College Students' Perceptions of Mobile Gaming in America and Japan

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Abstract

Smartphones have been steadily rising in popularity since the mid 1990s, and have had many new features added to them since then. Among these features include the ability to download a variety of gaming applications. These games are available for free or for purchase, but often include microtransactions that can unlock downloadable content or limited-time special events. While harmless in theory, the amount of time and money spent in mobile games is becoming a social problem. In our study, we asked the following questions: How do American and Japanese college students perceive mobile games and gaming communities? How much influence does mobile gaming have on college students' lifestyle? We conducted a survey of 81 Japanese and American university students and our results show that while both Japanese and American students' perceptions are generally neutral, Japanese students lean towards a negative image with mobile gaming whereas American students lean positive. Japanese students' concerns revolved around people spending too much money on in-game purchases, and American students view mobile gaming as a casual pastime that carries only a small consequence of possibly being made fun of.

Introduction

Online mobile games create revenue through a number of different ways, one of which is in-game purchases. Mobile game developers focus on consumers who generate higher revenue; it is estimated that the mobile app store revenue will amount to $69.7 billion by the end of 2020 (Balakrishnan & Griffiths, 2018). Unlike other online digital purchase systems, an in-game purchase depends on the player's level of engagement. As long as there are players dedicated and involved enough in a game series, developers will continue to make for-purchase content.

1. Significance of Study

While studying abroad in Japan we learned that many international gamers are intimidated by Japanese gamers because of the assumption that Japanese are more skilled. We also learned that there is a social issue in Japan with spending a significant amount of time and money on in-app purchases for these games. We would like to find out how Japanese and American college students perceive mobile games and how these games affect college students' lifestyles.

2. Research Questions

How do American and Japanese college students perceive mobile games and gaming communities?

How much influence does mobile gaming have on college students' lifestyle?

3. Literature Review

3.1 Defining Mobile Gaming

There are three types of video games in the gaming industry: PC games, console games, and mobile games. PC games can be played on a personal computer or laptop. They can be downloaded from CDs or online databases, or can be accessed through an online server. Console games are played on game-specific devices such as a Wii U (Nintendo), Nintendo 3DS (Nintendo), Xbox (Microsoft), or a Playstation (SIE). Mobile games can be played on general purpose communication devices such as smartphones and tablets. The Nintendo Switch,

however, is a hybrid console that can also be used as a portable gaming device. Mobile games use many elements of social interaction such as ranking systems and gaining items through friendship (Yang & Liu, 2017, Yamaguchi et al., 2017)

3.2 History of Mobile Gaming

The first mobile game was *Tetris*, which came pre-installed on a phone called the Hagenuk MT-2000 in 1994. First appearing on the Nokia 6110, *Snake* came to select Nokia phone models three years later, and since then has been embedded into more than 400 million devices worldwide (Japan Games Market, n.d.). Also on the Nokia 6110 was mobile gaming's first multiplayer experience, which was a two-player version of *Snake* that could be played between two Nokia 6110 phones using the infrared ports. During this time, mobile phones were limited to monochrome dot graphics and commands were input via the keypad buttons. In the early 2000s, mobile phones with internet connection capabilities were able to host simple player-server games online.

The installation of cameras onto mobile devices allowed for more hardware power. Color screens and the ability to download and save new software and applications created a pathway for mobile game developers. Namco took advantage of the camera feature and released a fighting game that created characters based on the player's profile and determined character stats based on the image taken. Similar to BANDAI's *Tamagotchi*, a handheld digital pet, Panasonic released their own version of the game in which players could feed their virtual pets with images of food taken on their phones (Hermida, 2003). Both of these games had multiplayer capabilities thanks to the infrared ports on certain mobile devices.

By 2003, the Japanese market already had a number of mobile games available for mobile phones. Older arcade style games were particularly popular, which were ideal for short play sessions and limited battery life. Handheld game consoles such as the Nintendo DS (Nintendo) and Playstation Portable (SIE) proved to be highly competitive, with larger system memories, gaming libraries, better graphics and better sound quality. (Hermida, 2003)

The launch of Apple's App Store in 2008 was the gateway for the current success of mobile games. It widened the playing field for both consumers and game developers by giving them a specific place to store and download applications. Consumers and developers alike no longer had to go through third parties to access their distribution of games.

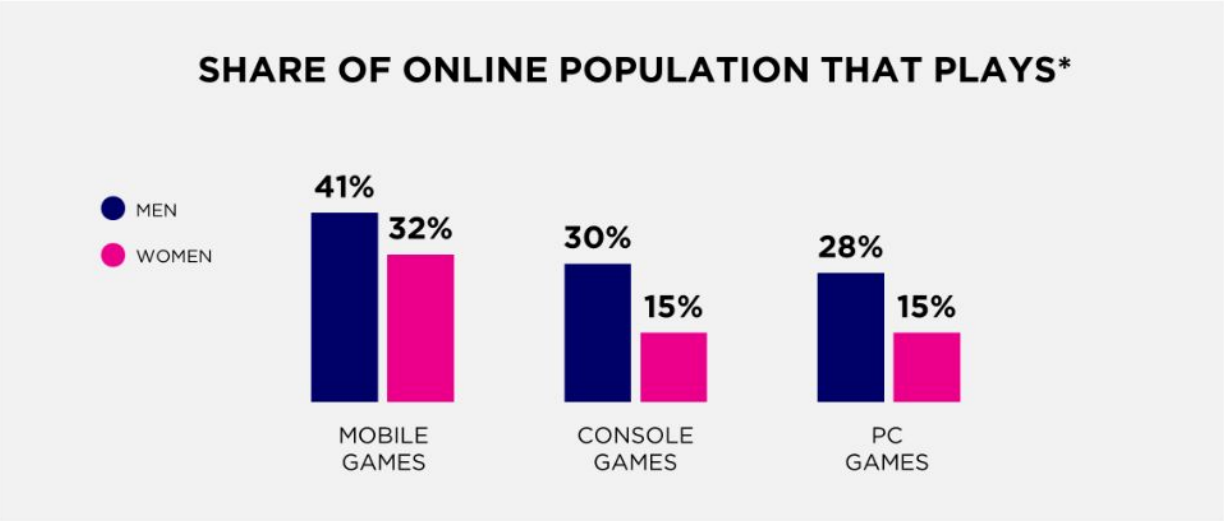
Apple devices such as the iPod Touch and iPhone swapped out the physical keyboard for a touchscreen, which was also adopted by Android devices. This eventually became the most common input method for mobile games. Games like *Angry Birds*, *Fruit Ninja*, and *Doodle Jump* utilized this input method to its highest potential and gained mass success, further encouraging new players and developers to the mobile gaming market. (Hermida, 2003)

