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# The Potential Benefits of Japanese MMORPGs for Japanese Learning Motivation

Shuting Xu  
*Scripps College*

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**THE POTENTIAL BENEFITS OF JAPANESE MMORPGS  
FOR JAPANESE LEARNING MOTIVATION**

by

**SHUTING XU**

**SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT  
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**PROFESSOR MA**

**PROFESSOR MIYAKE**

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## **Abstract**

Foreign language anxiety (FLA) has been found to have a negative impact on the motivation to learn foreign languages in many previous research studies. However, recent studies have found that massively multiplayer online role-playing games (MMORPGs) in particular provided an environment that positively impacted English as a second language (ESL) acquisition. However, there is a lack of study on the Japanese language and Japanese MMORPGs. Therefore, the current study aims to look at Japanese FLA and integrative motivation in a Japanese MMORPG learning environment as compared to a Japanese classroom learning environment with a sample of 132 English native speakers interested in Japanese in the US. It is predicted that lower Japanese language anxiety (JLA) and higher integrative motivation will be experienced while learning Japanese in MMORPGs than in a classroom setting. A mediation of JLA on the correlation between time spent in MMORPGs and integrative motion was also predicted. The study suggests an alternative way of learning Japanese.

### **The Potential Benefits of Japanese MMORPGs for Japanese Learning Motivation**

Japan has attracted many people's interests because of its unique culture. However, although many people are interested in learning the Japanese language, they also feel anxious about taking a Japanese class. The present research proposal suggests an alternative way of learning Japanese simply by playing video games.

Language acquisition has been a topic studied by psychologists through various perspectives. Among the findings of previous studies, Lenneberg who looked at this topic through a biological perspective raised the famous critical hypothesis (1967). This hypothesis suggested that the time period in one's life during which language can be acquired most easily was between the age of two and puberty. Therefore, a much harder process of language learning for adults was implied. Later research studies also supported this hypothesis as second language learning performance was lower for people above the age of puberty compared to younger kids (Johnson & Newport, 1989) Moreover, grammar learning ability in the case of both difficult and easy grammars were all found to be higher for learners before who did not reach adulthood (Hartshorne, Tenenbaum, & Pinker, 2018). In addition, cognitive psychologists also found that bilingual kids were better at the cognitive processing of the language than people who started second language acquisition later in life (Bialystok, 2017).

On the other hand, previous research studies also showed evidence of the potential advantages of adult foreign language learners. One important factor found to benefit adult learners in second language was their existing knowledge of their native languages, which provided wider substantial vocabularies and the comprehension of language itself according to the language transfer theory (Odlin, 1989). Language transfer was defined as the imposition of

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previously learned language patterns onto a second language so that one acquires a new language more quickly. Psychologists (Chang & Mishler, 2012; Isurin, 2005) have been using the term “transfer” to define the same process and therefore supported this potential advantage of adult learners. Schmidt (1990) suggested that positive transferring and conscious transferring enhanced present learning by using previous knowledge and increase more awareness on the learning of the new language. Moreover, compared to children, adults were also found to be involved in more active learning of the languages compared to bilingual kids who mostly passively receive information from the environment (Hu, 2016). This finding also suggested that adults may apply more ways of language learning to achieve the goal of obtaining the foreign language skill.

### **Language Anxiety and Motivation**

However, while adults may apply their previous language knowledge and devote more time to the active learning of a foreign language, anxiety induced by the language learning environment may occur as a problem. In fact, a negative impact of anxiety on foreign language learning was found as a general pattern in previous studies. In 1960, Bardach found that situational anxiety impaired language learning performances while studying a group of participants learning a set of syllables. Similarly, Meyers and Martin (1974) found that higher state anxiety, which refers to the unpleasant emotional arousal under a particular situation, also had a significant negative impact on concept-learning performances. Moreover, a recent study (Huang, 2018) showed that trait anxiety and language anxiety had a significant negative impact on students’ speaking test performance in foreign language. Other academic language

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performances including reading, listening, and writing skills were all showed to be negatively related to students' anxiety levels (Kitano, 2001; Rahimi & Zhang, 2014).

