



## Recent developments in virtual worlds and their potential impact on their use in higher education

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Educators have been quick to spot the affordances of virtual worlds (VWs) for authentic learning, distance education and for creating community among students. Though the affordances for many disciplines are obvious, there have been significant barriers to the widespread adoption of virtual worlds in the higher education sector. This paper examines some of the recent developments in VWs, user interfaces and company policy that may have a significant impact on the uptake of VWs. Some of these developments include simplification of user interfaces, increased options for VW hosting and changes in pricing policy. Future developments such as the advent of Microsoft's Kinect and the availability of VW apps for both Apple and Android devices are also considered.

Keywords: virtual worlds, Second Life, Kately, OpenSim, Multi-User Virtual Environments

### Introduction

With the widespread availability and accessibility of Virtual Worlds (VWs), educators are no longer restricted to the physical and geographical limitations of their institution, community, state or even country. Just about anything that can be conceived can be created in a virtual environment. VWs enable educators to leverage social connections and learning methodologies in order to transform basic approaches to learning and communication. Generational, professional, historical or gender gaps become obsolete in an environment where users cooperate to create knowledge and experiment with identity in collaborative spaces. Users, via their avatars, learn how to solve problems in the design by means of creation and modification of their own content. This intrinsic culture of participation suffused with pervasive learning makes VWs dynamic and stimulating learning environments (Ondrejka, 2008: p. 229). In spite of the obvious potential of VWs to address many of the issues around authentic learning, distance education and the formation of student community, the uptake of virtual worlds in higher education has been piecemeal and limited. This paper investigates some of the recent developments in virtual worlds which may impact the perceived barriers around their wider adoption.

A Virtual world (VW) is a computer-, server- or internet-based virtual environment that allows participants to move around and use various forms of communication (text chat, voice chat or instant messaging). It allows participants to create a virtual identity which persists beyond the initial session (Maher, 1999: p. 322; Ritzema & Harris, 2008: p. 110). The term was coined by Chip Morningstar and F. Randall Farmer in 1990 (see Morningstar & Farmer, 1991: p. 273) and is often used interchangeably with 'Multi-User Virtual Environment' (MUVE) (see Castranova, 2001: pp. 4-5). Second Life is one of the most well-known VWs probably due to the intense media scrutiny it has attracted, but many others exist such as OpenSim, Active Worlds, IMVU, Twinity and Blue Mars. VWs are populated by motional 'avatars'; the term is derived from Sanskrit and used in Hindu mythology to denote the earthly form adopted by a deity, commonly Visnu (Leeming, 2001). In VWs, this term

denotes the representation of a character, controlled either by an individual. The choice of avatar can reflect a player's personality, gender or ethnicity. It is also possible for a learner to assume a completely different identity which in itself may constitute a significant learning experience, particularly important in role-playing scenarios (Annetta, Klesath, & Holmes, 2008: p. 2). In addition, they are able to communicate with large groups of avatars (via voice- or text-chat or asynchronously with podcasting or notecards) or communicate more intimately with a single avatar (using instant messaging) (Tashner, Riedl, & Bronack, 2005: p. 6). Avatars are able to interact with and modify the virtual environment and are even able to interact beyond the confines of the VW if objects are linked to web pages (Tashner, Riedl et al., 2005: p. 6).

## Recent developments in VWs

In line with other technologies, VWs have matured rapidly in response to user demand, developments in social networking applications and with improved performance of computing hardware. Other factors have also driven these changes including potential applications, a changing economic environment and an increased familiarity with comparable virtual environments such as those encountered in Massively Multiplayer Online Role Playing games (MMORPGs) such as World of Warcraft.

### Second Life

#### *The discontinuation of the Second Life education discount*

Second Life is the most popular VW used by educators, boasting around 16 million user accounts. From the very beginning, Linden Lab, the creators of Second Life, encouraged educational institutions into the environment by offering a 50 per cent education discount on tier fees and the purchase of land. Many Australian and New Zealand universities entered the space including the University of Southern Queensland, the University of Queensland and the University of South Australia. The response was strong and a vibrant educators' community was soon established, along with the lively Second Life Educators Mailing List. From the first of January 2011, the education discount was discontinued by Linden Lab. The outcry was enormous – there were many expressions of anger and disbelief on the SLED List – and many institutions pulled out of Second Life entirely (Chapman, 2010). For example, the University of Auckland will move out of the environment once their current lease expires (Young, 2010). Two things happened as a result of this. First, many educators looked for low cost alternatives. For example, the University of Auckland increased its stake in OpenSim. OpenSim is a virtual world that looks very like Second Life but is instead based on open source software. It can be housed on an organisation's own servers or there are a number of external hosting services available. Though hosting costs are significant, they are generally less than the cost of maintaining a Second Life presence as long as the technical expertise to maintain the OpenSim instance is available. The second thing that happened was that educational institutions began to look more seriously at sharing Second Life sites. Most spaces are not used by an institution all of the time so it is practical for two or more institutions to share a space. This becomes particularly viable when considering institutions that do not share time zones.

#### *The closure of Teen Second Life*

Another significant change was the closure of Teen Second Life. Since the beginning, Second Life required that people who register be over 18 years of age due to the adult content (some sexually explicit, gambling and so on) present in Second Life. In parallel, a Teen Grid was set up with registered users between 13 and 18 years of age. Adults who wanted to work in the environment – for example educators – had to undergo rigorous security checks and were restricted to strictly circumscribed parts of the grid. Teen Second Life was closed in at the end of 2010 (Joseph, 2011). At the same time, Linden Lab decreased the required age for registrants in Second Life to 16. This was significant for higher education institutions because there had always been a problem taking first-year students into the environments as many students were just 17 years old in their first year and could not enter the environment without contravening the Second Life terms of service. This is now no longer an issue with the decrease in the age restrictions.