In 2014, mobile game profits exceeded that of console games (Kats, 2018) and has steadily continued to rise over the past few years. People usually have their phone with them, and according to Flurry Analytics, a free tool that app developers use to track user data, the average American consumer spends about 5 hours on their smartphone, 11% (roughly 33 minutes) of which is spent gaming. Furthermore, the variety of games for smartphones has expanded dramatically in the last 7 years alone, resulting in the Japanese game industry to have a 70% share of the market size of mobile games (Katsumata et al., 2017). Since mobile games have a higher profit rate than console games (Kats, 2018) the global market size for smartphone games

has been expanding rapidly, and mobile game companies have a larger profit rate than console game companies (Katsumata et al., 2017).

Smartphone usage in Japan increased to 70.8 million in 2018, representing 56.1% of the entire population (Kats, 2018). 41% of men and 32% of women have reported mobile game play as a part of their lifestyle, and 70% of these players have made purchases for in-game items and downloadable content (Japan Games Market, 2018). Globally, smartphone and tablet games combined will generate 59% of gaming revenue by 2021 (Kats, 2018).

Source: 2018 Global Games Market Report



3.3 Business Models

One feature of many mobile games is the “freemium” or “non-package” business model (Katsumata et al., 2017). Freemium is a compound word composed of the words “free” and “premium”. In this business model, consumers receive basic services for free, but have to pay for a service to be deemed as premium. Freemium began in the PC era and has since been adopted by many online services aside from gaming platforms (music, movie, messaging applications). The main characteristic of mobile games’ freemium model is that users can play in-game content

for free, but the mobile game publishers make it increasingly difficult to play without paying for specialty items. For example, Nintendo's *Miitomo*, the company's first social networking app, allowed players to use real world currency to buy in-game currency (which could also be gained through in-game actions, though at a much slower pace) to buy customizations for the player's Mii. In 2016, Miitomo brought in more than 10 million users worldwide within its first month of being released (Nintendo Life, 2016), but its popularity quickly declined within the following months. Nintendo dropped all support for the game in May 2018 (Frank, 2018).

Another type of business model within mobile games is *gacha. Gacha* is essentially a "lucky draw" mechanism in Japanese mobile games that build a sense of urgency in a player to achieve the best item available. Some mobile games have a limit to how many of these lucky draws are available to a player based on their level, but in-game microtransactions make it possible for players to buy as many lucky draws as they wish. Many mobile games are built to be ongoing with long-range goals; it may be more difficult for higher level players to achieve these goals and "proceed with the story" based on the game's set limits. To surpass these limits, players who spend more money can play for a longer amount of time.

Systematically, *gacha* and "proceeding with the story" games often require in-game purchases. Other motivators, such as rare items in special events, may lead players to buy more chances or extend their current available playtime to achieve the rare items. While there will certainly be more chances, the "chance of a lifetime" promotions lead players to believe they have to give it their all to obtain the ultimate happiness. (Yang & Liu, 2017).

Other than the in-game purchasing business model, mobile games also create revenue through advertising. (WORLD TELEMEDIA, 2007) Ad-funded mobile games are free for

consumers but have a number of ads placed within or around the game. In the freemium model, the ad could be disguised as an upgrade for the game itself (i.e. becoming able to play the game without ads). Consumers who dislike the intrusion of ads will pay to have them removed, while others are fine playing the game as is. Revenue is incremented either way. Free-to-play games that have an excessive amount of ads, however, are usually uninstalled and given a bad rating in the app store. (WORLD TELEMEDIA, 2007, Balakrishnan & Griffiths, 2018)

Banner-type ads are one of the most common formats of advertisements within mobile games (Yamaguchi et al., 2017). They appear to be apart of the game, but are often placed in a position that interrupt actions and input mechanics. Revenue is created when the player opens the ad, whether it be on accident or on purpose.

Not all ads are intrusive. In Pokemon GO, for example, players go to PokeStops to gain important items. The PokeStop itself often has an image of the physical location, and sometimes the location is a local shop or restaurant chain. Players might make purchases at these places thanks to this type of in-game advertisement. In other games, sometimes the player is asked to watch a commercial in exchange for in-game currency.

According to Takahashi, Japanese children actually develop identity in respects to consumer knowledge starting as early as five years of age. These identities are constructed with three base characteristics: reciprocal immediacy, maintaining and challenging participation and finally, willingness and collaboration to expand play themes.