Besides its influence on academic performances, anxiety was also shown to be correlated to the motivation of foreign language learning, but with findings in both directions. Similar to the cases of other aspects of language acquisition, higher anxiety was found to lead to lower foreign language motivation (Teimouri, 2017). On the other hand, some studies suggested positive effects of anxiety on language learning motivation. Taylor and Pham (1999) found that anxiety could stimulate higher motivation and engagement. MacIntyre also suggested that anxiety was found to have increased second language learning motivation (as cited in Teimouri, Goetz, & Plonsky, 2018). However, different definitions of anxiety and different measurements were used in previous studies, which could be the reason that led to different results.

In fact, the anxiety of learning a foreign language was shown to be distinct from general anxiety. This idea was first raised by Horwitz and fellow researchers (1986), who found out that students with higher general anxiety did not necessarily exhibit higher anxiety while learning foreign languages and vice versa. They gave a specific definition to the term foreign language anxiety (FLA) as a complex construct of self-perceptions, attitudes, feelings, and behaviors specific to and is the result of the unique condition of classroom language learning process. Therefore, they created a Foreign Language Classroom Anxiety Scale (FLCAS) to more accurately measure FLA.

FLCAS consists of three main elements: communication apprehension, test anxiety, and fear of negative evaluations. Communication apprehension contains three aspects that were all shown to be significantly positively related to FLA, including oral communication anxiety, fear of giving public speeches, and the anxiety of receiving and interpreting messages from other

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people. Test anxiety was students' fear of failing tests given frequently in language classes. Fear of negative evaluations, similar to the characteristic of social-evaluative anxiety (Watson & Friend, 1969), was defined as the apprehension about others' evaluations, distress over negative evaluations by others, and the expectation that others would evaluate one negatively. Horwitz suggested that, although fear of negative evaluations exists in all kinds of social environments, it was more easily induced in the case of a foreign language classroom. Because of the pressure given by the only native speaker and competitive peers, learners could easily have the expectation of getting negative judgments.

The FLCAS has been used frequently and showed a stable negative impact of FLA on multiple aspects of language acquisition. Similar to the findings on other types of anxieties listed above, Pae (2012) found that FLA was positively correlated with specific language anxieties such as listening, speaking, reading, and writing anxieties that negatively impacted learners' performance in the corresponding areas. More importantly, the motivation of foreign language learning was found an increase in the learning motivation with a reduction in FLA using this scale (Ismail, 2016). A meta-analysis of 97 studies also found that all studies using Horwitz's FLCAS found a negative effect of FLA on the motivation of learning foreign languages (Teimouri, Goetze, & Plonsky, 2018). Specific types of motivations such as instrumental and intrinsic motivation in English as a second language (ESL) learning was found to be significantly negatively correlated with FLA (Liu & Huang, 2011).

However, no previous research has looked specifically at the relationship between FLA and another type of motivation, the integrative motivation. Defined as a motivation to learn a language along with interest in the cultural community of the targeted language (Gardner, Lalonde, & Moorcroft, 1985), integrative motivation was shown to be predictive of the speed of

vocabulary acquisition and translation as well as long-term success in the language as a socio-psychological factor (Gardner, Day, & MacIntyre, 1992). Bonney et al. (2008) also found integrative motivation to be a significant predictor of foreign language learning performance in general. But because of the unclear correlation between integrative motivation and FLA, it is to be investigated whether the impact of this specific type of motivation on language acquisition was mediated by FLA.

### **Foreign Language Acquisition in Games**

Horwitz's FLACS, on the other hand, has a huge limitation. Developed 35 years ago, the scale only focused on in-classroom learning. However, besides classroom settings, second language acquisition also occurs in other settings, such as daily interactions with people who speak different languages, being passively exposed to the language while staying in a foreign environment, and through online platforms. According to Meticulous Research (2019), due to the rapid development of technology, the global market of online language learning will keep growing significantly from 2019 to 2025. At the same time, it was found that learning online was particularly helpful for adult learners (Huang, 2002). Multiple online approaches including taking online language courses (Chang & Windeatt, 2016), joining online learning communities (Wu, Hsieh, & Yang, 2017), and playing online games (Jabbari & Eslami, 2018) were all shown to have a positive effect on motivation.

