



The explicit and implicit outcome expectancies of Internet games and their relationships with Internet gaming behaviors among college students



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ARTICLE INFO

Article history:

Available online 12 August 2014

Keywords:

Internet gaming addiction
College students
Go/no-go association task
Outcome expectancies

ABSTRACT

Although previous research has noted that outcome expectancies have played an important role in young people's risk-taking behaviors, few studies have focused on the characteristics of Internet gaming outcome expectancies and their relationships with college students' Internet gaming behaviors. This study combined self-report questionnaires and the go/no-go association task in examining the characteristics of the explicit and implicit Internet gaming outcome expectancies of 64 college students and their relationships with Internet gaming behaviors. The results indicated that Internet gaming-addicted college students explicitly reported more negative Internet gaming outcome expectancies than positive Internet outcome expectancies, while they unconsciously associated Internet games with positive and negative outcomes simultaneously in daily life. In contrast, the non-addicted group reported a neutral attribute toward Internet gaming outcome expectancies, while they implicitly associated Internet games more with negative outcomes than with positive outcomes in daily life. Moreover, explicit and implicit outcome expectancies did not exhibit significant correlations. Explicit outcome expectancies were correlated with present levels of addiction and indulgence, whereas implicit outcome expectancies were related to the length of time that an individual maintained Internet gaming behavior. Our findings have clinical implications. The findings can be applied to the diagnosing and intervention of Internet gaming addicts.

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1. Introduction

The Internet plays an indispensable role in modern society as the result of rapid technological development. However, college students were reported to be vulnerable to Internet addiction (Kandell, 1998). According to a report on Internet addiction among young Chinese adults (Ke & Hao, 2010), almost half of all Internet-addicted young adults (47.9%) considered Internet gaming to be their main purpose for accessing the Internet, providing an indication of Internet gaming addiction. Research has also found a close relationship between excessive Internet gaming and harmful effects, such as damaging health conditions, disruption of real-life social relationships and academic achievement (Charlton & Danforth, 2007; Kelly, 2004; Peters & Malesky, 2008;

Smyth, 2007), and increasingly aggressive behaviors (Grüsser, Thalemann, & Griffiths, 2006), even leading to criminal tendency (Ke & Hao, 2010). Therefore, problematic or addictive Internet gaming behavior among college students is a growing concern worldwide (Christakis & Moreno, 2009; Christakis, Moreno, Jelenchick, Myaing, & Zhou, 2010; Lam, Cheng, & Liu, 2013).

A notable explanation for young people's risk-taking behaviors despite warnings concerning the dangers is that the anticipated positive consequences outweigh the possible negative outcomes (Fromme, Katz, & Rivet, 1997). A large number of studies on substance abuse have suggested that the beliefs and perceptions that young people hold about the positive and negative outcomes of drugs or alcohol use play critical roles in their decisions to initiate and maintain these behaviors (Goldberg, Halpern-Felsher, & Millstein, 2002; Johnston, 2003). For example, some studies have demonstrated that the behaviors of college students who are continually involved in problem drinking or drug use are the results of expectations of positive or beneficial outcomes from such behaviors (Fromme, Stroot, & Kaplan, 1993; Goldman, Brown, & Christiansen, 1987).

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1.1. The relationship between outcome expectancies and substance use

Because research has suggested that people who are addicted to Internet gaming have similar experiences associated with substance-related addictions (Ko et al., 2009; Mehroof & Griffiths, 2010; Young, 2009), we might first consider studies on substance use as examples. The previous literature has documented that excessive use of nicotine (King, Rothman, & Jeffery, 2002), alcohol, and drugs (Goldman, Del Boca, & Darkes, 1999; Jones, Corbin, & Fromme, 2001; Sher, Wood, Wood, & Raskin, 1996) is related to outcome expectancies. Research conducted in adolescents, college students and adults has resulted in a consensus that positive outcome expectancies can predict substance use behaviors (Fromme et al., 1993; Fu, Ko, Wu, Cherg, & Cheng, 2007; Leigh & Stacy, 1993; Pieters, van der Vorst, Engels, & Wiers, 2010). However, the findings concerning negative outcome expectancies have remained conflicting. Some researchers have suggested that negative outcome expectancies have no predictive effects on alcohol use (Pieters et al., 2010), whereas other researchers have demonstrated that negative outcome expectancies could negatively predict alcohol use (Thush et al., 2008). Some researchers have even found positive relationships between negative outcome expectancies and substance use (Mann, Chassin, & Sher, 1987; McMahon, Jones, & O'Donnell, 1994).

