

## Rapid Communication

# Personality Differences between Online Game Players and Nonplayers in a Student Sample

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### ABSTRACT

This study examines the differences in openness, conscientiousness, and extraversion between online game players and nonplayers using a student sample. The matched sample comprised 130 pairs of students, who are paired in gender and age. The results indicate that online game players reported higher scores in openness, conscientiousness, and extraversion than did nonplayers.

### INTRODUCTION

ONLINE GAME PLAY has grown in popularity during recent years. Students appeared as one important population for online game play.<sup>1</sup> Pioneering works<sup>2,3</sup> discovered the *explicit* features (demographics and favorite activities in games) of online game players, revealing a knowledge void concerning the *implicit* features. Among the implicit features, player personality (as well as motivations)<sup>1,12</sup> is a key influence affecting individual behavior over time. However, no study was found to address the personality features of online game players. Understanding the personality features of online game players can help online game service providers design their games to satisfy players more effectively.

Among various personality traits, openness, conscientiousness, and extraversion were frequently discussed<sup>4-7</sup> and also influence the motivation to learn<sup>6</sup> and training proficiency.<sup>7</sup> Individuals who are high in these traits are eager to learn and quickly master things. They are likely satisfied with having

imposed effects on the game environment,<sup>8</sup> derive pleasure from playing online games, and intend to keep playing online games. Moreover, they have high self-efficacy in dealing with complexity in games and thus have strong motivation to engage in games,<sup>8</sup> creating the differences between online game players and nonplayers.

This study addresses three personality features of online game players through an examination of the differences in openness, conscientiousness, and extraversion between online game players and nonplayers. Although frustrations in online games and real life are different, the activities required for success in online games and those in the real-world society have many features in common: various skills to be mastered, capabilities to be upgraded ("levelled-up"), team objectives to be achieved, career pathways to go through (game character development), tedious routine works to be done, enormous knowledge to be learned, and tough tasks to be accomplished (solving quests). These activities can improve job performance in the game world as well as performance in the real world.

Openness is associated with personal success. High-openness individuals are characterized as being creative, curious, broad-minded, and intelligent,<sup>9</sup> strongly motivation to learn,<sup>6</sup> and able to learn quickly,<sup>7</sup> which facilitates their mastery of new skills and the upgrading of their capabilities. High-openness individuals' broad-mindedness enables them to solve problems creatively,<sup>10</sup> inspiring trust<sup>4</sup> and assisting their game character development. High-openness players therefore have a better chance than low-openness players to achieve personal success in online games, improve their self-efficacy<sup>8</sup> and thus tend to keep playing online games. As a higher percentage of high-openness players continue to play, the average openness of online game player is increased, which increases the difference in the degree of openness between players and nonplayers.

**H1: Online game players are higher in openness than nonplayers.**

Conscientiousness is also associated with personal success. High-conscientiousness individuals are careful, organized, efficient, systematic, and self-disciplined.<sup>9</sup> They perform well in many occupational groups with various job performance criteria.<sup>4,7</sup> High-conscientiousness individuals have a strong motivation to learn<sup>6</sup> and learn things carefully, facilitating their mastery of skills and the upgrading of their capabilities. They can also efficiently do routine work and learn new knowledge systematically with patience.<sup>9</sup> They therefore have a better chance than low-conscientiousness players to achieve personal success in online games, improve their self-efficacy,<sup>8</sup> and thus tend to keep playing online games, and vice versa. The high percentage of high-conscientiousness players who continue to play raises the average conscientiousness of online game players, thus increasing the difference in average conscientiousness between players and nonplayers.

**H2: Online game players are higher in conscientiousness than nonplayers.**

Extraversion is associated with personal success, especially for occupations involving social interaction.<sup>4,7,10</sup> Extraversion indicates the degree to which a single individual is sociable, talkative, energetic, active, and ambitious. High-extraversion individuals generally engage in interpersonal interaction and enjoy such activity.<sup>9</sup> They have a strong motivation to learn<sup>6</sup> and learn things actively and energetically,<sup>9</sup> facilitating their mastery of new skills and

the upgrading of their capabilities. They are also energetic and ambitious,<sup>9</sup> allowing them to accomplish tough tasks. They therefore have a better chance than low-extraversion players to achieve personal success in online games, improve their self-efficacy,<sup>8</sup> and thus tend to keep playing online games, and vice versa. The high percentage of high-extraversion players who continue to play raises the average level of extraversion of online game players, increasing the degree of difference in this trait between the players and nonplayers.