3.4 Motivational factors

Katsumata et al. (2017) explains that there are two types of mobile gamers: share oriented and achievement oriented. Consumers who scored higher on the share orientation scale tend to play mobile games for communication and creating bonds with others. They prefer to play with others rather than by themselves, and seek human interactions both online and offline that are relevant to the gameplay (Yamaguchi et al., 2017, Katsumata et al., 2017) On the contrary, consumers who scored higher on the achievement orientation scale prefer to play games with amazing graphics, well-written storylines, and memorable soundtracks. They can play with others if it speeds up distribution of rewards, but mostly play alone to collect as many rewards as possible in one sitting. Some people, however, can display both characteristics and enjoy a variety of games not exclusive to a certain scale.

Both types of mobile gamers have noted that they enter into a state of 'flow' when playing for their utmost enjoyment and satisfaction. The state of flow is an enjoyable experience, and has been associated with positive emotional, motivational, and cognitive experiences (Yamaguchi et al., 2017). Once a person is in a state of flow, all negative thoughts and outside distractions disappear during that time. For share oriented mobile gamers, flow comes easiest when their game is also a social activity that involves teamwork and group communication (i.e Pokemon GO). For achievement oriented mobile gamers, flow comes easiest in an isolated environment where secondary players are not necessarily needed.

The effects of Pokemon GO on risky behavior and health have already been discussed in anecdotal evidence. However, there have been no studies about its effects on mental health. A study investigated the relationships between Pokemon GO and psychological distress from an existing workers' cohort in Japan. Online surveys were

conducted to 3,915 full-time workers, at baseline and at follow-up , using a self-report questionnaire.

Pokemon GO players were defined as participants who had played Pokemon GO for one month or longer. Psychological distress was measured using validated scales.

The number of hours a player dedicates to a game such as Pokemon GO correlates to a number of factors: fun, nostalgia, friendship maintenance, relationship initiation, and achievement (Yang & Liu, 2017). Fun consistently associates with positive outcomes, including better relationship maintenance, lower loneliness, and generally better physical health. Developers recognize that social interaction is important when it comes to gaming, and continue to include it most of their projects.

Loyalty was also closely related to the amount of time spent in-game (Balakrishnan & Griffiths, 2018). Molding online gamers from casual players into loyal customers is necessary to create purchase intention among them (Balakrishnan & Griffiths, 2018, Yang & Liu, 2017) Loyalty is earned when there is long-term association with the game (i.e. Nostalgia and Fun). The positivity that comes with this is often in the form of good reviews, recommendations to other people, and building online communities centered on a specific game.

Consequently, addiction and purchase intent stem from the consumer's level of loyalty towards the game. (Balakrishnan & Griffiths, 2018) In order to sell in-game content, developers attempt to craft mobile games in a way that entices players to buy content as frequently as possible (Juho et al., n.d.). Throughout the last decade, game apps have been designed to be as addicting as possible (Ko et al., 2013) They are usually easy to learn with difficult methods of

earning prizes, causing players to game for an extended amount of time in order to gain feel any sort of accomplishment.

While the aforementioned motivators do correspond to consumers' willingness to buy in-game content (Juho et al., n.d.) their relation to consumers' overall enjoyment of the game is a bit complex. Some consumers find the game itself to be enjoyable, but do not wish to purchase in-game content, despite feeling compelled to do so. (Balakrishnan & Griffiths, 2018, Juho et al., n.d.)

3.5 Addiction

Another article was later written by Kazuhiro Watanabe, Norito Kawakami, Kotaro Imamura, and Akiomi Inoue to test the relationships between Pokemon GO and psychological distress from an existing workers' cohort in Japan. This brought up a concern that mobile gamers might have an issue with addiction. We began doing research on specifically internet and gaming addictions to see what the relationship was between those and the mental response. Various studies claimed similar, negative results.

Goodman suggests that using recent evidence, one can see that distinct memory systems differentially contribute to the development of drug addiction and relapse. Using this approach, it may also be helpful for understanding topical sources of addiction that reflect emerging health concerns, including marijuana use, high-fat diet, and video game playing. Kuss, etc. also brought up similar concerns. They suggested that addiction is a result of a number of socio-geographic and socio-psychological problems and that there isn't a traditional standard set for exactly what would be required in order to be considered to be addicted. They adopt official criteria for

substance use disorders or pathological gambling, no or few criteria relevant for an addiction diagnosis, time spent online, or resulting problems. Third, Internet addiction is associated with a number of sociodemographic, Internet use, and psychosocial factors, as well as comorbid symptoms and disorder in adolescents and adults. The results indicate that a number of core symptoms appear relevant for diagnosis, which assimilates Internet addiction and other addictive disorders and also differentiates them, implying a conceptualisation as syndrome with similar etiology and components, but different expressions of addictions.

Japanese people have elevated levels of gambling addiction compared to their Western counterparts. These elevated rates are coupled with the rapid expansion of gambling venues within the Pan-Pacific region. While there is an accumulated body of research on Japanese and gambling, a systematic cultural analysis of Japanese gambling is still under development.

4. The Study

4.1 Participant Demographics

25 Female American University Students (Age 18-30)

18 Female Japanese University Students (18-22)

13 Male American University Students (Age 18-35)

18 Male Japanese University Students (Age 18-22)

7 Non-binary/genderfluid American University Students (Age 18-30)

4.2 Survey Method

We sent out surveys via Google Forms in both English and Japanese.

