

How Will Future Learning Work in the Third Dimension?

Martin Leidl
Research Training Group E-Learning
TU Darmstadt, Hochschulstr. 10
64289 Darmstadt, Germany
+49-6151-16-5245

leidl@tk.informatik.tu-darmstadt.de

Guido Rößling
CS Dept.
TU Darmstadt, Hochschulstr. 10
64289 Darmstadt, Germany
+49-6151-16-3510

roessling@acm.org

ABSTRACT

In this paper, we describe the possibilities of virtual worlds for educational purposes, and justify the need for special design and usability concepts for learning applications within these worlds.

Categories and Subject Descriptors

K.3.1 [Computers and Education]: Computer Uses in Education – Collaborative learning, Distance Learning

General Terms

Design, Experimentation, Human Factors

Keywords

VR, virtual worlds, awareness, social presence, second life, usability, learning management systems

1. INTRODUCTION

Virtual Worlds are currently raising much interest, especially Second Life (SL) [2]. For the first time, it seems that three-dimensional multi-user virtual environments (MUVES) have the potential to reach a broad public, due to the pervasiveness of online game technology. *Web3.d* applications like SL can be seen as an extension of Web 2.0 for a couple of reasons, such as that all content is user-generated, and access to all other types of web-content is given. Like Web 2.0, Web3.d also creates new opportunities for e-learning settings. But how should these 3D learning environments be designed to support efficient learning?

2. WEB3.D APPLICATIONS IN LEARNING

Web3.d applications offer a variety of new possibilities for e-learning applications. It is comparatively easy to generate and design visualizations and interactive content. The most important impact might be on the possibility for interdisciplinary collaboration.

One drawback of “conventional” synchronous and distributed CBT approaches is the lack of a social presence and awareness, which reduces motivation and constrains collaboration. One key feature of Web3.d applications is the use of avatars, which can help address the lack of awareness.

MUVES also have specific problems, especially concerning their application in learning contexts. Learners are often overwhelmed with the degree of freedom and hence find it difficult to cope with the navigation and interaction within the environment.

Current MUVES are not designed for learning content. Although one can include streaming media (audio and video), storing and managing documents “in-game” is still cumbersome. The import and export facilities for common file formats – e.g., Word, PDF, or PowerPoint – are currently only rudimentary.

3. CURRENT APPROACHES

Some recent approaches try to combine the features of Learning Management Systems (LMS) and MUVES. Applications like *sloodle* [3] integrate web-based Course Management Systems into virtual environments and try to benefit from both sides. They combine the improved social interaction capabilities of MUVES and the content-management qualities of LMS [4], which are more suitable for asynchronous communication, simple tests and persistent storage of related documents. A similar approach is taken by the recent release of a Drupal-SL module [1]. The variety of learning management systems and web3.d applications suggests that there will be some future development in this area.

4. DEVELOPING USABILITY CONCEPTS

Usability is an important issue, especially with regarding learning applications. The majority of current usability concepts seem to be adopted from web- and real world design rules. This is no guarantee for satisfactory results, as 3D-environments require customized concepts. Key usability concepts for MUVES have to be researched, especially concerning comprehensive approaches that connect in-world and out-of-world navigation. Collaborative interaction and content manipulation increase this challenge. This effort has to be taken, as there is high potential to be expected for future learning-concepts.

5. REFERENCES

- [1] Baheyeldin, K. Drupal Second Life Framework. <http://drupal.org/project/secondlife>, seen on March 9, 2007
- [2] Linden Research, Inc. Second Life: Your World. Your Imagination. <http://www.secondlife.com>, seen on March 9, 2007.
- [3] Livingstone, D.; Kemp, J.; Andrews, P.: Sloodle Learning System for Virtual Environments. <http://www.sloodle.com>, seen on March 9, 2007.
- [4] Kemp, J.; Livingstone, D.: Putting a Second Life “Metaverse” Skin on Learning Management Systems. Proceedings of the Second Life Education Workshop at SLCC, San Francisco, August 2006, p.13-18