An Analytical Summary of Use of three-dimensional (3-D) immersive virtual worlds in K-12 and higher education

In their research, Khe Poon Hew and Wing Sum Cheung (2010) reviewed the past empirical research on the use of three-dimensional immersive virtual world in education settings such as K-12 and higher education. Although great amount of research has been done, there were many concerns regarding the use of virtual worlds by students and teachers, types of research methods applied and on what research topics have been conducted on virtual world in teaching and learning, as well as their research findings. Thus, the purpose of this paper is to review past empirical research studies on the use of 3-D virtual worlds in education settings using an avatar.

From their research, they found out that virtual worlds can be utilized as: "communication spaces, simulation of spaces (spatial) and experiential spaces (acting on the world)" (p.1). The authors suggests that "3-D virtual worlds can offer an incomparable environment for creating spaces where teachers and leaners, who are separated by distance, can engage in social activity of learning". In simple words, it analyses the different ways by virtual worlds can be used by students and teachers.

Focused Analysis of Avatars in Virtual World

One key concept in this article was "avatars", which is the key to enter the virtual world through spaces as if they were walking or in some cases flying. Although there were other key concepts as well, this was focused because; it acts as a medium or as an object to enter the 3-D virtual world. Although the authors preferred to use the key term *avatars in virtual world* to refer to this concept, they included the terms *direct visual Interaction, avatars that serve as virtual* representations and *creation of a sense of telepresence* (p.12).

According to Dickey (2005a), avatars serve as a virtual representation of users and an interactive chat tool for users to communicate with one another (p.2). An avatar is the user's screen persona. The authors cited several sources based on the use of avatars in virtual world helps enable direct interaction with 3-D environment and with other avatars of the virtual world (Bailey and Moar, 2001), engaging in social activity of learning (Bronack, Riedl & Tashner, 2006), giving users to display in real-time, nonverbal communications cues such as gesture and emotional states that facilitate the communication (Peterson, 2006), virtual worlds are open ended environment in which people design and create the world and their behaviours(Delwiche, 2006), many examples of virtual worlds are also mentioned such as *Active Worlds* (Activeworlds Inc, Las Vegas, Nevada), *Second Life* (Linden Lab, San Franciso, California), *OnLive! Traveller* (Digital Space Corp., Santa Cruz, California), *Croquet* (Croquet Consortium Inc., Durham, North Carolina) and *There* (There Inc., San Mateo, California). Finally, they state that the metaphors behind the design of virtual worlds are quiet diverse, from replication of real universities to other planets (Prasolova-Forland, 2008)

Language Pattern Analysis

To refer to the concept of avatars in virtual worlds, Khe Foon Hew and Wing Sum Cheung (2010) used the noun phrase to create most of his key terms. The most common key term is *avatar in virtual world* with the head noun *avatars* connecting the whole term to its concept and the adjective *virtual* conceptualizing the use. However, other key terms were more complicated noun phrases with modifiers, especially adjectives and prepositions.

> *avatars that serve as **visual** representation* (one adjective) and,

> *avatar appearance, avatar posturing and gestures* (two adjective clauses)

This is the most important thing about this topic was how the adjectives add themselves to the readers understanding. That is, virtual world is an imaginary world (which is not real) and avatar (representation on one self). It seems that academic writers use adjective clauses and their modifiers to define and complicate concepts.

Pursuing a Line of Inquiry

I am interested in how the communicational space and simulation of space effects the use of students and teachers in their daily life because, research overall seems to suggest that the students liked using the virtual worlds as it the ability to fly and move around freely in a 3-D space, to socialise and meet new people and to experience virtual field trips and simulated experiences (p.10). Both the communicational space and simulation are interrelated to each other as one relates to person to person or person to avatar interaction and the other relates to simulating a virtual space around an object. The combination fits perfectly with each other as they combine to form a whole new 3-D virtual experience. I would like to the do research on the sociocultural factors influencing the use of virtual world. Research should be made to examine cultural difference in social learning versus solo learning. So far only 87% of the students were involved from countries in North America and Europe; the research should include students across Asia as well. Lastly, the authors mention that this technology is being disliked by students as it was inaccessible through older computers. Why isn't this technology difficult to reach all the platforms of computers? Does it only work on high-end computers?