5. Results

5.1 Research Question 1: How do American and Japanese college students perceive mobile games and gaming communities?

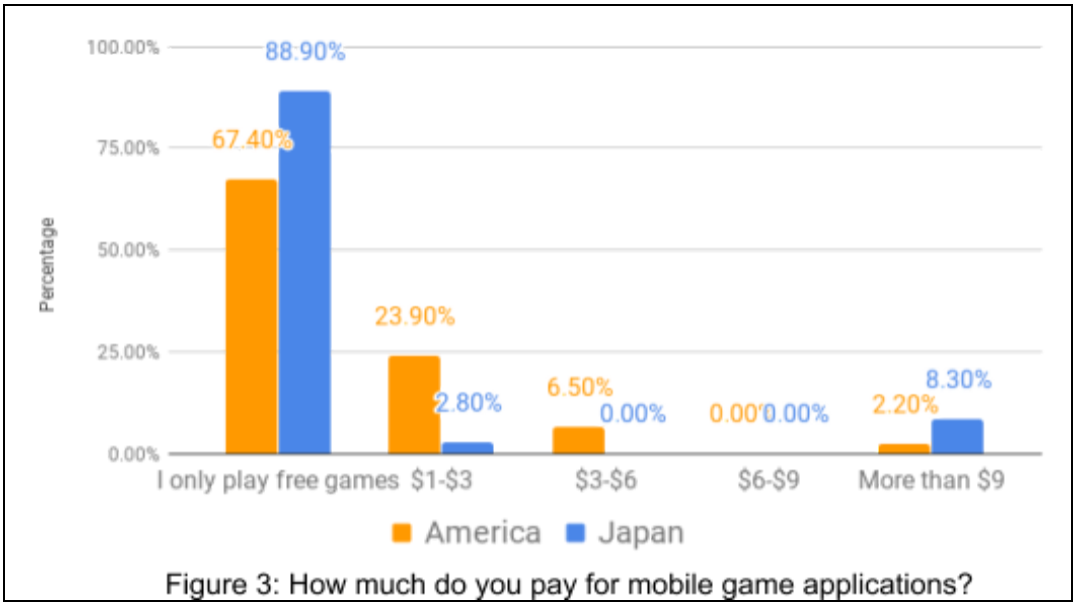


Figure 3: How much do you pay for mobile game applications?

As shown in figure 3, the majority of American and Japanese students prefer to play games that are free. Of those who do spend money on these applications, 23.9% of American students prefer to spend between $1 and $3 compared to 2.8% of Japanese students.

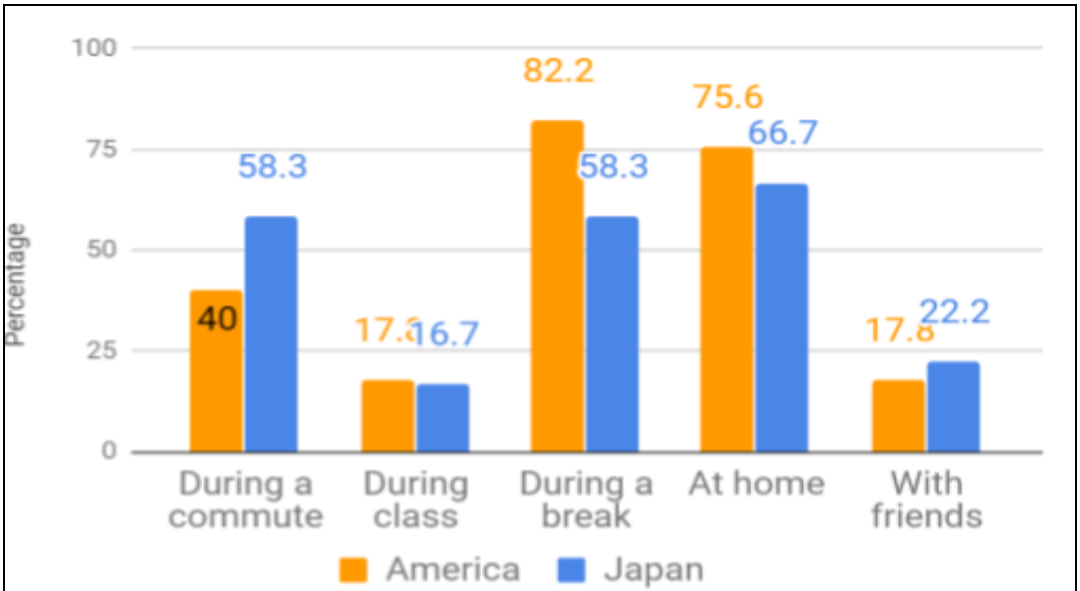


Figure 4: When do you play mobile games the most?

For the question, “when do you play mobile games the most?”, only 58.3% of Japanese students responded with “during a break” compared to 82.2% of American students. Both countries’ low percentage for “with friends” indicates that they spend more time playing in solitude than with others (Figure 4).