Among the various ways of learning languages online, video games have been steadily shown to positively impact language acquisition. Researchers found that through multiplayer online games, the gamers exhibited a shared pattern of improvement in their overall foreign language performance as well as some specific language skills (Zhang et al., 2017). Kongmee,

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Strachan, Montgomery, and Pickard (2011) looked at the influence of Massively Multiplayer Online Role-playing Games (MMORPGs) on students' attitudes towards English as a second language (ESL) learning and the language development of those students. Results showed that playing games significantly increased students' motivation as well as language skills in reading, speaking, listening, and writing. Another longitudinal study (Lee & Gerber, 2013) studying a gamer who played World of Warcraft found that as an ESL player became more and more into the game, his awareness of English increased while frequently interacting with English native speakers. As a result, he learned more language expressions. As all of the above studies were looking at MMORPGs in particular, these results suggested that this environment had unique characteristics that could potentially benefit foreign language performances and motivation.

In fact, researchers showed that MMORPGs, as virtual worlds, gave players the object of continuously developing their own characters. The progressive development of characters was usually through defeating non-player monsters or winning the combats (Mulligan, Patrovsky, & Koster, 2003). Because all the battles involved collaboration with other players and the formation of teams/clans, social interactions were inevitable and frequent in these games. In fact, psychologists found that the emotional devotion to the characters in the game and relationships formed with previously unknown players in MMORPGs were shown to be just as intense as those in real life (Yee, 2006). Furthermore, Cole and Griffiths (2007) discovered that even those who were introverted in real life were highly encouraged to socialize and communicate with other gamers. Later research studies found that the reason behind the more frequent socialization in MMORPGs resulted from a reduction of fear of negative evaluation (Lee & Stapinski, 2012), which was one of the key components of Horwitz's definition to foreign language anxiety. Moreover, as MMORPGs usually have multiple servers or "worlds" that players from all over

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the world can choose from freely, interactions are not only between players from the same country but with gamers from other countries who speak different languages. As more social interactions were shown to be beneficial for second language learning (Pica, 1987), it is not surprising that MMORPGs can benefit foreign language acquisition.

However, while MMORPGs can potentially benefit foreign language acquisition through decreasing some aspects of FLA, no previous research has investigated all three categories of FLA in a MMORPG learning environment. One of the reasons can be the frequently used FLCAS created by Horwitz which was only applicable for a classroom setting. There is also no scale designed to measure the FLA of learners in a game setting found. Therefore, the current research will look at the FLA aspect of an MMORPG learning environment using a scale adapted from Horwitz's scale but with its limitation to the classroom setting being deleted.

### **Japanese Language and Games**

Interestingly, research studies mentioned above investigating second language acquisition mainly focused on English learning. Among studies of ELS learning, those done on Japanese ESL learners frequently reported results showing learners' difficulty in learning the language. Mori and Gobel (2006) found a lack of motivation to learn English shared among Japanese students. Andrade and Williams (2009) also indicated that 75% of the Japanese ESL learners they studied were hindered by their anxiety towards learning the language. An investigation on reasons behind the level of anxiety of Japanese ESL learners found out that in addition to communication anxiety, test anxiety, fear of negative evaluations that were included in Horwitz's definition of FLA, a concern about the difficulties brought by the huge difference in the two languages and culture was also found to have contributed to the rise of anxiety (Ohata, 2005).

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However, is this concern experienced by English native speakers learning Japanese as well?

While very few research studies focusing on Japanese learners were found, statistics did show that Japanese language was the hardest language for English native speakers. According to the Foreign Service Institute Language Learning Difficulty Ranking, Japanese was listed in category V, the highest level of difficulty, and at the same time indicated as even more difficult than other languages in the same category (“Language Difficulty Ranking,” 2009) In addition, even though Japanese Studies increased significantly since 1986 (Saito & Samimy, 1996), there was soon a decline due to the high perceived degree of difficulty of Japanese language learning (Jordan & Walton, 1987). One research study comparing the FLA in learning various foreign languages (Djafri and Wimbari, 2018) showed that learners of Japanese have the highest level of FLA using Horwitz’s FLCAS. Therefore, an environment that can decrease the FLA and increase the motivation of learning Japanese can potentially encourage many who are interested in Japanese to start or continue learning.

As discussed in the previous section, if MMORPGs have benefited English acquisition, it should have the potential of positively impacting Japanese learning as well. However, all MMORPGs investigated in previous research studies are American MMORPGs. While at the same time, Japan has the third largest gaming market in the world (“Japan Games Market 2018,” 2018). While MMORPGs have been growing in trends, Japanese game makers also have produced MMORPGs, such as the Final Fantasy series, Monster Hunter: World, and Phantasy Star Online 2, that have been very popular in both Japan and other countries including the United States.

