An Examination of Gender Differences in Happiness Perceived by Japanese University Students in Games

Kazuki Okuno

Osaka Electro-communication University

1130-70 Kiyotaki, Shijonawate, Osaka 575-0063, Japan

hw20a028@oecu.jp

Masanori Fukui

Tokushima University

1-1 Minami-josanjima, Tokushima, Tokushima 770-8502, Japan

f-masanori@tokushima-u.ac.jp

Hiroaki Ohdachi

Tottori University

86 Nishimachi, Yonago, Tottori 683-8503, Japan

dachijiru0318@gmail.com

Masakatsu Kuroda

Kobe Women's University

2-1 Higashisumaaoyama, Suma, Kobe, Hyogo 654-8585, Japan

m-kuroda@suma.kobe-wu.ac.jp

Yuji Sasaki

Keio University

5322 Endo, Fujisawa, Kanagawa 252-0882, Japan.

y.sasaki@keio.jp

Keywords

gender differences, happiness, well-being, university students, covalent network

INTRODUCTION

There are approximately 3,000 million active game users worldwide (Statista, *n.d.*). Games can significantly influence users' behavior; thus, it is essential to enhance the positive effects of games and address their negative impacts. Recently, concern has been expressed regarding the association between violent games and aggression (Digital Culture 2019). Affect associated with gaming could significantly affect gamers' mental health. Therefore, it is crucial to research the effects of games on users' affect.

Happiness can be divided into "subjective" and "objective" aspects (Frey and Stutzer 2002). Seligman (1998) proposed positive psychology, which focuses on happiness. Women tend to have a higher sense of happiness than men (Diener et al. 1999). Other studies reported gender differences in happiness (*e.g.,* Chui and Wong 2016). Gender

differences in happiness regarding games have essential implications for game development.

Johannes et al. (2021) reported a weak positive correlation between game-playing duration and happiness in users playing "Plants vs. Zombies: Battle for Neighborville" and "Animal Crossing." This result refutes the conventional view that users who spend more time playing games are more likely to become addicted and experience impaired health. Veltri et al.'s (2014) review indicated similarities and differences in game selection, motivation, play behavior, and performance between men and women.

Thus, while there are studies of gender differences in happiness, gameplay, and the relationship between gameplay and happiness, no studies have assessed gender differences in happiness related to gaming. Games exist in many different platforms, genres, and play styles, and gender is unlikely the most critical factor in gaming. Nevertheless, it is essential to consider gender differences in happiness to enhance future game development. Therefore, we conducted a survey focusing on gender to clarify the status of gaming-related happiness to obtain basic knowledge for future game development.

METHODOLOGY

Survey Targets and Survey Procedure
An online survey was conducted in September 2022 among students at two private universities in Japan. There were 134 valid responses (66 men and 68 women; the valid response rate was 97.10%, 134/138). The survey was conducted anonymously. We explained to the respondents that participation was voluntary, that they would not be disadvantaged if they did not respond, and that they could stop responding at any point during the survey.

Measurement Items
We asked the following questions, where "games" denoted digital games, including smartphone games; we did not define happiness in advance.

1. What scenes in the games you have played have made you feel happy?
2. In what kinds of games have you felt happy?
3. What type of interaction (communication) in games have you played so far that made you feel glad?

Analysis
Free responses to the questions were analyzed using KH-coder 3 to create a co-occurrence network diagram. Differences in the factors that make men and women feel happy while gaming were examined. Items were selected after discussion among the authors using m-GTA.

RESULTS AND DISCUSSION
The features of happiness felt by men and women are shown in the co-occurrence network of Figure 1. We extracted from Figure 1 the characteristic elements and comments. Table 1 lists the aspects of happiness common to men and women, those strongly observed in men, and those strongly observed in women.
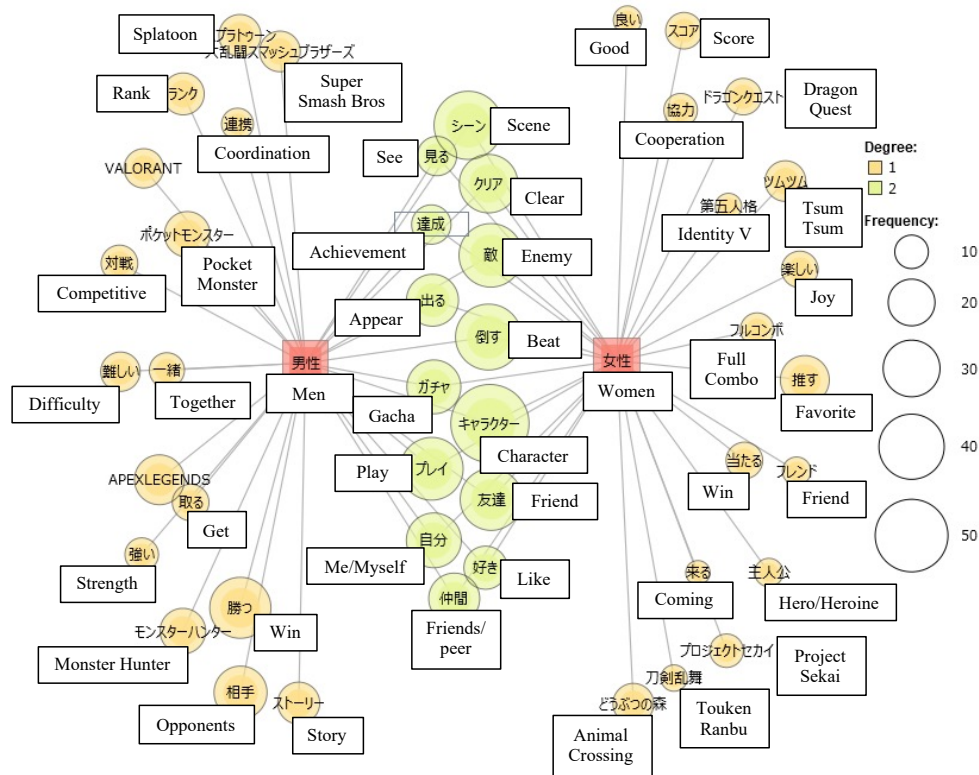
Figure 1: Co-occurrence network diagram of gaming-related happiness.

