as word