**H3: Online game players are higher in extraversion than nonplayers.**

## MATERIALS AND METHODS

Eight hundred three Taiwanese students were approached in high schools and universities, and 591 questionnaires were collected, producing an effective return ratio of 74%. The matched sample comprised 130 pairs of students, which was used for analysis. The two students in each pair were matched by gender and age because players and nonplayers were found significantly different in gender ( $\chi^2 = 47.34$ ,  $p < 0.05$ ) and age ( $r = -0.18$ ,  $p < 0.05$ ). A matched sample was used to minimize the confounding effects of gender and age. Seventy-one percent of participants were male, and all were between 12 and 22 years of age ( $M = 16.06$ ,  $SD = 2.52$ ). Of the participants, 89% had a monthly income below U.S. \$180, while 98% had access to a computer at home, reflecting the Taiwanese student population. Participants played various online games, including international and local popular games such as *Warcraft3*, *Lineage2*, *Crazyracing*, *Rich Online*, and *Nostale*.

The items used to measure openness (creative, imaginative, and intellectual), conscientiousness (organized, efficient, and systematic), and extraversion (talkative, social, bold) came from the Mini-Marker scale of Saucier.<sup>11</sup> To maintain the patience of the participants, not all of the items of Saucier were used. The questionnaire contained items on gender, age, monthly income, and computer availability at home, and whether or not the participant currently plays online games, labeling the participant as *player* or *nonplayer*. Three traits were moderately correlated (between 0.38 and 0.52).

Cronbach's alphas exceeded 0.77 ( $> 0.7$ ). The lower bounds of the 95% confidence intervals for Cronbach's alpha exceeded 0.72 ( $> 0.7$ ). The items for measuring each construct had a composite reliability (CR) exceeding 0.82 ( $> 0.6$ ) and an average variance extracted exceeding 0.61 ( $> 0.5$ ). All indi-

cator loadings exceeded 0.5 and had a  $t$  statistic exceeding 9.47 ( $> 2$ ), supporting convergent validity. The maximal squared correlation for each pair of constructs was 0.27, below the minimal average variance extracted of 0.61, revealing discriminate validity. The measurement fit indices also performed acceptably (normed fit index = 0.93, non-normed fit index = 0.91, comparative fit index = 0.94, incremental fit index = 0.94, goodness of fit index = 0.90).

## RESULTS

Players reported a higher score on openness than nonplayers (4.90 vs. 4.56,  $t = 2.32$ ,  $p < 0.05$ ), supporting H1. Players reported a higher score on conscientiousness than nonplayers (4.77 vs. 4.27,  $t = 3.07$ ,  $p < 0.05$ ), supporting H2. Players reported a higher score on extraversion than nonplayers (4.75 vs. 4.41,  $t = 2.03$ ,  $p < 0.05$ ), supporting H3. This study also investigated agreeableness and neuroticism. Players and nonplayers did not differ in agreeableness (5.06 vs. 4.91,  $t = 1.02$ ,  $p = 0.31$ ) and neuroticism (3.75 vs. 3.68,  $t = 0.45$ ,  $p = 0.66$ ).

## DISCUSSION

This study follows and extends the research of Griffiths et al.<sup>2,3</sup> by investigating online game player features. This study is also in line with the recent research involving online games<sup>1,12</sup> in building a knowledge base for player psychology. Online game players in this study reported higher scores in the three personality traits that lead to personal success and self-efficacy<sup>8</sup> in competition, providing an explanation for the phenomenon found by Jansz and Tanis,<sup>1</sup> which demonstrated that the most committed players scored highest on motives regarding competition. Players who are high in the three personality traits have an advantage in interpersonal competition. Online games thus can meet their needs regarding competition, and they therefore become more devoted (or committed) to online game play.

This study also supports the three-component theory of player motivations proposed by Yee.<sup>12</sup> Individuals who are high in the study constructs are likely to achieve success in online games, conforming to their motivation for achievement. Their superior gaming skills and the tough challenges encountered in the games create flow experiences. Highly extraverted individuals can enjoy social activities in online games,<sup>1,3</sup> matching their social motivations.

The findings of this study suggest online game service providers provide players initial experiences of success<sup>8</sup> and then accommodate high variety, complexity, and tough tasks. The challenges, along with the player gaming skills, create the flow or the immersed experience,<sup>12</sup> further satisfying players. This study may be replicated to players of specific types of online games to obtain further insights.

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