From these results, the typical responses for both men and women were "communicating with friends in the game," "getting good items and characters in the gacha," "playing the game well," and "clearing the game." Men selected "clearing difficult games" and "winning against opponents." Women tended to feel pleasure "when communicating in games with less competitive elements," "playing games with favorite characters," and "pulling out gachas related to favorite characters."

The results suggest that men and women position themselves differently when playing games with competitive elements. This can be considered a significant factor in developing games that target specific genders. Additionally, using materials that incorporate competitive and non-competitive elements may be necessary when teaching with games.

Thus, it may be feasible for game developers to use the knowledge of gender differences to increase users' well-being and interest in games. To achieve this, developers must first acquire the ability to select materials and consider elements that include gender differences.

CONCLUSION

This study investigated gender differences in happiness associated with gaming and obtained basic knowledge to inform game development and education of student developers. We found gender differences in game-related happiness and clarified the factors that contribute to these differences.

However, the study has some limitations. First, it revealed gender differences in game-related happiness based on free text descriptions but did not identify the factors contributing to these differences. In this regard, differences in happiness may be due not only to gender but also to hobbies and preferences, previous gaming experience,

duration of gameplay, the influence of other game players, and differences in gaming platforms owned by players. Examining these factors and clarifying how to promote a sense of happiness in gaming are also necessary. Additionally, conducting similar surveys in countries outside of Japan is necessary to determine whether this study's results vary across different countries. This will also help in understanding the structure of happiness in games.

Element	Element Description	Example
1. Elements Common to Men and Women		
Friends and communication	Play games and communicate in-game with friends.	- Play and chat with friends while connecting to voice chat - Play with a large group of friends together in Minecraft
Gacha to get item and character	Gacha gives you the character or item you want.	- I get a character/item I like/want in a gacha
Good gameplay	I could play well, and in a way, I had never been able to before.	- I was able to make a "god play (a good play)." or a play that I had not been able to make before. - I made a difficult combo.
Game achievement	Complete specific goals in the game, such as defeating enemies and complete the game	- Defeat the boss/enemy - complete the game
2. Elements in Men		
Online and PVP games	Work on games that focus on competing with other players online. (e.g., Splatoon, VALORANT, APEXLEGENDS, Super Smash Bros, and Pokemon)	- Defeated enemies in APEX, played with friends and won. - Beat them all in VALORANT. Won, got ranked up.
Beat their opponents	Winning against other players	- I got ranked up in Splatoon. - Killed a strong opponent. - I was praised by a friend.
Raise my rank	Raising my in-game rank	- Rank has been raised. - Reached the target rank.
Tackle difficult games	Achieve difficult in-game quests, or missions.	- When I was able to do a full combo of a difficult song. - When you perform a difficult combo. - When you conquer a difficult stage or event. - When you win a difficult battle.
3. Elements in Women		
Games with few elements of competition with other players	Working on games with less competitive elements with other players (e.g., Dragon Quest, Disney Tsum Tsum, Touken Ranbu, Animal Crossing)	- When I took a stroll, or when I won the jackpot at the casino in Dragon Quest. - When I got lucky in Tsum Tsum, got a high score, or got a character I wanted in a gacha. - When I got a new character in Touken Ranbu. - When I saw an episode of my favorite character.
Favorite characters, items, and events	Drawing in events, items, and gacha of your choice.	- A character of my choice, a recommended event/scene or a recommended item were found in the gacha.
Full combo, score in sound game	Achieving a full combo or breaking my own score, mainly in sound games and Disney Tsum Tsum.	- I got a full combo in Ensemble Stars! or Project Sekai. - Got a full combo on a difficult song in BanG Dream! - I improved my score in Tsum Tsum.

Table 1: Elements and examples of happiness.

ACKNOWLEDGMENTS

BIBLIOGRAPHY

Chui, W.H., and Wong, M.Y.H. 2016. "Gender Differences in Happiness and Life Satisfaction Among Adolescents in Hong Kong: Relationships and Self-Concept." *Soc Indic Res*, **125**, 1035–1051. https://doi.org/10.1007/s11205-015-0867-z.

Diener, E., Suh, E. M., Lucas, R. E., and Smith, H. L. 1999. "Subjective well-being: Three decades of progress." *Psychological Bulletin*, **125**, 276-302

Digital, Culture, Media and Sport Committee. 2019, *2019 Immersive and addictive technologies*. https://publications.parliament.uk/pa/cm201719/cmselect/cmcumeds/1846/1846.pdf.

Frey, B.S., and Stutzer, A. 2002. *Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*, Princeton University Press.

Johannes, N., Vuorre, M., and Przybylski, A. K. 2021. "Video game play is positively correlated with well-being," g. R. Soc. Open Sci., **8**: 202049.

Seligman, M.E. 1998. "Building human strength: Psychology's forgotten mission." *APA Monitor*, **29**(1), 1.

Statista, *Number of users of video games Worldwide 2017-2027*. https://www.statista.com/statistics/748044/number-video-gamers-world/.

Veltri, N., Krasnova, H., Baumann, A., and Kalayamthanam, N. 2014. "Gender Differences in Online Gaming: A Literature Review." *20th Americas Conference on Information Systems*, AMCIS 2014.