In addition, a comparison of video games in Japan and in the US and suggested potential benefits of Japanese MMORPGs for Japanese learners as a result of the cultural aspect reflected

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in the games (Ngai, 2005). In the article, Ngai indicated that Japanese video game industry was largely influenced by animation and manga, which focused mostly on the daily lives of normal people and reflected all kinds of current social issues. This influence is reflected in the style of storytelling, characters, and graphic designs in Japanese games. While on the other hand, American games centered on celebrities, popular music, or television programs, and were lack of original narrative of its own story. This finding implies that Japanese video games may be showing more aspects of everyday life in Japan as well as using more daily language. Moreover, the results also implied that fans of these games who were attracted to a certain aspect of the design in a Japanese MMORPG might be actually attracted to the culture reflected in that aspect. This further suggests a possible increase in integrative motivation while gamers becoming more and more into the game.

Another distinction showed in Ngai's analysis was that Japanese games emphasized more group collaboration while American games weighed personal achievement more. This fact falls into the difference between a collectivist culture and an individualistic culture. In the case of MMORPGs, people who play Japanese MMORPGs might have more group missions than individual missions, which gives them more opportunities to communicate with other players including Japanese native speakers. Immersion in a collaborative culture may also help decrease the FLA induced by cultural differences discussed before (Ohata, 2005).

Therefore, although no previous study has looked at the impact of Japanese MMORPGs on Japanese as a foreign language (JFL) acquisition, it is very likely that the specific game environment has a similar or even larger positive impact than American MMORPGs on ESL learning. If this is true, an alternative to learning Japanese will be provided to those who were interested in Japanese but were demotivated by a classroom learning setting.

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The current study will be looking at the FLA and integrative motivation in Japanese acquisition for those who are interested in learning Japanese. The impact of Japanese MMORPGs and Japanese course experience on these two variables will be compared with each other as well as the results of those who are interested but have no experience in either environment. It is predicted that the Japanese language anxiety (JLA) will be the lowest for those who only played Japanese MMORPGs and highest for those who only learned in classrooms. It is also predicted that the integrative motivation to learn Japanese will be the highest for people who played Japanese MMORPGs than in other conditions. Interactions may occur as those who have both Japanese course and game backgrounds may have their FLA or/and integrative motivation being impacted by both predictor variables. In addition, a mediation of JLA on the relationship between class/game experience and integrative motivation is also expected.

### **Proposed Method**

#### **Participants**

132 participants will be recruited according to the results of a priori power analysis. Although no previous research has investigated the impact of classroom and game learning time on FLA and integrative motivation, some evidence was found in related areas. A meta-analysis investigating the impact of online video games on ESL (Chiu et al., 2012) found a medium positive effect size on game-based learning, and a larger effect size for meaningful and engaging games, which is more similar to the case of MMORPGs. While at the same time, FLA was found in a meta-analysis to have a medium to large effect size (-.36) in its predictability of foreign language achievement (Teimouri, Goetz, & Plonsky, 2018). Therefore, a medium to large effect

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size is expected in the correlation of MMORPG experience with JLA. Calculated with an effect size of 0.25 (medium) and 0.40 (large) for a 2 x2 ANOVA design to produce a power of .80 with  $\alpha = 0.05$ , 56 to 132 participants will be needed according to Cohen (1992). To ensure that at least a medium effect size will be obtained, 132 participants will be recruited.

All participants will be English native speakers above the age of 18 who are interested in Japanese recruited through Facebook groups (Japanese studying groups in universities as well as other non-Japanese-related groups), emails (to Japanese related clubs/organizations as well as general student groups), and word of mouth. As a result, four kinds of participants will be involved. Group 1 will include those who have learned Japanese in classroom only. Group 2 will be people who have learned Japanese while playing MMORPGs only. Group 3 will consist of those who have learned Japanese both in classroom and in games. Finally, group 4 will be participants who have no experience in either in-classroom or game learning environment. As male gamers occupied two-third of the MMORPG fans according to Statista (2018), and no gender statistics were found for Japanese classrooms, relatively more male participants will be expected. Among the participants, a large portion will likely to be college students with a racial/ethnic distribution that is reflective of the average racial/ethnic distribution in US which will be around 70-80% Whites, above 10% Black or African American, and around 10% of Asian and other races (US Census Bureau, 2018). Participants below the age of 30 are expected to occupy a big portion of the sample as younger people have more access to the online survey. Each participant will be compensated for a \$5 Amazon gift card regardless of whether they finish the questionnaire.

