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A comparison of 'psychosocially problematic gaming' among middle and high school students in China and South Korea

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ABSTRACT

This is the first study to compare the prevalence and predictors of problematic online gaming among middle and high school students in China and South Korea. Specifically, this study seeks to cross-culturally compare the impact gaming time, game genre, leisure environment, parental attachment, parental mediation and relationships with significant others have on 'psychosocially problematic gaming' (PPG). In total, 3,109 students residing in five major cities in China and South Korea were sampled. Overall, more than twice as many Chinese respondents (30.4% vs. 11.4%) were found to be psychosocially problematic gamers (PPGers). In both countries, more males than females are PPGers. Few differences were found regarding preferences for game genre. Students in both China and Korea liked MMORPG, Sports/Racing, and Shooting games. In both countries, game playing time and game use after midnight were found to be important predictors of psychosocially problematic gaming. With regard to game genres, MMORPG games for South Korean respondents and Action games for Chinese respondents increased the likelihood of psychosocially problematic gaming. However, the leisure environment had little effect. As expected, parental attachment and mediation affected psychosocially problematic gaming among Chinese students but, surprisingly, not among South Korean students. Nevertheless, prosocial bonds with parents, friends, and teachers did significant protect against psychosocially problematic gaming in both countries. Based on these findings various prevention measures are suggested.

1. Introduction

For adolescents in China and South Korea, online gaming has become a centrally important sociocultural practice (Jin & Chee, 2008; Szablewicz, 2016). Not only do teens in both East Asian societies forge and maintain essential peer associations through online gaming (Bax, 2014b; Chee, 2006), but gaming is also an important avenue through which they relieve stress stemming from excessive educational demands and maladaptive home environments (Bax, 2016; Mo & Kim, 2014). Despite the positive prosocial functions of gaming (Steinkuehler & Duncan, 2008), mental health professionals, public figures, teachers, and parents in China, South Korea, and elsewhere in Asia have rightly expressed concern about the negative physical, psychological, interpersonal, and social side effects of online gaming. As a result, it has become increasingly popular in East Asia (and elsewhere) to interpret the adverse consequences of gaming through a combined pathological and medicalized discourse using terms such as *Internet addiction* (Young, 2011), *Internet addiction disorder* (Tao et al., 2010), *smartphone addiction* (Kim & Jeong, 2015), *pathological use of Internet games* (Kwon, Chung, & Lee, 2011), and *Internet game addiction* (Ha, 2017).

Despite facing similar concerns over gaming and being linked geographically, historically, and culturally, no study to date has compared China and South Korea in terms of the prevalence and predictors of excessive or problematic Internet game use. Comparing these two countries is important, because in both, negative consequences are of great concern to various "authority figures." It is expected that based on the comparison, the similarities and differences between factors influencing gaming use among adolescents in China and Korea will emerge.

Therefore, this study helps to address this knowledge deficit by analyzing and comparing the prevalence of what the authors call *psychosocially problematic gaming* (or *PPG*) among groups of online

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gamers in China and South Korea. The analysis that follows classifies gamers according to (1) Platform (PC versus mobile gamers), (2) genre (massive multiplayer online role-playing game (MMORPG), Simulation, Shooting, Action, Serious, Causal, and Sports/Racing), and (3) time (before versus after midnight). More important, this study analyzes the impact of parental attachment and parental mediation on PPG. In particular, this study seeks to better understand how the relationships between Chinese and South Korean adolescents and significant others contribute to increasing or decreasing PPG.

1.1. Gaming environments in South Korea and China

Like many parts of the contemporary world, South Korea and China have witnessed the emergence of the immersive "era of connectivity" from Internet-enabled technologies with the rapid growth of smart mobile devices powering the burgeoning sharing economy, smart homes, the Internet of Things phenomenon, wearable tech, and the online gaming market (CNNIC, 2017). To capture and hold consumers' attention, tech companies ranging from Facebook to NetEase employ sophisticated behavioral science techniques to make their products as "irresistible" to consumers as possible (Alter, 2017). According to a recent survey by the Korea Creative Content Agency, 85% of South Korean teens play online games (KOCCA, 2016). Of these, 60.5% play PC games and 70.4% mobile games. The average daily time spent playing PC games was 90.9 min on weekdays and 158.0 min on weekends, while for mobile gaming it was 75.2 min and 114.4 min respectively. According to the National Youth Policy Institute (2009), approximately one in ten adolescent gamers in South Korea, or 13.4% males and 4% females, can be classified as "potential and high risk users" (National Youth Policy Institute, 2009). With over 90% of middle and high school students in South Korea using smartphones (Korea Information Society Development Institute, 2016), mobile gaming is very popular among both male and female students.

