

# Chapter 68

## The Agile Hour in a Virtual World: Teaching Agile Methods with Open Wonderland

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### ABSTRACT

*Multi-User Virtual Environments (MUVes) are the subject of increasing interest for educators and trainers. In the context of software development, they are beginning to see increasing use both as learning spaces and as a richer means of collaboration for virtual teams. This chapter reflects on a project that developed and evaluated a virtual agile software development workshop hosted in the Open Wonderland MUVe, designed to help learners to understand the basic principles of some core agile software development techniques. The work took a design-based research approach, following a reflective path of development through two major iterations. The authors trace the research process from a real world implementation of the “agile hour” workshop to its virtual incarnation, describing the design philosophy and the constructed virtual artifacts. They conclude by reflecting on the insights into learner perceptions and practical implementations gained from building and evaluating the Open Wonderland workshop.*

### INTRODUCTION

Interest in virtual worlds by educational organizations is growing as they explore ways to gain advantage from these online environments. The potential for collaborative, dispersed but immersive learning has only just begun to be widely explored and there appear to be many opportunities

to deliver interactive education in cost effective and innovative ways using Multi User Virtual Environments (MUVes) (Schultze et al., 2008).

This chapter reports on a research project that seeks to translate an existing face-to-face workshop on agile software development into an online interactive learning experience based within a virtual world. Although the face to face

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workshop is designed to address the needs of both students and professionals, the virtual world implementation described here is evaluated in the context of tertiary education. In this chapter we chart the journey through two iterations of development. The project takes a design-based research approach that supports a theory based, iterative cycle of learning through the development and experimental phases of the workshop.

The workshop is used to explore the roles of different agile techniques in software development and enables us to explore the concept of utilizing a MUVE in a virtual learning situation. Using an established workshop as the focus of the experiment allows us to draw on the experiences and expertise of the team member involved in creating, developing and delivering the original material. This supports a more accurate distinction between challenges created by the delivery method and issues that might be attributed to the workshop content.

This chapter reports on our experiences of building and evaluating the workshop environment in the Open Wonderland MUVE. The contribution of the research lies in two areas. Firstly, we have evolved and carried out preliminary empirical testing of a conceptual framework that informs virtual world learning. Secondly, we offer findings from the evaluation of the learning that the developers achieved that will contribute to the growing literature on the development of MUVE learning initiatives and opportunities.

## **LEARNING IN A VIRTUAL WORLD**

The use of IT for teaching and learning purposes has generated a vast range of literature as researchers and educators seek to understand how best to use software in an educational environment. The use of technology is arguably well suited to active learning where the learning involves the accumulation of knowledge through problem

solving, understanding of the knowledge domain and discussion of the tasks achieved (Mayes & Fowler, 1999; Hadjerrouit, 2004). There has been an early recognition of the concept that if learning is to be achieved, software must be designed to make people think, with the emphasis on the task-based learning to be achieved rather than the technology (Mayes & Fowler, 1999). Similarly, Dickey (2005) recognizes that technology tools do not evoke the dynamics of the learning community but that these arise from the interplay of content, instructors and learners. This focus on the learning is further highlighted in Dalgarno and Lee's (2010) exploration of the potential learning benefits of 3-D virtual learning environments. They use the term *affordances* rather than *benefits* to underscore the argument that it is the 'tasks, activities and underpinning pedagogical strategies' that are supported by the technology and that it is not the technology that provides the learning (p. 18).

The use of virtual worlds as learning environments has given rise to a very broad range of literature from many disciplines and the need for the adaptation of frameworks to guide researchers in rethinking traditional learning approaches. Dalgarno and Lee (2010) offer a model of learning in virtual world environments that presents two broad categories of representational fidelity and learner interaction. The former addresses the quality of the learning environment such as the need to provide quality visual displays, consistency of object behaviors and, most importantly, the user representation. User avatars allow for construction of an individual's online identity, fostering confidence in their presence in the environment that contributes to their social interactions. Quality of representation also appears in de Freitas et al.'s (2010) study of immersive learning experiences where they include fidelity, immersion and interactivity as factors of representation in their four dimensional framework for exploring learning activities in virtual worlds.

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