

Addictive Use due to Personality: Neuroticism, Extraversion, & Game Addiction

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1. Introduction

Recently, games have become important contents in the cultural industry market. Game industry has been leading the growth of cultural industry in Korea. Games are used by whole generations inclusive of young adolescents and silver groups without limitation of time and space.

However, with the pervasion of gaming culture, some negative effects like game addiction have been focused on as serious social problems [1,2]. Game addiction is considered to be either a pathological disease or a disorder in users' self-regulation [1]. Although it is not yet included in the Diagnostic and Statistical Manual of Mental Disorders (5th ed., DSM-5) [3], many scholars have reported that it is likely to cause psychological and social problems with symptoms of self-control disorder [1,2,4]. Game addiction has been reported to be related to depression and loneliness [5,6]. Game addiction has been reported to be related to psychological characteristics. Among personality traits, neuroticism and extraversion have been highlighted due to their strong relationships with game addiction. The more addicted to games, the higher did show users in neuroticism [2], but the lower in extraversion [2,6].

In order to point out antecedents of game addiction, prior literature has paid considerable attention to such factors as loneliness, depression, social relationship, self-efficacy, user perception, gender, age, gaming time, and personality traits [1,2,6,8]. However, relatively little research has emphasized on the role of user personality with considerations of control variables such as psychological and social factors.

Likewise, many studies have shown that problems in social relationship are related to game addiction[5,7]. In addition, demographic variables such as gender and age, and gaming time have been reported to be associated with the degree of game addiction [1,2,4,5,6,7,8].

In studies about individual features, both user perception and parents' perception toward games have been revealed to play a crucial role in predicting the degree of game addiction [1]. In line with that, users' self-efficacy such as game and general self-efficacy has been proved to have a strong relationship with game addiction [1,6]. Furthermore, recent empirical studies have verified the significant effects of user personality traits on game addiction in various settings [2,5]. Thus, this study fills this gap by investigating the effects of personality traits such as extraversion and neuroticism on game addiction with control of psychological and social factors aforementioned.

The current study used data obtained from a survey of 789 participants in Korea. We examined hypotheses that whether personality traits (extraversion and neuroticism) affects game addiction by controlling for other factors - psychological variables (loneliness, depression), social relationship (activities with family and friends), demographic variables (age, gender), game perception (user perception and parents' perception toward games), daily gaming time, and self-efficacy variables (general self-efficacy, game self-efficacy).

2. Method

A total of 789 participants were surveyed for two weeks. Participants ranged in age from 16 to 59. In gender, men were 395 (50.1%). In age groups, considering the ratio of each age group, teens were 45 (5.7%), 20's were 160 (20.4%), 30's were 187 (23.7%), 40's were 203 (25.8%), and 50's were 194 (24.6%).

For assessing *Game addiction*, we revised Young's degree of Internet addiction scale to measure the individual a degree of game addiction by adding "gaming" to the questions(e.g., Do you try to hide how long you've been gaming?)[4,7]. The scale consists of 20 items in the form of a 5-point Likert scale. For the measure of *personality (extraversion, neuroticism)*, Big Five Personality Scale was used. The scale consisted of summed scores based on individual items set on a 5-point scale ranging from 1 (strongly disagree) to 5(strongly agree) [2]. *Depression* was measured with the CESD (center for epidemiological studies depression). The CESD is a subset of the 11-item CESD scale and has been used extensively in general populations [9].

The measure of *loneliness* symptoms were measured with the UCLA Loneliness Scale [10]. The scale consists 20-items designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. The measure of social relationship with friends and family was measured by three items. The measure considered the frequency with their friends meeting, taking and number of friends with 3 items.

We measured the participants' *perception* toward gaming by asking them to answer the question "I think that game is a good." using 5-point scales ranging from 1 (strongly disagree) to 5(strongly agree) with 4-items. We also asked the participants' parents about their perception toward gaming with 3 items. *Game self-efficacy* (online game) was created by modifying the computer self-efficacy scales. For general self-efficacy, we created scales by modifying the General Self-Efficacy scales. It contains 12 items that are rated on a 5-point scale [1].

