



Online Education Using Learning Objects

Rory McGreal (ed)

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This book is aimed at researchers, educators and other practitioners who wish to know more about what is happening in the fast-developing field of online education using learning objects. The list of contributing authors is packed with respected researchers and practitioners who have made significant contributions to the state of the art of learning objects. These authors (from commercial and academic organisations in Europe, the US and Canada) include many who have contributed to the development of relevant specifications and standards.

The introduction to the book provides a useful discussion of definitions of the term 'learning object' and analogies for their use (e.g. Lego blocks, building materials: p.5). The 26 chapters that follow are grouped into five thematic parts, each part containing at least five chapters. The themes covered are:

1. learning objects and metadata;
2. constructing and creating learning objects;
3. contextualization and standardisation of learning objects;
4. learning object profiles, applications and models;
5. from the semantic web to Educational Modelling Languages (EML) and instructional engineering.

The structure of each part is the same: each contains an introduction of 2 or 3 pages which is followed by the chapters. This introduction gives a very brief summary of the contents and objectives of the part, followed by an overview of the key points made in each chapter contained in the part. The chapters themselves do not adhere to a particular structure beyond the fact that each contains an introduction, a conclusion, and references: the structure of the main body of each chapter varies from chapter to chapter. A list of the chapters contained in the book is available on the RoutledgeFalmer website <www.routledgefalmer.com/> so I will not repeat it here.

As the list of themes indicates, this book covers a wide range of topics, and I think it covers these in sufficient depth to satisfy its intended audience. Each chapter is written by one or more of the 40 authors, with few contributing to more than two. Because of this, the book successfully captures a wide range of views on learning objects and their applications i.e. it illustrates the diversity of thinking in this still emerging and evolving field. The theme 'learning objects and metadata' as discussed in Part 1 exemplifies this. Downes (Chapter 1) and Friesen (Chapter 4) both provide very interesting and contrasting analyses of the 'learning object' concept, its utility and functionality. Two chapters put forward research questions: Sosteric & Hesemeier's questions (Chapter 2) examine the potential of learning objects in a broad sense, whereas Duval & Hodgins (Chapter 5) focus on the potential of small content components and describe research issues that need to be explored to exploit such components. Lastly, Koper & van Es (Chapter 3) explore the concepts behind the IMS Learning Design specification (IMS, 2005) and how it can be used to enhance the quality of pedagogical designs. It is because this book manages to capture a range of viewpoints that makes it useful, but this also means that readers must be prepared to engage with it on the level of its thematic parts at least (i.e. five or six chapters), rather than individual chapters, to make the most of the book.

The other parts of the book all succeed in a similar way as this first part, i.e. by providing differing views of the relevant theme. In Part 2, which presents chapters describing several different approaches to the construction and creation of learning objects (LOs), the chapters that I found particularly interesting included Polsani's application of Pierce's theory of information 'to arrive at a model for determining the right quantity of information in a LO' (Chapter 8, p.110). The chapter by Nesbit & Belfer (Chapter 11) stands out because it focuses on a method for the evaluation learning objects, rather than their development or use. I thought the convergent participation model proposed in this chapter, using Delphi-like techniques (Gordon, 2003) to build consensus, is promising, and look forward to seeing reports on its advancement as indicated in the conclusion, i.e. by 'study of how converging participants interact, along with the development of tools to support their interaction' (p.152). Part 3 introduces the idea of contextualisation as it applies to learning objects, and examines issues concerning standardisation as they apply to learning objects. Three chapters address the problems that contextualisation brings when the objective is to design learning objects for reuse. I enjoyed Mason's exploration of context and learning (Chapter 13), and his proposal for a way forward, i.e. that context has been identified as 'a

candidate for independent modelling from content' (p.179), struck chords with work done (see e.g. Lonsdale *et al.* 2004) in the EU-funded Mobilelearn project (MOBIlearn, 2004). Part 4 introduces the idea of metadata application profiles, and techniques for the management and distribution of learning objects. In Chapter 19, Nilsson *et al.* describe a peer-to-peer approach to sharing information about learning objects (rather than the objects themselves). This chapter includes a realistic view about subjectivity in metadata i.e. that 'we must allow people and institutions to express different views on learning objects', and describes how the Edutella framework supports this goal. The last part of the book, Part 5, covers several complex topics, including educational applications of semantic web technology and educational modelling languages. Palmer (Chapter 22) provides a readable introduction to several technologies underlying current semantic web implementation efforts, and uses learning object examples to illustrate the way these technologies can work. The chapter by Anderson & Petrinjak (Chapter 23), complements the earlier chapter by Koper & van Es (Chapter 3) by examining how and why EMLs are important in the framework of the semantic web, and makes specific reference to EML, the precursor of IMS Learning Design. Paquette (Chapter 26) compares and contrasts IMS Learning Design with MISA (Méthode d'Ingénierie d'un Système d'Apprentissage), a modelling language that shares some similar goals with IMS Learning Design. If read together, I see Chapters 23 and 26 as a useful place to start understanding and exploring factors affecting the design of educational modelling languages.

In conclusion, I agree with the statement in the preface of the book, that states 'This book will serve as a good reference source for both researchers and practitioners involved in putting learning resources online'. It captures a range of viewpoints of this rapidly evolving field, and thus gives the reader the opportunity to compare, contrast and learn from experts in the field. The introductions to each part provide a useful summary of each chapter in the relevant part, and I envisage that these could be used to select individual chapters for reading.

ANDREW BRASHER

The Open University, UK

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