### **Materials**

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The two scales to be used are as follows:

**Integrative Motivation.** An integrative motivation scale adapted from the Integrative and Instrumental Motivation Scale (Vaezi, 2008) will be used to measure the integrative motivation to learn Japanese. The Integrative and Instrumental Motivation Scale was modified from the original 7-point Likert Scale format of Gardner's Attitude/Motivation Test Battery (AMTB). Vaezi turned the scale into a 5-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree”. The current scale, called Japanese Integrative Motivation Scale (see Appendix A), is a 5-point Likert scale consists of 11 items. The target language was changed from English to Japanese and the instrumental motivation part was deleted. Examples of the scale are “I want to study Japanese to meet and converse with more and varied people”; “The more I get to know native Japanese speakers, the more I like them”; “I want to learn Japanese to participate more freely in the activities of other cultural groups”. The validity of JIMS will be tested using a sample of Japanese learners prior to the study.

**Foreign Language Anxiety (Japanese).** A Japanese language anxiety scale adapted from Horwitz et al.'s Foreign Language Classroom Anxiety Scale (1986) will be used to measure the Japanese as a second language learning anxiety. The original scale's limitation to a classroom setting will be deleted while the element of Japanese language will be added. The Japanese Foreign Language Anxiety Scale (see Appendix B) consists of 33 items. Examples of the scale are “I never feel quite sure when I am trying to speak Japanese”; “I don't worry about making mistakes while using Japanese”; “I would not be nervous speaking Japanese with native speakers”. It will be 5-point Likert ranging from “Strongly Agree” to “Strongly disagree”. The validity of JFLAC will be tested using a sample of Japanese learners prior to the study.

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**Other Questions.** Participants will be asked about the time that they have spent taking Japanese classes or playing Japanese MMORPGs in days using an open-ended question. Demographic information including age, gender, and race/ethnicity will be collected.

### **Procedure**

An online survey will be used. It will be distributed to participants through a link online. A brief introduction of the content of the questionnaire and informed consent will be given at the beginning. A total of 44 items in Japanese Integrative Motivation Scale and Japanese Language Anxiety Scale will be given in a randomized order. After the two scales, questions regarding participants' class and game experience, as well as questions on demographic information will be asked. In the end, a debriefing section including the compensation information will be provided.

### **Ethics**

The current study has three main benefits. First, participants will each receive a \$5 Amazon gift card. The compensation is a small amount that is not coercive. For the general public, the current study may contribute to the understanding of the potential benefits of popular culture or technology in aspects that many people are unaware of, and therefore give insights for future development and inventions. Moreover, while ESL learning has been studied frequently, Japanese L2 learning still needs more understanding. As playing games can potentially increase long-term language-learning motivation, the current study may be able to encourage those who feel anxious about Japanese language to start learning.

On the other hand, the current study might cause uncomfortable feelings for some people who are sensitive to the topic of anxiety or classroom learning. But it is expected that most

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participants will not experience such uncomfortable feelings, and the potential anxiety will be the same as that experienced in everyday life. Therefore, the current study is at minimal risk as all procedures including the items in the scales are similar to what one would be exposed to in daily life. In terms of participants, there will be no involvement of protected or vulnerable populations, nor will participants provide any sensitive information. No deception will be used, and all participation will be voluntary. In addition, as the survey will be online, it will be set as anonymous and no identifiable information or IP information will be collected. Overall, the benefits of the study will be outweighing the potential risks to participants.

### **Results**

#### **The impact of in-classroom and in-game learning on Japanese language anxiety**

To address the impact of the amount of time people spent in classrooms and/or game playing on their JLA, a multiple regression will be used. Participants' scores on all items on the Japanese Language Anxiety Scale will be computed into a mean value to represent their Japanese as a foreign language learning anxiety. An omnibus test will be used. Because past studies have found negative impact of FLA on in-classroom learning (Liu & Huang, 2011; Ismaiel, 2016; Pae, 2012), and a significant decrease in the fear of negative evaluations in a MMORPG environment (Lee & Stapinski, 2012) while investigating ESL learners, both classroom and MMORPGs experience are expected to be predictive of Japanese language anxiety (JLA). Specifically, a positive correlation between classroom experience and JLA, and a negative correlation between game experience and JLA are predicted. Additionally, an interaction between course experience and game experience is also predicted as more time spent playing MMORPGs may weaken the

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negative correlation between class experience and Japanese language anxiety, and more class experience may also weaken the predictability of game experience on Japanese language anxiety.