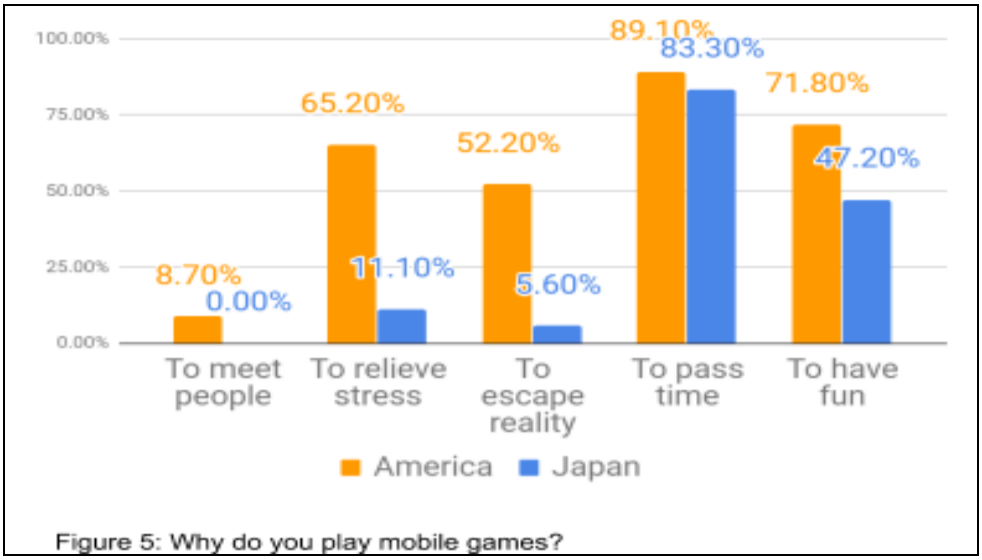


Figure 5: Why do you play mobile games?

Figure 5 supports the notion that Japanese students prefer to play games at home in their downtime rather than use them as a method to relax in between classes or work. The chart clearly shows that Japanese students use mobile gaming as a means to pass time rather than engaging in it for the fun.

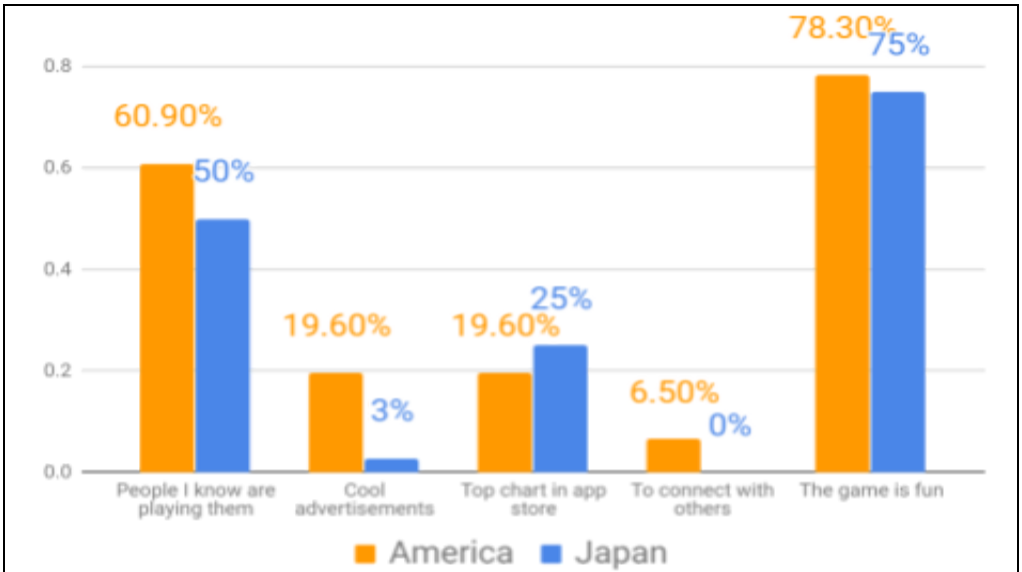


Figure 6: Why did you choose the games you play?

Next, when asked “why did you choose the games you play?”, advertisements only influence 3% of Japanese respondents compared to America’s 19.6%. Whether the game is fun and if the respondents’ immediate circles are playing them are the biggest factors for why they choose their games (Figure 6).

5.2 Summary of Research Question 1 Results

Compared to Japanese students, American students prefer to use mobile gaming as a way to relieve stress and escape reality. Japanese students tend to play during commutes or at home, which is most likely when they are not engaging in work or school related activities. Interestingly enough, the survey results show that 75% of Japanese students responded with “the game is fun” when asked why do they play, but only 47.2% of them said that they play the game to have fun. Japanese students do not use gaming as a way to connect with others or meet new people, but a small amount of American students do.

5.3 Research Question 2: How much influence does mobile gaming have on college students’ lifestyles?

In response to the question, “how much do you spend on in-game purchases per month?”, while the majority tend not to spend any money in-game, 28.9% of American students and nearly 3% of Japanese students spend under $10 a month on in-game purchases (Figure 7).

