

Sporting Collaborative Learning in the Architectural Domainup

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Chapter 18

Supporting Collaborative Learning in the Architectural Domain

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ABSTRACT

This chapter discusses the use of technology in supporting the study of architecture and design in Higher Education. Digital (often open) educational architecture resources are widely spread throughout a number of repositories that do not interoperate with each other. This means that no single point of access or support for potential collaborative learning exists. The potential impact of these barriers on education in architecture, in terms of its availability as a series of digital objects through the Web, is strongly limited. The authors introduce Metadata for Architecture in Europe (MACE), a Web based support system for architecture education that has been designed as a means of creating a collective external memory of architecture content that reduces those barriers to knowledge-sharing in architecture. After introducing MACE, the chapter presents the results of an evaluation of the MACE system that was carried out in architectural design courses in four European universities by a total of around 200 students. Much of the analysis focuses on the collaborative learning aspects of the architectural design courses.

INTRODUCTION

Collaborative learning is a common activity in architecture education, e.g. for university students studying architecture. Often collaboration takes

place during group assignments because learning is based on the interaction of group members. Often it also involves access to suitable and often freely accessible educational resources. Yet few tools exist that support such collaborative learning in this architectural educational environment. In

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this chapter the Metadata for Architecture in Europe (MACE) system that supports collaborative learning i.e. one that enables students to access educational resources and share search results is introduced. Why this system is of particular interest in the domain of architecture education will be outlined in the following sections.

The availability of digital learning materials typically used in architecture education varies greatly in terms of type and form. They are scattered and dispersed in and across numerous web sites and portals. Furthermore, they are indexed with a number of different classifications and are often incomplete. Consequently, it is difficult to find and access them. At present it appears that no portal exists that spans the many repositories. This can be attributed to the many different approaches currently adopted in knowledge structuring, as well as the different languages and classifications that are in use. These barriers present an immediate impact on the educational basis of EU architecture heritage, particularly in terms of the availability of digital objects through the web which, therefore, is strongly limited. Quite often the use of traditional search engines results in too much information, which is unstructured, vaguely described and unclearly ranked. Search results frequently include irrelevant items due to multiple misunderstandings, incorrect interpretations of classifications and simply the wrong metadata. Moreover, there does not appear to be any attempt to provide integrated access to the large amount of architectural educational material produced in academic courses. Finally, as a result of the lack of a reference portal, the expected web-based Community of Practice (CoP) is non-existent. Such a CoP would be highly beneficial to architectural education as it would, not only enable, but also support the collaborative development and construction of a wealth of shared knowledge as well as valuable design interpretations.

The Metadata for Architecture in Europe (MACE) portal has been developed in order to address many of these shortcomings. It is designed

to integrate Web-based resources through metadata descriptions, and endeavours to facilitate easy and effective access to a wide variety of educational architectural resources. Its functionalities set out to address the perceived main needs of CoPs in the area of architecture education. The MACE portal thus:

- Enables easy access and interactive visualization,
- Provides support to educational processes,
- Fosters student CoP in Architecture, and
- Enables the enrichment of digital content in Architecture by means of a widely shared metadata set.

The MACE application profile, which describes educational resources in a uniform way, is the mechanism that connects the various architectural repositories. It is an adaptation of the IEEE Learning Object Metadata standard: IEEE 1484.12.1 Standard for Learning Object Metadata (LOM) and suits typical design tasks in architecture. In addition many relevant educational resources are classified using the MACE-specific classification. This is based on some 2884 concepts from within the domain of architecture and is related to the Art & Architecture Thesaurus (AAT) from the Paul Getty Trust as well as associated with the European industry standard for indexing and classifying building products known as the CI/SfB construction index.

The MACE portal, therefore, sets out to encourage students to make meaningful searches through architectural concepts, technologies and features that represent the shared expertise of architects. By providing appropriate tools for the exploration and recombination of information, MACE leads the learner to gain both novel as well as rich knowledge experiences. It allows end users to expand their set of visual experiences and, at the same time, enables the enrichment of the existing online “collective external memory” by recognizing, capturing and linking those con-

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