#### *Changes to the User Interface*

Though many saw it as a retrograde step, in March 2011 the Second Life viewer was released with two modes for use: beginner and advanced. In 'beginner' mode, the interface is much simpler with only a limited number of avatars to choose from, there are no menus, no inventory to tussle with and access to a mini-map (Nino, 2011b). To date, one of the biggest impediments to educator adoption is the learning curve associated with navigating the user interface and environment. Students have identified the difficulty of using a complicated interface as a significant issue when using Second Life (Sanchez, 2009: pp. 29-30). With the option of using the beginner mode, this problem has been significantly addressed. For most activities that students are likely to engage in, the

features of the advanced mode are not necessary. For example, most educational activities won't require students to teleport between destinations or rifle through their inventories. Time that was once devoted to interface orientations can now be redirected towards richer learning experiences. In addition, it is possible to switch between beginner and advanced modes such that students can familiarise themselves with the environment in beginner mode and switch to advanced mode once a level of familiarity and comfort has been achieved.

#### *Ease of registration*

When Second Life first came to the wide attention of the public in 2007, only some 90 per cent of users who registered went on to visit Second Life itself (Sanchez, 2009). One of the main reasons was perceived to be because of the difficulties associated with account registration. In these early days of Second Life, a user had to choose from a limited number of surnames and common first names soon became unavailable such that it could take several attempts before an account could be successfully registered. In November 2010, it became possible for Second Life users to register with a name of their choosing (Nino, 2011a). Also, users could also use a display name which could be changed as the need arose. Changes to web-based registration interface further simplified the process. Users could choose a starter avatar when they were registering via the Second Life webpage, before entering the environment. Previously they were required to choose an avatar and alter its appearance within the environment itself. A user's first minutes in Second Life are frequently stressful, and this was compounded by worrying about their avatar's appearance upon arrival when users feel most vulnerable. It also became possible for educators to post a SLurl (Second Life URL) on a webpage or in a Learning Management System to facilitate registration and to ensure that students emerge into the environment at the correct destination. When a student clicks on this link, he or she is guided through registration and when they log into Second Life, they arrive at a destination of the educator's choosing. This is helpful when students are using beginner mode as they are unable to teleport readily to other destinations.

For many institutions, Second Life remains the easiest way to access a VW and in spite of the removal of the educational discount, still is the most cost-effective way of maintaining a virtual presence, especially if there is a lack of appropriate technical expertise within the institution to maintain an alternative system. In addition, recent changes to the user interface and registration procedure have ensured that Second Life remains a popular choice for educators.

## **Kitely**

As well as there being changes in how virtual worlds operate, there are significant developments in how they may be accessed and hosted. Kately is an on-demand virtual world provider which enables users to visit the Kately website, log in with their Facebook credentials and create a private virtual world region (or 'sim') (Touchner, 2011). Currently, Kately is providing OpenSim regions but other virtual worlds will be available using this simple log in method within twelve months. As the owner of the region, a user is able to decide who can access the region – for example, a specific group or class – or it can be made public. The beauty of Kately is that an educator will only pay for the time that the world is actually being accessed. Once there are no users in there, the region closes and the server resources are directed towards a region that is in use. There are a number of advantages to this approach:

- Very little technical expertise is required; the VW is hosted externally;
- The sim owner pays a small amount per user per hour the sim is in use. Very soon there will be revenue streams available to Kately users so that it will be possible to monetise projects;
- Because each region is standalone, security issues are minimised. Only avatars that are authorised can enter the space; and
- Because Kately is using OpenSim, it is easy to upload freely available OAR files which means that educators are easily able to upload one file and create a complete environment. OAR files are readily available from a number of sources. This also makes VWs infinitely scalable with many instances of the same region able to run concurrently, allowing large numbers of students to access the region. This has been an ongoing issue for Second Life and OpenSim where only limited numbers of avatars can be in the one region concurrently.

Though Kately is already highly functional, a number of developments are planned that will enhance its usability, including increasing the number of login options to include the use of Twitter or Linked In credentials, and Learning Management System (LMS) integration. Kately is a low cost and low risk way for educators to access virtual worlds, and should ensure that secondary educators will have increased opportunities to leverage the affordances of VWs.

## On the horizon ...

The ways in which we interact with VWs is set to change. Already a number of iPhone and iPad apps are available to allow limited access to VWs including Pocket Metaverse and AnsheX Client to access Second Life, a Blues Mars app can access that VW, and IMVU2Go, Hide and Seek by IMVU, and IMVU Chat to access that social space popular with teens. As yet, because iPhones and iPad are not compatible with Flash, the interactions are limited and don't offer the full VW experience. The range is even more limited with Android devices however there is an app called Mobile Grid Client which offers limited interaction within Second Life. It can be reasonably expected that given time, a greater range of apps will become available on both platforms that will allow greater interactivity within VWs. The Microsoft Kinect flags some changes in the way we will physically interact with VWs. Already the Kinect has been hacked to allow hands-free interaction with Second Life, The Nintendo Wii Balance Board was similarly hacked to allow hands free movement in the virtual environment.

With changes discussed including changes to the Second Life pricing and age structure, user interface and registration, the emergence of new hosting models as with Kitley, and the increased range of devices able to access virtual worlds, it seems likely that VWs will gain more traction within higher education, educators keen to exploit the unique affordances these environments deliver.

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