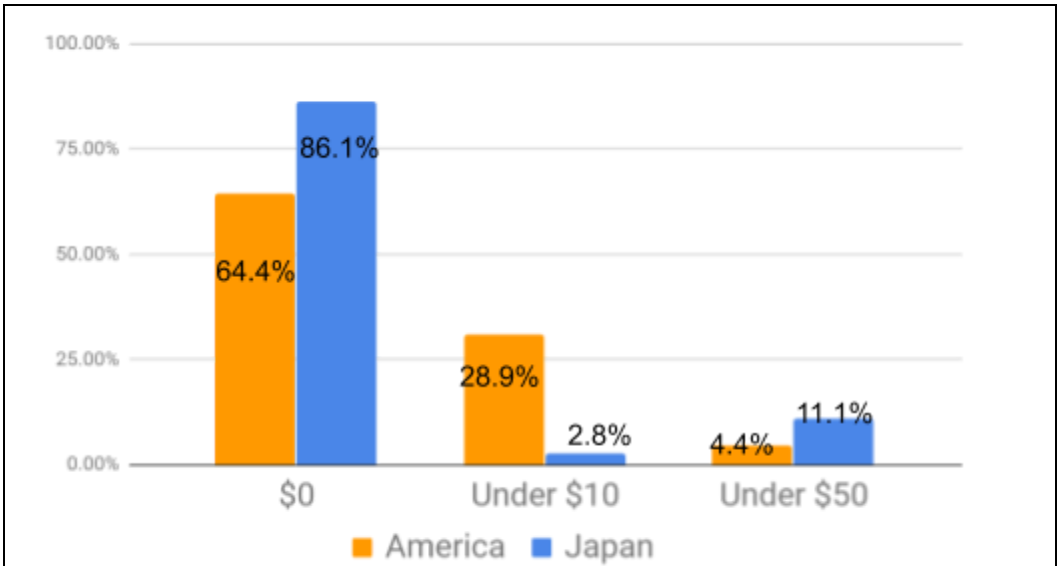


Figure 7: How much do you spend on in-game purchases per month?

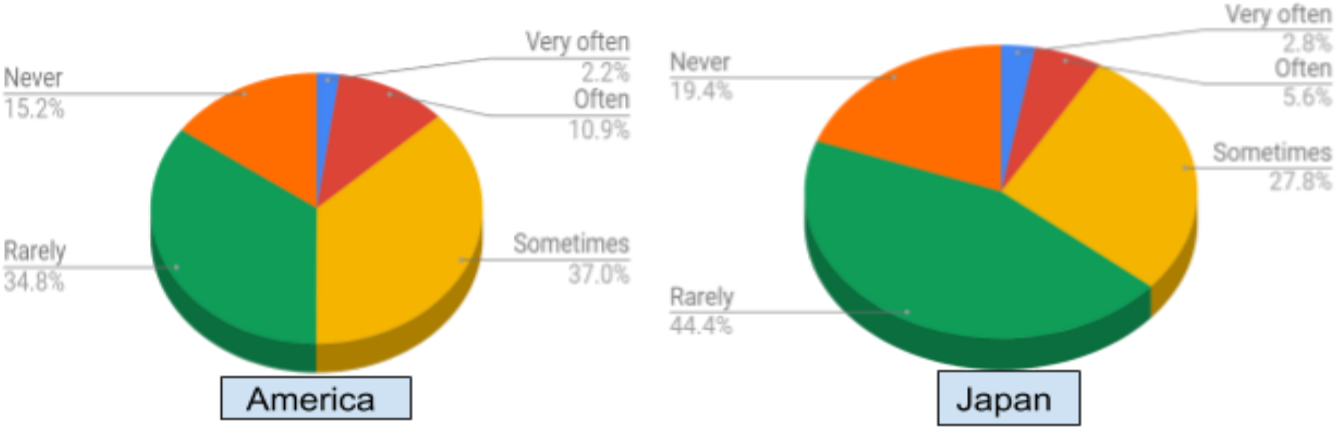


Figure 8: How often do mobile games come up in conversation for you?

Figure 8 shows the frequency of how often mobile games come up in conversation for American and Japanese university students. Nearly half of American students responded with "sometimes", "often" and "very often", but 63.8% of Japanese respondents claimed "rarely" and "never".

When asked “how does mobile gaming affect your social standing”, there is a distinct divide in opinion between Japanese and American students. While the overall opinion is neutral, Americans tend to lean positive while Japanese students tend to have negative view on mobile gaming as apart of their social lives (Figure 9).

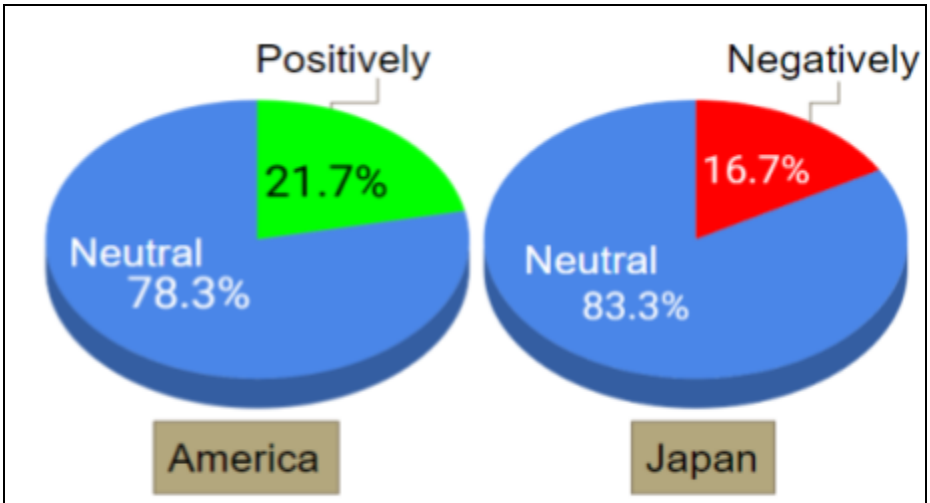


Figure 9: How does mobile gaming affect your social standing?

While about 80% of both American and Japanese students’ families and/or friends have never or hardly told them they spend too much time gaming on their phones, 21.8% of American students and 22.3% of Japanese students have (Figure 10). Based on Figure 9, American students do not see this as a problem but Japanese students do.

