

Chapter V

A Critical Perspective on Design Patterns for E-Learning

Franca Garzotto

Politecnico di Milano, Italy

Symeon Retalis

University of Piraeus, Greece

ABSTRACT

“A design pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice” (Alexander et al., 1977). In the field of e-learning, design patterns are frequently advocated as a powerful way of providing structured, teacher-friendly, textual representations of learning designs, or of expressing the design rationale underlying learning objects. The purpose of this chapter is to look at e-learning design patterns from a critical perspective. We provide a historical, multidisciplinary excursus of the notion of design patterns. We propose a taxonomy of e-learning design patterns, providing examples in the various categories. Finally, we discuss both the benefits of design patterns for e-learning professionals (particularly, novice ones) and their drawbacks, and investigate how such pros and cons may affect the role of patterns for learning designs.

INTRODUCTION

Designing effective technology-enhanced learning environments in an efficient and affordable way is a demanding task, which requires creativity and a significant amount of expertise (Goodyear,

2002). People new to e-learning design need advice from experts, experienced peers, and users to avoid investing a large amount of resources in “reinventing the wheel” or in creating solutions that may yield an educationally ineffective result.

E-learning design experience is often shared informally in the every day language of teaching practice, or through published research and evaluation studies, or even through sets of action-oriented guidelines. A number of initiatives have been launched in the last decade to foster exchange of experiences and to help instructional designers reuse effective learning design solutions. Among them, a remarkable one is the Australian University Teaching Committee (AUTC) Project. This initiative was set up in an attempt to collect and share generic/reusable learning design resources in order to assist instructional designers, teachers, or academics to create high quality, flexible learning experiences for students (<http://www.learningdesigns.uow.edu.au/>).

While the existing definitions of “learning design” vary, the main common elements comprise a focus on “context” dimensions of e-learning (rather than simply “content”), an “activity”-based view of e-learning, greater recognition of the role of “multilearner” (rather than just single learner) environments, and an attempt to make the design solutions related to all the above aspects easily reusable. In order to standardize the description of learning designs, the IMS Learning Design specification (IMS LD) has been proposed (IMS LD, 2003). Rather than attempting to capture the specificities of the various pedagogical strategies, IMS LD provides a notation to describe a “metamodel” of instructional design; it offers educators a generic and flexible machine readable language to specify the design of online and off-line activities that involve interaction between learners and learning resources, learners and other learners, as well as learners and teachers. IMS LD gives more emphasis on instructional design as a “product” than on the “process” of developing educational design solutions that has evolved out of the (positive or negative) experience of a number of designers. This may imply that one who reuses an IMS LD artifact might not easily grasp its rationale and perspective. In addition, IMS LD is mainly shaped to foster the

collaboration between experienced instructional designers and professionals who may need to repurpose the design specifications. As such, it is less appropriate to leverage the exchange of knowledge, practices, and expertise between educational experts and novices.

Instructional designers may need new ways of sharing and transmitting to novices their instructional “philosophy” and their pragmatic approaches, which consist of how their e-learning experiences are designed, built, and associated to the specificities of the subject matter, the environmental context, the human actors, the educational strategies, and the available learning resources and tools (Laurillard, 2002). For this purpose, an important contribution can be offered by *e-learning design patterns*, which are the main focus of this chapter. A design pattern “describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice” (Alexander, 1979). This provides a descriptive structure to integrate the analysis and the solution to a recurring problem, in such a way that it becomes context-sensitive, informed by theory and evidence, and reusable with a minimum degree of customization.

Increasing attention has been paid to design patterns in the e-learning research community. Design patterns are all about reusability, which seems to be the key word in achieving the economies of scale for developing affordable and usable e-learning courses (Goodyear, Avgeriou, Baggetun, Bartoluzzi, Retalis, Ronteltap, et al., 2004) in a more effective way. Researchers and practitioners in many educational fields are attracted by the potential of design patterns as means to facilitate the capturing and sharing of different aspects of e-learning design expertise, to provide a “lingua franca” for joint course design (McAndrew et al., 2005). In the specific arena of learning designs and learning objects, design patterns are frequently advocated as a powerful

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