Chapter 10
Social Impact and Challenges of Virtual Reality Communities

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ABSTRACT

The phenomenon of virtual reality has crossed geographical and social barriers since virtual reality applications started to be used massively by non-expert users. The development of high-cost and complex virtual reality applications for concrete domains and highly skilled users have widened its scope to the general public, which exploits the Internet to create, share, and configure virtual communities of users and avatars that transcend organizational, political, cultural and social barriers. This chapter analyses the social impact of different software platforms and environments that can be used to create virtual communities, and also how these platforms provide different collaborative capabilities among their members. The author also analyzes how virtual reality technology impacts in the creation and use of virtual communities, as well as outlining the benefits and drawbacks in a globalized context.

INTRODUCTION

The era of Internet has brought the globalization of the activities that ease the ways in which users and organizations share information and communicate each other. The enormous growth and popularity of social networks that enable the creation of virtual communities of users that share common interests is becoming a social phenomenon which transcends cultural, political and geographical barriers worldwide. Several social networks with similar and different aims (e.g.: Facebook, Tuenti, aSW, LinkedIn, MyYearbook) have achieved a great success as they count with thousands of users all around the world. Social networks form a structure made of nodes (i.e.: individuals or organizations) that are tied by one or more interdependencies such as: ideas, financial, cultural, social status, friendship and so on. Members of a social network can join or leave freely the networks to which they belong, while in other cases an invitation is required and

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approved to keep under control the virtual community. Today, social network analysis (Wasserman & Faust, 1994; Breiger, 2004; Freeman, 2004; Freeman, 2006) has emerged as a key technique of study in sociology and information science which uses collaboration graphs to illustrate the relationships between humans.

Generally speaking, users of social networks often interact using a Web portal which contains a variety of third-party applications available for the members of a given virtual community. In addition, virtual reality (VR) technology enhances communication in virtual communities by adding new on-line communication and display capabilities for virtual users. Virtual reality software for virtual communities like Second Life, provides on-line sharing and communication facilities where the virtual users (i.e.: avatars) interact in a virtual world to express their ideas, friendliness, or conflicts with other avatars. Moreover, advanced communication facilities provided by distributed Web applications constitute one of the existing challenges that are leveraging the popularity of virtual reality technology in an affordable manner. In this chapter we will analyze the characteristics and the social impact of social networks in the today's society as well as the use virtual reality technology in modern virtual communities.

BACKGROUND VIRTUAL REALITY TECHNOLOGY FOR VIRTUAL COMMUNITIES

Since Ivan E. Sutherland pioneered the computer graphics research, and implemented the first head-mounted-display (HMD) using wire-frame graphics (Sutherland, 1968), was not until 1989 when several VR developers, like Jaron Lanier used extensively the term of virtual reality to refer to computer technology that allows users to experience a three-dimensional environment which simulates the real world. Compared to traditional desktop applications, virtual reality is a complex and expensive software technology that uses special hardware devices to simulate the real world in which users are immersed in a virtual environment and they can interact with other avatars and virtual objects. Developing VR applications is not easy and flexible software architectures are needed (Capilla et al., 2008). Today, the complexity and specialization of current virtual reality applications (e.g.: military, health, simulators) has led to other type of VR applications that can be easily used by the general public, making virtual reality a massive and affordable technology for many. Presently, three kinds of applications can be used to create virtual reality communities, but this classification is continuously growing:

1. **Massively multiplayer online games (MMOG):** Are computer games that enable hundreds or thousands of players, all of the interacting in a game which is connected using Internet protocols. A wide list of different types of games is available, such as: action games (e.g.: Startport), sports (e.g.: Hattrick), building games (e.g.: Blockland), exploration (e.g.: Uru live), flight simulation (e.g.: IVAO, VATSIM), real-time strategy games (e.g.: DarkSpace), or social games (e.g.: Club Penguin, EGO, Nicktropolis, Second Life). Other subcategories can be defined under MMOG. Some of the MMOG games are free play while others required a paid subscription. In other cases, free play games include advertising or micro-transactions between players (e.g.: Ashen empires, Audition online, Bang howdy, etc). These micro-transactions encompass purchase of items or resources for the winning of the game, payment using a virtual and non real currency, bonuses, or expansion packs among others. Many of these games are commercial releases while others are still beta versions.
2. **Metaplace:** Is a software platform which brings virtual reality technology to the