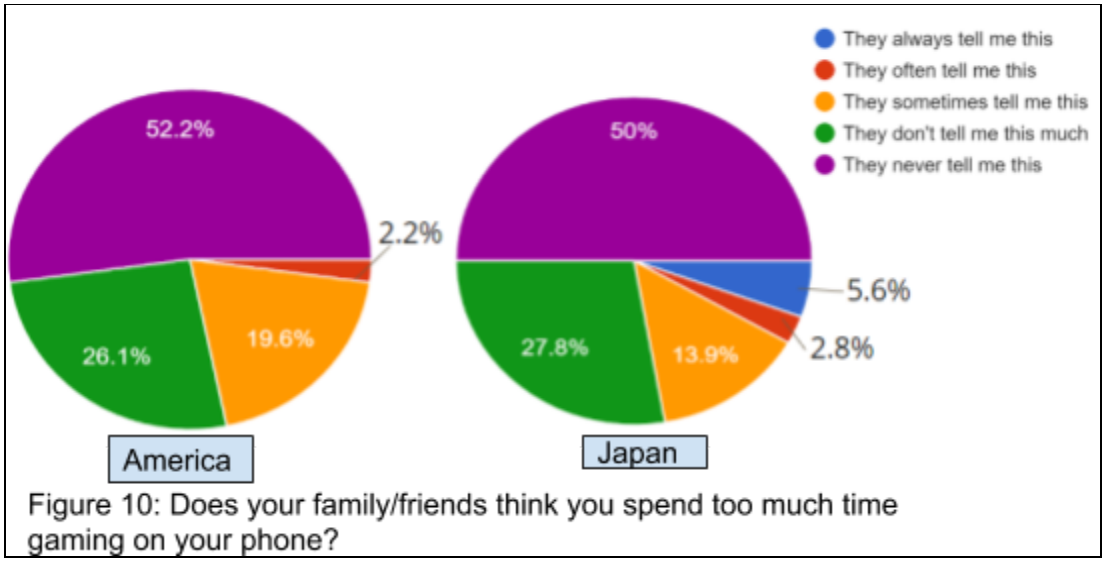


Figure 10: Does your family/friends think you spend too much time gaming on your phone?

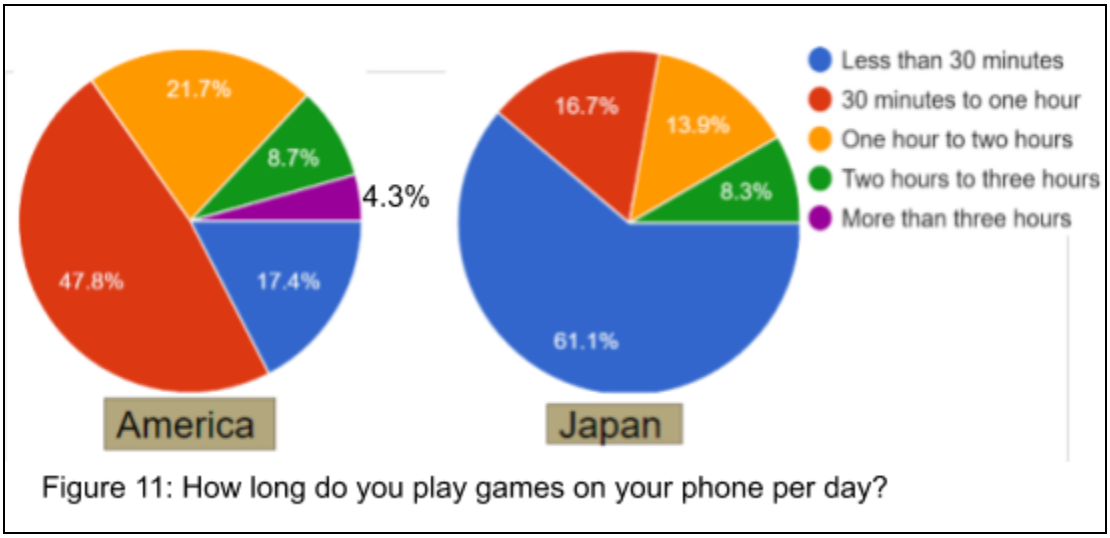


Figure 11: How long do you play games on your phone per day?

In regards to how long students play on their phone per day, 61% of Japanese students play for less than 30 minutes a day compared to 17.4% of Americans. However, nearly 48% of American students spend 30 minutes to an hour gaming on their phone per day. Japanese students do not spend more than 3 hours gaming on their phones (Figure 11).

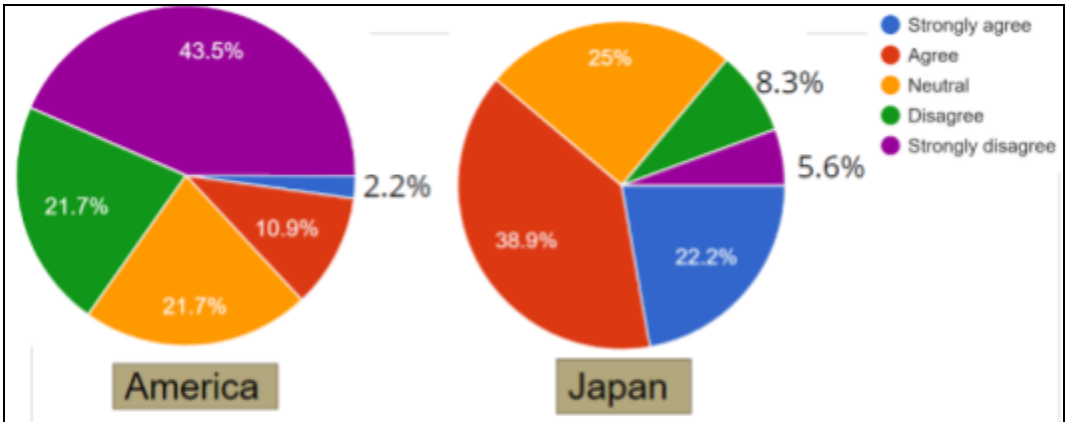


Figure 12: "Mobile gaming sometimes interferes with my work or grades."