### **The impact of in-classroom and in-game learning on integrative motivation**

To compare the influence of two learning environments on learners' integrative motivation, another multiple regression will be performed. The mean value of each participant's scores on the items of the Japanese Integrative Motivation Scale will be calculated and turned into a composite variable to represent their integrative motivation. Although a lack of motivation to study Japanese was reported previously (Jorden & Walton, 1987), no past research study suggested any relationship between students' time spent in a language classroom and changes in their integrative motivation. As a result, a weak to no correlation between these two variables is expected. On the other hand, a main effect of more time spent in Japanese MMORPGs being predictive of higher integrative motivation is expected. Although no specific relationship between MMORPGs and integrative motivation was shown in previous studies either, evidence showed a positive correlation between time spent playing MMORPGs and general motivation of language learning. In addition, the deep cultural aspect in Japanese MMORPGs implied gamers' potential interest in corresponding aspects of Japanese culture, which is an important part of integrative motivation. This main effect can be examined using the statistics of the group of participants who only played Japanese MMORPGs but did not take any class. As no correlation between course experience and integrative motivation is predicted, no interaction between the two predictor variables is expected.

### **Mediation effect of JLA**

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It is predicted that JLA, the FLA for a specific language, has a mediation effect on the relationship between game learning time and the integrative motivation. Baron and Kenny's (1986) assessment of mediation effect will be used to test this hypothesis. The establishment of a mediation effect involves three relationships. First, the two predictor variables should be correlated to integrative motivation. This relationship will have been assessed in the second multiple regressions mentioned above, and a significant impact of game experience but not classroom experience is expected. This means no mediation of JLA on integrative motivation is expected in the classroom condition. Then, a correlation between game experience and JLA needs to be examined, which is expected to be significant in the first multiple regression test planned. Finally, an investigation of JLA's predictability of integrative motivation is needed. This will be examined using the data of the group of participants who have experience in both Japanese classrooms and games. Although no previous studies assessed this relationship, both FLA and integrative motivation was shown to be predictive of foreign language acquisition (Ismaiel, 2016; Pae, 2012); Teimouri, Goetze, & Plonsky, 2018). Moreover, several other types of motivations shown to be negatively related to FLA (Liu & Huang, 2011). Therefore, higher JLA is expected to be predictive of lower Japanese integrative motivation. Overall, a mediation of JLA is predicted on the relationship between game experience and Japanese integrative motivation.

### **Discussion**

Overall, it is predicted that Japanese MMORPGs will decrease foreign language anxiety for people who are interested in learning Japanese and increase their integrative motivation to learn Japanese. The results may help those who experienced high Japanese learning anxiety in a

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classroom setting decrease their anxiety and become more motivated in learning Japanese. Findings may also encourage those who were afraid of starting learning Japanese to try learning through an alternative way. The possible increase in integrative motivation may also increase the number of researchers on Japanese Studies in the United States, which will contribute to historical, social, linguistic, and other understandings of and academic achievements in Japanese culture. Moreover, the results on Japanese language may suggest similar patterns in other difficult language systems. For the game industry, the findings of the current study may also shed light on future development of video games, which can potentially increase the revenue of the game market as well as providing an even better environment to improve foreign language skills. More advanced technologies than MMORPGs currently under development may also obtain inspirations from the current finding.

However, there are several limitations to the current study. One limitation is the possible lack of representativeness of the sample recruited. As with most of the previous studies, the current study may obtain a large portion of participants who were college students or people of younger age. As a result, this sample may not be representative of the targeted population which includes all adults who are interested in Japanese. Moreover, for older people who are interested in learning the language but are less likely to play online video games, the benefit of MMORPGs for Japanese language acquisition may not be as helpful. Another limitation is that the time asked may not be reflective of the real-time participants have devoted to the game. One reason is that the time reported will be an estimation that can easily be wrong but not an accurate record. Another reason is the unit of time. The current study will be asking the time in days because months may be too broad, and hours are too hard to estimate closely. However, it is possible that every player spends a completely different amount of time per day in playing games.

