

## Chapter VIII

# The Role of Mediating Artefacts in Learning Design

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### ABSTRACT

*The chapter provides a theoretical framework for understanding learning activities, centering on two key aspects: (1) the capture and representation of activities and (2) mechanisms for scaffolding the design process. The chapter begins by describing how information can be abstracted from learning activities via different forms of representation (models, iconic diagrams, textual case studies, etc.), which are defined here as ‘mediating artefacts.’ It discusses how different artefacts can be used to inform the process of designing a new learning activity. It provides an illustration of the theoretical arguments developed in the chapter by summarizing some of the findings from relevant research on learning design and uses the DialogPlus toolkit as a case study and example of a mediating artefact that can be used to support the design of a learning activity. The toolkit includes examples of learning activities (i.e., representations of activities as outlined in 1 above) as well as guidelines and support (i.e., mechanisms for scaffolding the design process as outline in 2 above). The chapter argues that this approach to learning design, which centres on the concept of mediating artefacts and their role in the design process, can be used as a descriptive framework for describing the dynamics, processes, and different aspects involved in learning design.*

### INTRODUCTION

Technological innovations and new tools continue to develop at a phenomenal rate. Some argue that

we may be entering a new phase in the use of technologies; particularly with the emergences of new forms of social software and what is being referred to as Web 2.0 (O’Reilly, 2005;

Weller, 2007), which has become synonymous with this more interactive, peer-generated, and collaborative Internet. Many argue that the new possibilities of these social networking tools are resulting in a fundamental shift in the way we work and learn.

Therefore, technologies have the potential to be used in a rich range of ways to support learning. We are seeing the emergence of technology-enabled spaces and adaptive technologies which offer new and exciting opportunities in terms of contextual, ambient, augmented, distributed, and social networked learning. Rich, immersive virtual environments such as Second Life (<http://secondlife.com/>) are exciting educators in terms of the possibilities they offer for learning. Second Life, as an interactive, real-time, 3D world enables participants to move around the space and interact with objects and people (Stevens, 2007). Over 100 educational 'islands' have been created to date to explore the potential of this environment in an educational context. Recent research on students' experience of using technologies shows that many are very comfortable in this technology-enriched fast moving environment (Conole, de Laat, Darby, & Dillon, 2006; Conole, de Laat, Darby, & Dillon, 2008; Creanor, Trinder, Gowan, & Howells, 2006; Kennedy, Krause, Judd, Churchward, & Gray, 2006). Google, Wikipedia, e-mail, and MSN chat are listed as core tools to support students' learning; although it is still unclear to what extent students are using these in the most effective ways for learning purposes. Today's students are sophisticated users who appropriate the technologies to their own needs. The implications for educational institutions both in terms of the technological infrastructure we provide and the way in which we support learners are profound. Now more than ever course designers need guidance in producing learning activities which take account of these changes and maximise the potential technologies offer.

Despite these exciting possibilities, examples of truly innovative forms of learning that har-

nesses the affordances new technologies offer are still rare (Conole & Dyke, 2004; Gaver, 2006; Gibson, 1979). A disappointing aspect of current practice when using new technologies is that it often seems to offer more of the same, replicating or mirroring existing practice in the new medium rather than exploiting the opportunities of creating a truly new learning environment and associated experience.

This problem of the mismatch between the potential of new technologies and their actual use is well known. Conole, Oliver, Falconer, Littlejohn, and Harvey (2007) have argued that there is a gap between the potential of technologies to support learning and the reality of how they are actually used and that this is due to a lack of understanding about how technologies can be used to afford specific learning advantages and to a lack of appropriate guidance at the design stage:

*Practitioners have a multitude of learning theories that guide the development of learning activities. ...In addition, ...there is a rich variety of ICT tools that can be used to support the implementation of these. Despite this, the actual range of learning activities that demonstrate specific pedagogic approaches (such as constructivism, dialogic learning, case- or problem-based scenarios, or socially situated learning) and innovative use of ICT tools is limited; suggesting that practitioners are overwhelmed by the plethora of choices and may lack the necessary skills to make informed choices about how to use these theories. (Conole et al., 2007, p. 101)*

Its cause is due to a range of interconnected issues including technological (immature tools, lack of interoperability, etc.), organisational (barriers and enablers to uptake, cultural barriers), and pedagogical (lack of understanding of how to apply esoteric educational models or frameworks). More often than not, designers do not have the appropriate expertise in advanced design methods or a deep enough understanding of the potential

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