Next, in response to the statement "mobile gaming sometimes interferes with my work or grades", only 34.8% of American students agreed compared to 61% of Japanese students (Figure 12). Their choices can also be understood from the results of Figure 7.

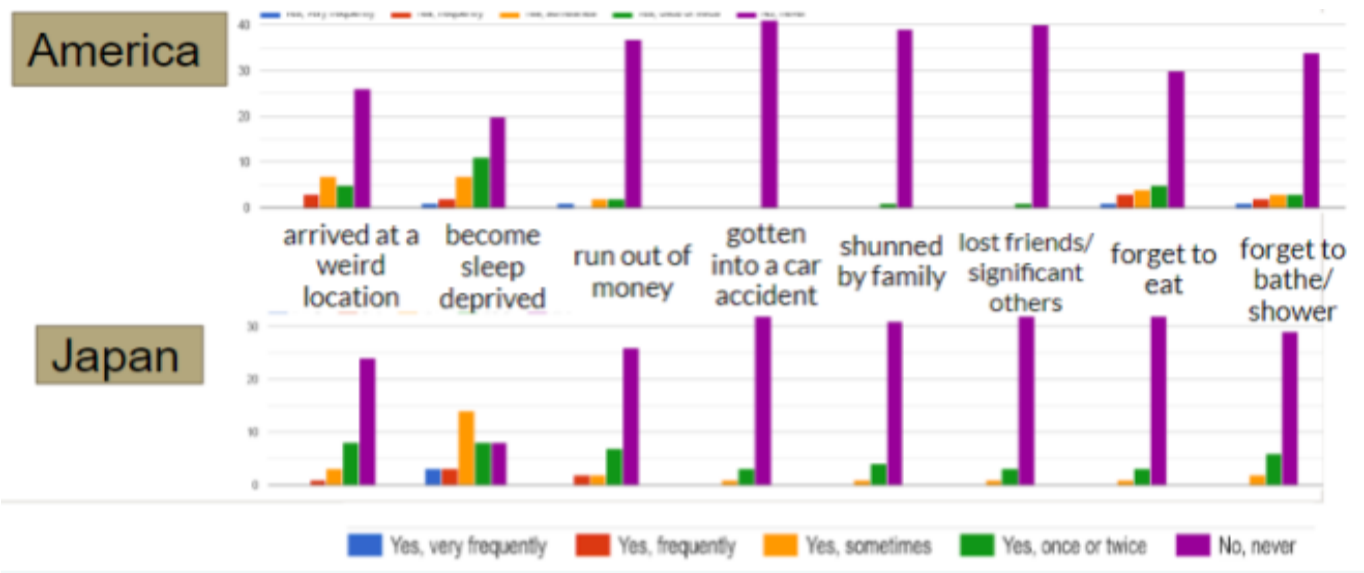


Figure 13: Have you ever been in any of the following situations because of mobile gaming?

Figure 13 shows the frequency of how often respondents had these negative experiences due to mobile gaming. The most frequent occurence between countries was that of sleep depreviety.

When you look at the word cloud from Figure 14, you can see the different impressions regarding what each country thinks when they hear the word “mobile gamer”.

Figure 14: What is the first word that comes to mind when you think of a “mobile gamer”?

Otaku: Japanese slang meaning someone who is obsessed with certain aspects of nerd culture such as pop idols, video games, anime, etc. Often carries a negative connotation in Japanese but since Americans have come to embrace nerd culture, it is not so harsh in American English. Coined by Akio Nakamori.

Neet: Stands for Not in Education, Employment, or Training. The typical image is that of a freeloader living with their parents will into their adult lives.

Weeaboo: a derogatory term used for any non-Japanese person obsessed with Japan and Japanese culture, often dismissing their own culture and racial identity in the process.

5.4 Summary of Research Question 2 Results

Because American students see mobile gaming in a positive light, they tend to play for longer periods of time and are more willing to invest less than $10 into their games per month. Japanese students seem to be keenly aware of the negative effect mobile gaming can have on work/school performance and social image, so they try not to spend too much time on it or talking about it. Surprisingly, though, they are more likely to spend in between $10-$50 a month on in-game purchases.

6. **Conclusion**

Students in America and students in Japan have different perceptions on mobile gaming. American students seem to think of it as nothing more than a casual hobby, but Japanese students have the image that mobile gamers are people who are obsessed with gaming and spend a ton of money on in-game purchases. While the majority of the Japanese respondents chosen do not fit the image they carry, they agree that is a problem within their society.

7. **Limitations of the Study and Future Study**

The limitations of the study were that the results could not be generalized because of the small number of respondents. Our group was limited/biased, as the majority of our American students were from California and the majority of our Japanese students were freshmen. Although the survey was specified towards mobile gamers, some respondents later admitted to not having an interest in games. If we were to conduct a future study, we would be more inclusive of all age ranges and include a variety of mobile gaming devices (i.e. handheld games and portable gaming consoles). We would also make sure to include a number of questions relevant to in-game purchase motivators and attitudes towards gaming together or alone.

8. **Acknowledgement**

Finally, we are thankful to our professors who guided us and all the friends who helped us out along the way. Thank you so much for your support.

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