

Antecedents of Online Game Dependency: The Implications of Multimedia Realism and Uses and Gratifications Theory

Kaunchin Chen, Western Michigan University, USA

Jengchung V. Chen, National Cheng Kung University, Taiwan

William H. Ross, University of Wisconsin, La Crosse, USA

ABSTRACT

Massively Multiplayer Online Game (MMOG) dependency has been widely studied but research results suggest inconclusive antecedent causes. This study proposes and empirically tests three predictive models of MMOG dependency using a survey of online gaming participants. It finds multimedia realism for social interaction serves as an original antecedent factor affecting other mediating factors to cause MMOG dependency. These mediating factors derive from Uses and Gratifications theory and include: (1) participation in a virtual community, (2) diversion from everyday life, and (3) a pleasant aesthetic experience. Of these, participation in a virtual community has a strong positive relationship with MMOG dependency, and aesthetics has a modest negative relationship. Moderator analyses suggest neither gender nor "frequency of game playing" are significant but experience playing online games is a significant moderating factor of MMOG dependency.

Keywords: Massively Multiplayer Online Game (MMOG), Multi-User Virtual Environment (MUVE), Online Game Addiction, Uses and Gratifications Theory, Social Interaction, Virtual Community

INTRODUCTION

Massively Multiplayer Online Games (MMOGs) have attracted much attention from industry analysts (e.g., Zackariasson & Wilson, 2008) as the revenues generated are enormous. For example, the MMOG *Second Life* has more than 15 million players, spending more than US \$1.5 billion in 2007 on virtual goods and

services (Sayre, 2008). MMOGs must successfully address privacy concerns because they run on multiple databases and user authentication is critical to the prosperity of the game (Kumar et al., 2008; Krotoski, Cezanne, Rymaszewski, Rossignol, & Au, 2008).

MMOG and virtual world applications offer a wealth of opportunities beyond just merely tools that offer activities for the purpose of personal leisure. For example, MMOGs may be used for distance education. Eschenbrenner,

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Nah, and Siau (2008) conducted an extensive assessment of such opportunities in education. They caution that behavioral, health, and safety issues should not be overlooked. Others (Chen & Park, 2005) have also cited behavioral problems including over-indulgence or psychological dependency on such games (Golub and Lingley, 2008). Such dependency may have negative implications for individuals and for society (Sattar and Ramaswamy, 2004), as when employees feel a compulsion to play MMOGs instead of working. Early research on computer addiction used pathological definitions and behavioral models (Young, 1996). However, recent studies suggest non-pathological dependency behaviors may also develop (Chen, Tarn, & Han, 2004).

Aside from behavioral issues in the virtual world, scholars also observe that the realistic imitation of a player's physical environment may enhance the gaming experience (Garau et al., 2003); others (e.g., Cheng & Cairns, 2005) suggest that this effect may be valid only in certain domains. For example, if a gap exists between the user interface/functionality and players' skills, players have to learn to master the user interface. Those who do not quickly master these skills could suffer (Dickey, 2005).

Thus, while many observers assume that realistic MMOGs lead to a positive user experience, others suggest that realistic MMOGs may lead to psychological changes including dependency. Given the richness of Internet media generally and MMOGs specifically, the theoretical foundations for MMOG dependency must be examined. Such theoretical foundations for MMOG dependency will help both those who are concerned about video game addiction and the video game industry to understand the underpinnings of dependency formation. The relationship between a realistic representation of one's physical environment and one's psychological experience with such artificial virtual environment offers some insights as to the extent to which user interface realism has an effect on use experience and user dependency. The present study investigates antecedent factors affecting such dependency.

The motivation of the present study is to explore the linkages between (1) software design characteristics (Multimedia Realism for Social Interaction -- MRSI), (2) psychological factors that are enhanced by those design characteristics, such as participation in a virtual community, and (3) users' psychological dependency upon online games. While others write about each of these topics separately, few authors write about their linkages (see Olson & Olson, 2003; Carroll, 1997 for historical reviews of this literature). The present paper seeks to fill this gap in the literature by exploring these linkages. Figure 1 shows possible linkages. For example, software design characteristics such as MRSI may influence a user's aesthetic experience, sense of diversion, and sense of participation in a 'virtual community' with other users; these psychological experiences, may, in turn, affect MMOG dependency either directly or indirectly. We will briefly review the literature and offer testable hypotheses regarding these possible linkages derived from 'Uses & Gratifications' theory. Then, we will proceed to test these hypotheses.

PRIOR RESEARCH AND THEORETICAL BACKGROUND

Addiction and Dependency

Excessive Internet use such as playing games has been associated with psychological or behavioral problems, including poor college adjustment (Lanthier and Windham, 2004), depression (Ybarra, Alexander, & Mitchell, 2005; Golub and Lingley, 2008), and interpersonal and financial problems (Yang & Tung, 2007). The detrimental effects to one's life, work, or relationships intensify if extensive Internet use becomes addictive. *Internet addiction* is defined "as a psychological dependence on the Internet, regardless of the type of activity once logged on" (Kandell, 1998, p. 12). Such a concept has been operationalized and investigated by Young (1996, 1997, 1998b). Chen, Chen, and Paul (2001) and Chen, Tarn, and Han (2004) have

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