Despite currently lacking South Korea's IT infrastructure (Che & Ip, 2017; Ministry of Science, ICT and Future Planning, 2015), widespread immersion in gaming is also observed in China. There are currently 750 million Internet users, 700 million mobile Internet users, and 642 million non-Internet users in China (CNNIC, 2017). Almost 60% of all Internet users and half of mobile users play online games (by comparison, about 45% of Internet users read literature online). In 2016, 20% of all live broadcasting was of live game streaming (CNNIC, 2016). By December 2016, approximately half (45.8%) of the newly added netizens were aged less than 19 years, 80.7% of whom use mobile phones to access the Internet. These trends reflect the rapid growth of mobile Internet use and continued penetration of Internet and mobile technologies into younger age groups, such as those aged less than ten years. According to Gao, Gong, and Cai (2013), one in four of those aged 10–12 years and two-thirds of those aged 13–16 years participate in online gaming. Furthermore, according to a Chinese Ministry of Culture survey, approximately eight out of ten middle and high school students play online games (Chen, Wang, Chen, & Guo, 2010). Regarding the prevalence of Internet addiction, in 2009, China's National People's Congress estimated that 10% of China's Internet users aged less than 18—approximately 14 million—were "addicted" to the Internet (Sanderson, 2009). Likewise, a 2009 survey report estimated that 14.1% of all adolescent online gamers were addicted (China Youth Association for Network Development, 2010). Other estimates put China's Internet-addicted population at between 16 and 27 million, or 2.1% and 3.6% of all Internet users (Lewis, 2017). In short, claims about the prevalence of a phenomenon that lacks a valid standard measuring tool should be treated with caution.

1.2. Psychosocially problematic gaming

Despite drawing from studies that adopted the language of Internet/gaming addiction, this study has selected the less medicalized and more sociological term PPG. This study draws from the definition of behavioral addiction by Alter (2017). PPG arises when a gamer experiences difficulty resisting game play, which despite addressing a psychological need in the short term, produces psychological, interpersonal, and social harm in the medium to long term (Alter, 2017). Specifically, this study also draws from the term "problematic gaming" proposed by Demetrovics et al. (2012), which is based on recognizing that gaming behavior is "excessive" and the presence (psychological and social) of gaming-related problems. In addition, the six dimensions employed by Demetrovics et al. to measure problematic gaming is compatible with the seven items used in the problematic game use scale in this study. Importantly, the term PPG avoids the notions of "addiction," "disorder," or "dependency," because a precise definition and unified diagnostic criteria have yet to be agreed on. Thus, this non-pathological terminology does not signify that gamers necessarily have a psychiatric disorder; rather, gaming causes psychological, interpersonal, and sociological problems.

To measure PPG, this study draws from the problematic game use scale developed by the Korean Creative Content Agency (2010). The scale is based on a game addiction scale developed by Lemmens, Valkenburg, and Peter (2009), who define game addiction as the "excessive and compulsive use of computer or video games that results in social and/or emotional problems" (Lemmens et al., 2009, p. 78).

Based on this theoretical background, we suggest the following research question.

RQ 1 What is the extent of psychosocially problematic gamers (PPGers) among adolescents in Korea and China, and is there a difference in prevalence according to gender, type of school, and type of mobile phone?

1.3. Predictors of psychosocially problematic gaming

Although many factors are associated with PPG, this study focuses on parental variables and relationships with significant others, in addition to gaming factors such as gaming time and game genre.

Previous studies strongly associated gaming duration with gaming addiction (Hussaine et al., 2012; Wang et al., 2014; Yoon, Kim, & Park, 2014). However, the effect of post-midnight gaming has not yet been studied. This effect has increased in importance alongside the rapid diffusion of smart devices, as mobile devices now allow increasingly larger numbers of young people to play games anywhere at any time.

Previous studies also linked game genre to PPG. Reportedly, MMORPG players have a higher risk of developing game addiction (Blinka & Smahel, 2011; Wang et al., 2014). In addition to the MMORPG genre, this study explores the effects of other genres including simulation, shooting, action, serious, causal, and sports/racing on PPG.

Similarly, previous studies found certain parental factors such as parental attachment to be important predictors of PPG. For example, a warm family environment (Liau et al., 2015), parent-child closeness (Choo, Sim, Liau, Gentile, & Khoo, 2015), and perceived family harmony (Wang et al., 2014) have all been found to protect against PPG. This is largely because parental attachment enables parents to better understand, respond to, monitor, and control their children (Gottfredson & Hirschi, 1990), including their