웹에서의 3차원 가상현실 세계 - 사이버스페이스의 새로운 문화
VR Worlds on the Web - Another Culture in Cyberspace

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Introduction

The term 'multimedia' has been one of the most pervasively used terms for the last a few years. Dyrli and Kinnaman(1995) define multimedia as "the seamless digital integration of text, graphics, animation, audio, still image, and motion video in a way that provides individual users with high levels of control and interaction". Multimedia, computer-generated media as what digital implies, provide us with realistic sensory effects in an interactive way.

Multimedia became the foundation for the emergence of the concept, *virtual reality*, in the 1980's. Virtual reality, too, refers to computer generated environment with and within which people can interact, and it was induced through various *science fictions*, NASA, and *military researchers*. Virtual reality, widely recognized as a reality technology, is still in its infancy. However, one thing that may be confirmed with time is the tendency that, as the technology develops, the interface will evolve and become less blundering, and then it will reach its goal of being proximate to *the reality*.

The evolution of 3-dimensional VR on the web

Cyberspace and virtual reality, two concepts which came out about the same time and have been so closely connected to each other that many people seem to suppose they mean the same thing. Marcos Novak (1995) contends the difference is that virtual reality is the enabling technology while cyberspace is the content.

Multimedia communication in cyberspace, digital world, is in developement toward the ultimate goal of its operation through the Internet. Recently there has been research in developing virtual reality in the World Wide Web, with hopes of bringing a three-dimensional (3D) worlds, enabled by VRML(Virtual Reality Modeling Language) programming. VRML was first introduced in 1995. VRML editors, such as SGI Cosmo Worlds and Kinetix 3D studio Max, are much like HTML editors in which the editing program converts pages into VRML code. In order to view 3D worlds we need to have plug-ins for commonly used browsers or stand-alone players. Though VRML technology has been rapidly developed in recent years, as the ultimate goal for cyberspace, the answer to the following question that William Mitchell (1995) poses as an emblematic phenomenon of the electronic information age. *Why we do leave home to go somewhere else to meet friends, to go shopping, to the library or the theater, if Virtual Reality can provide us with all the sensory stimulation we feel in the real environments?*

The closest answer so far must be the approach of Active Worlds, produced by Circle of Fire Studios. While other virtual worlds built in VRML provide just *the space* to view 3-D objects, space in Active Worlds means real estates, which is virtual territory. In other words, it gives the meaning of *the place* to virtual space, which a spatial part of the environment that one relates oneself to through his or her experience, imagination, or emotions. Each user can interact not only with the environment but also with other users as a lifelike 3D animated figure called "avatar." The concept of avatar is to support not only exploring 3D environment on the web but also meeting people from all over the world in the virtual place. Active Worlds is generated by Renderware, instead of VRML code, for a real-time rendering, which means the users are in control. Another important characteristic of rendering in Active Worlds is that Kinetix 3D Studio max, Caligari Truespace and AutoCAD can easily be converted to Renderware code.

Creating virtual environment for social activities

3D VR worlds are now in the unique position of being commercially available before being academic-

ally understood, due to its powerful interactive feature between user and his environment and also among users. Any event can take place in those 3D virtual reality worlds, such as wedding ceremonies or birthday parties. The visitors can get together and join the events or even help it by creating objects like a 3D birthday cake in cyberspace. The most intriguing sides for academic approach would be 3D virtual shopping environments, learning environments or exhibition settings so that we can contribute to the guidelines for designers to be able to create effective settings.
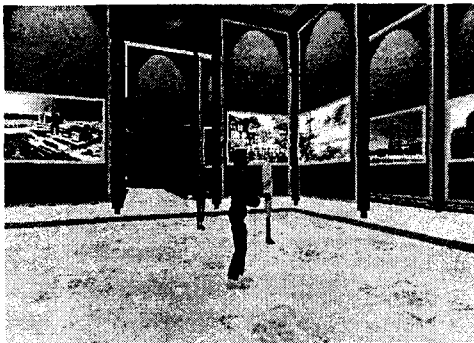

fig.1 So-Yeon Yoon's gallery show in Cyberspace
& visitors (avatars)

Since July 99, Department of Information Design at University of Ulsan, Korea, has been involved in a cyber gallery show in Active Worlds, and now working on a 3D virtual mall, which is designed to resemble a modern shopping plaza for a pleasant, enjoyable shopping experience beyond a mere purchasing behavior. Process for designing real shopping malls was adapted in the planning of this virtual mall. 3D Studio Max was used for modeling and texturing, then lighting and placing objects were set in Renderware by RWX code scripting.

fig.2 Info Plaza, virtual shopping mall

Discussion and Future Work

Currently 3D VR on the web is still in its evolution-

ary stage and yet has limitations due to dial-up and slow links to the Internet. One of the best uses for this technology is for corporate intranets. Even over a T1 line, it takes fairly long time to bring up and maneuver around, and this delay is the cause of the limitation that on-line 3D VR can only deliver humble quality in color, texture and lighting. However, as the technology develops remarkably fast, it would not take long until we experience powerful 3D environments.

As to the future urbanism, Novak (1996) asserts that there is no question about urbanism, where our cities will become our interface to a new, nonlocal urbanism in the making. City planning becomes designing data structures, construction costs become computational costs, accessibility becomes transmissibility, proximity is measured in numbers of required links and available bandwidth. We seem to enter the electronic era living at the intersection points of physical and virtual world. 3D VR worlds on the web will make fewer cases to go out.

As people spend more and more time in virtual world, different patterns will occur in the real world. There will be another culture in cyberspace whether something identical with *the reality* or something else. It is a kind of anthropology for another culture in information era we are living.

Future study will be focusing on distinguished behavior patterns in virtual environment from the reality and design criteria to develop the settings, both will be based on qualitative study methods, interviewing visitors as well as observing them.

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