3. Result

The average amount of time participants spent playing games each day was about 54 minutes (M=1.79, SD=1.19), with men playing for 59 minutes (M=1.95, SD=1.30) a day and women for 48 minutes (M=1.61, SD=1.03). The

average game addiction score was 46 (SD=15.90). In correlation test, there was significant relationship between game addiction and extraversion ($r=-.13$, $p<0.01$), neuroticism($r=.22$, $p<0.01$), general self-efficacy($r=.18$, $p<0.01$), game self-efficacy ($r=.64$, $p<0.01$), user perception ($r=.36$, $p<0.01$), parent perception ($r=.25$, $p<0.01$), loneliness($r=.28$, $p<0.01$), depression($r=-.15$, $p<0.01$) and daily gaming time ($r=.31$, $p<0.01$). However, family relationship and friend relationship were not significantly correlated with game addiction.

To test the hypotheses, we used a regression analysis to examine how each variable predict the degree of game addiction. Table 1 shows the results of regression analysis. The results showed that neuroticism is an important antecedent to explain the degree of game addiction ($\beta=.076$, $p<.01$) even though extraversion was not. Psychological variables were also significantly predicted the degree of game addiction. Loneliness had a significant effect ($\beta=.196$, $p<.05$) but, interestingly, depression did a negative significant effect on game addiction ($\beta=-.238$, $p<.001$). Both self-efficacy variables exhibited significant associations with game addiction: general self-efficacy showed a negative effect ($\beta=-.214$, $p<.05$) but game self-efficacy did a positive effect ($\beta=.575$, $p<.001$). However, there was not significant relationships between social relationship and game addiction. Likewise, gaming time did not show any significant effect on game addiction.

4. Discussion

This study examined the effects of user personality traits on game addiction controlling for other variables such as psychological, social, and demographic variables.

Notably, depression showed a negative effect on game addiction. We reason that there could be any mediators (or moderators) between depression and game addiction. One general explanation for the association between loneliness and game addiction is that the more people feel loneliness the higher they are engaged in virtual space in order to fill the paucity of offline relationship. Generally, different from lonely people, depressed one may have little willingness to do anything energetically. Even though one feels lack of social relationship, he/she may feel difficult to make any plan to solve the problem. Thus, there could be any moderators or mediators which activate between depression and game addiction. Some previous studies reported mixed results about the association between depression and game addiction. For example, Peng & Liu [6] suggested that preference to virtual space could mediate in the relation. Future studies need to examine any mediators between psychological variables and game addiction.

In the association between personality traits and game addiction, we found a strong effect of neuroticism on game addiction. This is in line with previous results: Neurotic people become easily anxious and furious about in hardships, thus they are likely to engage in virtual space to escape the hard situation. There was opposite direction in the effects between general self-efficacy and game self-efficacy. The more people feel conviction in their life, the less they are addicted to games. but the more they feel conviction in games, the more they are likely to be engaged in the games. However, there was no significant relationship between family relationship and game addiction. This seems because of ceiling effect in collecting data. The average number of family activities was 5.34 (max=7). More than 60% of participants checked over 5 (dialogue with parents 1-2 times a month). Future studies need to use different scales for social relationship measurement.

5. References

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[Table 1] The regression analysis results

| | Beta | t | alpha |
|-----------------------|---------|--------|-------|
| (constant) | | 1.795 | .075 |
| gender | .118 | 1.788 | .076 |
| age | .042 | .566 | .573 |
| gaming time | .111 | 1.661 | .099 |
| loneliness | .196* | 2.225 | .028 |
| depression | -.238** | -2.947 | .004 |
| family relationship | -.046 | -.725 | .470 |
| friends relationship | -.036 | -.495 | .621 |
| user' game | -.048 | -.723 | .471 |
| parents' perception | -.091 | -1.387 | .168 |
| general self-efficacy | -.214* | -2.398 | .018 |
| game self-efficacy | .575*** | 8.848 | .000 |
| extraversion | .076 | .921 | .359 |
| neuroticism | .237** | 2.815 | .006 |

R square = .760 ($p<.001$), * $p<.05$, ** $p<.01$, *** $p<.001$