Chapter 12
Web Based Authoring for Virtual Worlds Using PIVOTE

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ABSTRACT

When educators started to use virtual worlds such as Second Life to create learning exercises, the natural approach was to script these exercises using the in-world tools. However, experience with this approach highlighted a number of significant issues including the high level of skill required to create and maintain the exercises, problems of scaling, longevity and accessibility. As part of the PREVIEW project, the authors of this chapter had the opportunity to consider a new approach – where all the non-3D elements of the exercise were defined and managed on the Web.

This chapter starts with a description of the "traditional" approach to MUVE exercise design, while presenting an assessment of the problems inherent in this approach. Following is a description of the PIVOTE system from a technical, author and user point of view, including future developments and expectations. This chapter also presents two case studies of how PIVOTE has been used by different institutions.

BACKGROUND

The "Traditional" Approach to MUVE Exercise Design

Virtual worlds have led to a huge increase in the use of MUVEs for education and learning, since they make the building and scripting readily accessible to the eLearning enthusiasts and professionals within education. Often educators needed little more skill than that required to write and script a web page.

The result has been an explosion in in-world built and scripted learning experiences. These typically have one or more of the following features:

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- Custom scripts in each object causing the object to perform the desired action(s) (e.g. give a note card, say some text etc.)
- Custom communications (e.g. text messages, IM, in-world email) were used to pass information/action between objects in the exercise
- Large amounts of text displayed via note cards or as images created using out-of-world tools such as Photoshop, MS Paint or PowerPoint.

Problems with the "Traditional" Approach

Whilst this "traditional" approach has been widely adopted and indeed has enabled the explosive use of MUVEs for vLearning; it is not without problems. For instance:

- A high level of skill is required to create and maintain the exercise
- Maintaining complex exercises becomes increasingly difficult
- The exercise is not necessarily available to those without access to the MUVE
- There is a dependency on that particular MUVE, and the investment in the exercise may be wasted if the institution moves to another MUVE
- The exercise operates in isolation from the organisations Learning Management System (LMS) or Virtual Learning Environment (VLE).

Let's look at each of these in turn.

1. Skill Level

Whilst scripting languages are relatively simple by programming language standards, they are still undoubtedly computer languages. The coder has to be aware of issues such as:

- Defining and typing variables
- Flow control
- Command key words and line structure
- Line terminating characters
- World unique functions
- States and subroutines

As such, they are not going to be easily learned by those without an interest in, or aptitude for, computer programming.

Even the process of creating (and maintaining) scripts and note cards takes a certain understanding of the way that the world works. For instance in Second Life, each object holds its own instance of each script and note card so you must update each individually. In worlds such as the now defunct Metaplace, scripts and similar resources were centrally referenced.

Even simple text displays can be hard to create in some worlds. For instance ActiveWorlds has a relatively simple script command to place text on a prim; there is no such simple method in Second Life. While users can create "floaty text" in a single font above a prim, to place text on a prim requires either the use of: a texture created in Photoshop or other similar graphics software, media and shared media streams, or Xytext (prim based alphanumeric character displays), none of which are intuitive to the average educator.

While learning to build in a world like ActiveWorlds or Second Life is considerably easier than using a package such as 3D Studio Max, it is also something that takes a while to learn, and even more time to become proficient at. It is, in theory, possible to share learning exercises created in Second Life, however the vagaries of that world's permissions and grouping systems mean that this rarely happens with other than the most simple of builds.

2. Maintenance

It is one thing to create an exercise in a virtual world, but quite another to maintain it over the