Assessing students in Second Life with scripted chatbots

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This paper presents a method of constructing simple assessment tasks in the online 'virtual world' of Second Life. While e-learning has been embraced in recent years,
e-assessment is still a developing area (Crisp, 2007, 2009). However, the increasingly collaborative and distributed nature of the internet is providing new opportunities to design assessment tasks that enable students to be creative in their responses and to provide evidence of deep and holistic learning. Virtual worlds such as Second Life offer new opportunities for authentic learning and assessment activities, and teachers have been examining the new affordances provided by such tools in higher education (de Freitas, 2008). Second Life provides an interactive online environment in which students can create representations of themselves (known as avatars) that can 'interact' with virtual objects and landscapes in a manner reminiscent of online games. Virtual objects can be created and programmed to respond to keywords or phrases, and thus to interact with students' avatars in an 'intelligent' or responsive manner. Such technology can be used by teachers to create interactive learning or assessment activities, but this currently requires significant programming experience. However, the authors have created several examples of simple objects in Second Life that respond to the approach of an avatar by asking the avatar a question, leading it to make a selection from a menu. Depending on the avatar's response, the object then presents further options. The avatar's responses can be archived in Second Life for assessment purposes. This project is in the early stages of development, but a promising start has been made. The development of simple objects that allow teachers with little or no programming experience to readily construct simple assessment scenarios for students within virtual worlds will allow more complex assessment tasks to be provided in these environments, and ultimately more productive learning and assessment.

Keywords: e-assessment; Second Life; virtual worlds
Theme: innovative assessment: opportunities and challenges

Introduction

While e-assessment is a developing area in higher education, it has taken a while for innovations in e-learning to be applied to the equally important area of assessment (Crisp, 2007, 2009). The new affordances associated with the collaborative and distributed nature of the internet have provided new opportunities to redesign assessment tasks so that students can be more creative in their responses and to provide evidence of deep and holistic learning. Second Life has become quite popular in educational institutions, as it provides an interactive environment where students can create an interesting representation of themselves (as an 'avatar') and then explore objects and landscapes in a manner reminiscent of online games. Virtual worlds like Second Life offer new opportunities for authentic learning and assessment activities, and educationalists have been examining the new possibilities provided by 'serious games' in higher education (see, for example, de Freitas, 2008).

One of the interesting developments within virtual worlds has been the construction of virtual objects that can 'interact' with users in an 'intelligent' and responsive manner. Artificial Intelligence Mark-up Language enables e-learning designers to create interactive activities in virtual worlds, where an object, named a 'chatbot', can carry out 'conversations' with a student's avatar. These chatbots can be scripted to respond to key words or phrases and provide an environment where an internet user can carry on a semi-structured conversation. Responses from the chatbot are built up over a period of time and can provide the impression of a unique 'personality' to the chatbot. One of their current disadvantages, however, is that university teachers need significant experience in scripting in order to develop useful learning or assessment activities for students.

Results

This presentation discusses the construction of an island in Second Life called Transforming Assessment (http://slurl.com/secondlife/transforming%20assessment/254/254/23), which contains numerous examples of assessment tasks that utilise a variety of specific techniques, including chatbots and the Sloodle set of tools (Kemp, Livingstone & Bloomfield, 2009). We examined the ability of a scripted simple object to present an assessment task to students, initially using a Pandorabot; also by using scripts based on the Second Life scripting language; and finally by developing an interface with Moodle (written in php), allowing a teacher to type in text that has been pre-assigned a path in a sequence of branched responses.

We have created a simple object (prim) that responds to the approach of an avatar by asking the avatar a basic question, leading the avatar to make a selection from a simple menu of key words. The prim then presents further options to the avatar depending on the choice the avatar has made. The choices that the student makes through their avatar can be archived in Second Life for use in marking assessment responses. In this way we have shown that it is possible to present a simple set of assessment tasks to students within Second Life. The main issue encountered is the complexity in writing the scripts for branched responses. We used the Sloodle tool set to link assessment items in Moodle with Second Life (Kemp, Livingstone & Bloomfield, 2009). We therefore also examined the possibility of writing a simple interface in Moodle that would allow branched responses from a prim in Second Life to interact with an avatar.

In this presentation we demonstrate how this interface works and what a simple branched assessment task might look like in Second Life. Providing teachers with simple interfaces between learning management systems such as Moodle, and virtual worlds such as Second Life, shows significant promise for learning and assessment activities that will engage students in authentic activities. This project is in the early stages of development, but a promising start has been made. The development of simple interfaces that will allow discipline teachers to readily construct branched scenarios for students within virtual worlds will allow more complex assessment tasks to be set and a more productive alignment of learning and assessment.

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