1.2. The relationship between outcome expectancies and Internet/Internet gaming behaviors

Recently, researchers have extended the findings of outcome expectancies in substance abuse to Internet use and other behavioral dependences of young adults. However, compared with studies on substance abuse, most of the research in Internet gaming field has been conducted from the perspective of examining the possible outcomes, particularly negative outcomes, that can result from Internet gaming behaviors (Liu & Peng, 2009). Research examining how young people anticipate or expect the outcomes of their Internet gaming behaviors and how outcome expectancies shape Internet gaming behaviors remains rare. To date, only a few studies on behavioral dependences with similar characteristics to Internet gaming (e.g., Internet use and/or addiction, gambling) have been conducted to explore the characteristics of outcome expectancies and their relationships with addictive behaviors. For example, one study of gambling behaviors found that pathological gamblers and non-gamblers held different viewpoints on outcome expectancies (Gillespie, Derevensky, & Gupta, 2007). Specifically, pathological gamblers anticipated both the positive and negative outcomes of gambling more greatly than non-gamblers. They believed that gambling is enjoyable and exciting and makes money while also disrupting relationships (Gillespie et al., 2007). Similar results were found in Wickwire, Whelan, and Meyers' study (2010), which suggested that normal high school students held both positive (e.g., material gain, positive self-evaluation) and negative (e.g., negative social consequences, parental disapproval) outcome expectancies of gambling.

Regarding the relationship between positive/negative outcome expectancies and addictive behaviors, LaRose and colleagues found that positive and negative outcome expectancies could shape people's Internet usage. Expectations of positive outcomes were positively correlated with college students' Internet usage (LaRose, Mastro, & Eastin, 2001). These authors' findings on positive outcome expectancies were consistent with previous research on Internet gratification, which suggested that young adults' online behaviors could be predicted by the anticipation of positive outcomes, such as entertainment or social utility (Charney & Greenberg, 2001; Johnson & Kaye, 2003). Such findings were also supported by later studies on gambling (Wickwire et al., 2010).

Turning to negative outcome expectancies, the findings have been fewer and more conflicting, compared with the research on positive outcome expectancies. LaRose et al. (2001) and Wickwire et al. (2010) found negative correlations between the expectations of negative outcomes and Internet usage or gambling, whereas negative expectancies failed to demonstrate a significantly negative relationship with Internet use in Eastin's study (2005). In addition, a study of Internet addiction that examined normal college students even found a positive relationship between negative outcome expectancies and Internet addiction (Lin, Ko, & Wu, 2008). The author explained that because Internet use represents an important portion of college students' daily lives and academic work (e.g., online information searches or downloading of academic documents), students might feel encouraged to use the Internet extensively, despite acknowledging the possible negative outcomes (Lin et al., 2008).

1.3. Unaddressed issues of Internet gaming outcome expectancies

Despite abundant research having discussed the characteristics of outcome expectancies and their important relationships with the risk-taking behaviors of young adults, there are several issues that remain unaddressed. First, most of the previous research regarding outcome expectancies has been performed in the field of substance use and behavioral dependence, such as Internet addiction or gambling. However, in the field of Internet gaming behaviors, most of the research has been conducted from the perspective of examining the outcomes, particularly negative outcomes, that result from Internet gaming behaviors (Liu & Peng, 2009), rather than examining how young people anticipate or expect the outcomes of their Internet gaming behaviors. Although Internet behaviors and gambling share many similarities to Internet gaming, there should be different characteristics of Internet gaming outcome expectancies. Therefore, it is vitally important to undertake studies examining the specific characteristics of Internet gaming outcome expectancies in young adults.

Second, the relationships between outcome expectancies and Internet gaming behaviors are unclear. Research into both substance abuse and behavioral dependence has found conflict results regarding the correlations between negative outcome expectancies and addictive behaviors. Indeed, based on the previous literature, one possible reason for the contradictions with regard to negative outcome expectancies might be the diversity of the participants. For example, heavy drinkers can accumulate negative experiences as a result of their behavior. These experiences can lead them to demonstrate more negative relationships between negative outcome expectancies and drinking behaviors than their moderate drinking counterparts, who have not experienced severe negative consequences related to drinking (McMahon et al., 1994). Similarly, normal college students might feel encouraged to use the Internet extensively, despite acknowledging the possible negative outcomes (Lin et al., 2008). However, such explanations might not be suitable for Internet gaming, which is an Internet behavior that is not related to daily student life or to academic work and which can also have more severe negative outcomes.

Another possible explanation for the ambiguous results regarding the relationships between negative outcome expectancies and substance abuse or excessive Internet behaviors is the problems related to research methods that use self-reporting questionnaires, for example, problems with self-representation and experimenter demands (Jajodia & Earleywine, 2003). It is highly possible that people "report" negative outcome expectancies of excessive or addictive behaviors consciously; however, they persist with such behaviors unconsciously for other reasons. Research that relies exclusively on self-reported questionnaires is not sufficient to draw definitive conclusions regarding this issue. An instrument

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