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It is also important to note that even though lower foreign language anxiety and higher integrative motivation are predicted in Japanese MMORPGs than in traditional classroom settings, the predicated results are not suggesting that MMORPGs should replace Japanese courses. People study Japanese out of different purposes and what one can learn in the game may not be helpful at all for those who want to acquire an academic or work level language ability. Similarly, some people want to reach a certain level or obtain vocabularies in a specific area within a period of time, while simply playing MMORPGs is unlikely to satisfy such expectations.

Future research studies may use other ways of recruitment to obtain a sample more representative of the target population. A more accurate way to calculate the time participants spent in the game learning environment is also needed. Moreover, predictors of Japanese language performance in other perspectives such as cognitive and developmental psychology may also be investigated and compared to the results in language anxiety and integrative motivation. Since MMORPGs may not benefit Japanese learners in all age groups, other kinds of language learning environments may also be investigated. In the end, it will be helpful to look at native speakers of other languages and compare the results to that of English native speakers.

Overall, the proposed study investigated the topic of Japanese as a foreign language learning which was under-investigated in previous research studies and suggested a potentially effective alternative learning environment for people who are interested in learning Japanese.

**Appendix A**

Japanese Integrative Motivation Scale adapted from IIMS (Vaezi, 2008)

Item No.	I want to learn Japanese...
1	to be more at ease with other people who speak Japanese
2	to meet and converse with more and varied people
3	to better understand and appreciate Japanese art and literature
4	to participate more freely in the activities of other cultural groups
5	to know the life in Japan
6	to understand Japanese pop music
7	The more I get to know native Japanese speakers, the more I like them
8	to know various cultures and peoples
9	to keep in touch with Japanese friends and acquaintances.
10	to know more about native Japanese speakers
11	Japanese people are kind and friendly
12	People who speak Japanese are cheerful
13	It embarrasses me to repond to questions using Japanese.
14	I would not be nervous speaking the Japanese with native speakers.

## Appendix B

Japanese Language Anxiety Scale adapted from FLCAS (Horwitz et al. 1986)

Item No.	Descriptions
1	I (will) never feel quite sure of myself when I am speaking Japanese.
2	I don't/won't worry about making mistakes in while speaking Japanese.
3	I (will) tremble when I know that I'm going to be called on in Japanese.
4	It (will) frighten(s) me when I don't understand what native speakers are saying in Japanese.
5	It wouldn't bother me at all to study more Japanese.
6	In a Japanese language environment, I (will) find myself thinking about things that have nothing to do with this environment.
7	I (will) keep thinking that other people are better at Japanese than I am.
8	I am/will be usually at ease if my Japanese skill is being tested.
9	I (will) start to panic when I have to speak without preparation in Japanese.
10	I (will) worry about the consequences of failing to obtain a good level of Japanese.
11	I don't understand why some people get so upset over Japanese learning.
12	When speaking in Japanese, I can/will get so nervous I forget things I know.
13	It (will) embarrass(s) me to repond to questions using Japanese.
14	I would not be nervous speaking the Japanese with native speakers.
15	I (will) get upset when I don't understand what native speakers are correcting me.
16	Even if I am well prepared for a Japanese learning evironment, I (will) feel anxious about it.
17	I often feel like not going to places that require me to use Japanese.

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Item No.	Descriptions
18	I (will) feel confident when I speak in Japanese.
19	I am afraid that native speakers are ready to correct every mistake I make.
20	I can/ will feel my heart pounding when I'm going to be called on in Japanese.
21	(It is likely that) The more I try to understand Japanese, the more confused I get.
22	I don't/won't feel pressure to prepare very well for an environment that requires me to use Japanese.
23	I (will) always feel that other people speak Japanese better than I do.
24	I (will) feel very self-conscious about speaking Japanese in front of other people.
25	I (will) worry about getting left behind in learning Japanese.
26	I (will) feel more tense and nervous in a Japanese learning environment than in other learning environment.
27	I (will) get nervous and confused when I am speaking in a Japanese learning environment.
28	When I'm about to enter the Japanese learning environment, I (will) feel very sure and relaxed.
29	I (will) get nervous when I don't understand every word Japanese people says.
30	I (will) feel overwhelmed by the number of rules you have to learn to speak Japanese.
31	I am afraid that the others will laugh at me when I speak Japanese.
32	I would probably feel comfortable around native speakers of Japanese.
33	I (will) get nervous when Japanese people ask me questions which I haven't prepared in advance.

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