

ARTICLE



Learning of L2 Japanese through video games

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Abstract

In Japanese-as-a-foreign language (JFL) education, the impacts of Japanese entertainment media such as digital games have been noted as a motivator for JFL learners. Although outside-of-class literacy exposure from these digital games has been recognized due to their popularity, the specifics of how digital games affect JFL digital literacies and how they interplay with JFL learners' motivations have not yet been fully explored. Thus, this study investigated the literacies around game fandoms for JFL learners in a Japanese language program (n = 191) and the self-directed and group-based learning activities of a game focus group (n = 6) with two commercial games. The findings demonstrated JFL learners' literacy exposure through Japanese games and revealed JFL learners' unique issues with kanji, furigana, and honorifics. Additionally, digital games in Japanese have roles in supporting JFL learners' motivations (a) visually as achievement milestones (i.e., progress markers) within game content and (b) as goals that JFL learners set for accessing and playing target game titles both as gamers and as JFL learners. Moreover, the study highlights the importance for higher education to connect in-class and non-formal learning and to support L2 learners with 21st century skills.

Keywords: *Multimodality, Digital Literacies, Gaming, Life-long Learning*

Language(s) Learned in This Study: *Japanese*

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Introduction

The proliferation of digital resources has created opportunities for second and foreign language (L2) learners to be exposed to and interact with entertainment media and their associated literacies. Digital games are multimodally-designed media, and their L2 educational potentials and practices (e.g., creating a good learning platform, development of literacy and cultural awareness in interdisciplinary digital contexts) have been studied (e.g., Reinders, 2012; Sykes & Reinhardt, 2013). The integration of Japanese popular culture products into Japanese-as-a-foreign language (JFL) education has been discussed as a way to add linguistic and cultural authenticity to language classrooms (Armour, 2011) because popular culture items are one of the reasons for enrollment in U.S.-based Japanese language programs (Japan Foundation, 2017).

Considering out-of-class literacy practices are important assets that learners bring to their classrooms (Moll et al., 1992), it is essential to further investigate how learners' interest in popular culture serves as an entry point into formal language programs and encourages the continuation of learning. This idea has been supported by Benson (2011) and Dörnyei and Ushioda (2011) who pointed to motivation and autonomy as essential elements of life-long language learning. Thus, JFL programs should embrace this shift in the motivations and channels that bring learners into language classrooms in the first place. Fukunaga (2006) emphasized how JFL learners' involvement with Japanese popular culture affects their literacy development. Thus, learners who develop their own interests outside of the classroom are more likely to continue to engage with Japanese cultural products after their formal education ends. This includes fandoms' impact on L2 literacy practices (Sauro, 2017). Therefore, entertainment media such as digital games likely

deserve an important place in JFL education.

Game-mediated L2 studies have been conducted on a variety of topics. While there are more recent game-mediated studies in languages other than English (e.g., Ibrahim, 2016 for Arabic; Shintaku, 2016, 2019 for Japanese), game-mediated studies have been conducted predominantly in English-as-a-foreign language (EFL) (Wang & Vásquez, 2012). Mori and Mori (2011) also warn that various L2 approaches were originally designed for commonly-taught alphabet-based languages and that their applications to JFL may raise some unique issues. This uniqueness may come not only from the Japanese writing system having a mix of logogram (*kanji*) and two phonograms (*hiragana* and *katakana*) (Iventosch, 2012), but also from the global soft-power impact of Japanese digital games (Condry, 2009). Therefore, the current study investigated JFL learners' digital literacies involved in Japanese digital games, particularly fandoms and the roles of games for JFL learners. In this study, the term *digital game* includes any digitally-mediated game regardless of its platform (online or offline).

Literature Review

Digital Literacies and Games

In a variety of fields, the term *digital literacies* has been used to reflect a multitude of communication channels. Martin (2005) defined digital literacy as:

...the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process. (pp. 135-136)

The plural term, literacies, is considered more appropriate to capture the multiple facets of literacy brought into existence by digital technologies (Kern, 2000). Not only does the concept of digital literacies include gameplay for comprehending multimodal meanings (Gee, 2007) but also reading texts used in the media, participation in online communities, and consumption of fan-generated products (Sauro, 2017).

Game players can be considered actively engaged and involved in literacy practice while gaming (Gee, 2007). Thus, many researchers have also evaluated L2 digital literacies via digital games. However, non-EFL game-mediated studies are not yet exhaustive in their variety. While the Japanese video game industry is globally popular (Condry, 2009), vocabulary learning has been the primary focus of previous JFL game-mediated studies. DeHaan (2005) investigated the impact of a commercial baseball video game on vocabulary learning through listening skills and *kanji* recognition, and Hitosugi et al. (2014) examined the vocabulary learning and affection toward game use for JFL education. Shintaku (2016) reported the connection between vocabulary gains and retention with game design and vocabulary types and the importance of supplementally using worksheets to guide JFL learners for balanced language and cultural learning when vernacular games are used. Shintaku's (2019) study added to the actual in-class game-mediated activity through the use of worksheets to complement cultural learning with the vernacular game's content. When JFL game-mediated activities are used in class, other areas need to be explored to see if there are any unique challenges in JFL education.

Learning Milestones

Technology advancement allows for the expansion of learning opportunities outside of school and after formal education is complete, which supports people in their pursuit of life-long learning. The Organisation for Economic Co-operation and Development (OECD) (2010) recognized the importance of non-formal and informal learning outcomes for a person's success both during and past formal education. Additionally, the OECD (2010) highlighted that recognition of these learning outcomes underpins life-long learning and helps people see their growth and future goals on a trajectory of life-long learning.

In the framework used for analyzing students' educational success for completing their degree(s), Moore

et al. (2009) employed the term *milestones* as one of the key components. They defined milestones as “intermediate educational achievements that students reach along the path to degree completion” (p. 1). While their focus was degree completion, their definition shows that milestones are significant marks in a trajectory or a pathway toward a goal, which is a concept adopted in the present study. In game-mediated studies, Chik (2014) introduced how in-game texts could encourage learning trajectories, using the example of learning Japanese to access Japanese games. Additionally, digital games are a motivational drive for JFL learners to actively continue their autonomous and self-directed learning (Chik, 2014). It is important then that these learners know how to learn (Lankshear & Knobel, 2011) using digital games, and in order to better support them, it is necessary to know the role of digital games in supporting a goal trajectory or pathway, not only during formal education, but in life-long and non-formal learning that may occur after formal education.

Kanji, Furigana, and Honorifics in JFL Education

In authentic materials such as Japanese digital games in Japanese, JFL learners frequently encounter new *kanji* or its readings (*on*-reading and *kun*-reading) as well as different language forms before seeing them in their textbooks. According to the Agency for Cultural Affairs (2016) in Japan, the national list of *kanji* characters in common use includes 2,136 characters. Due to the complexity of multiple readings with a single *kanji* character (e.g., multiple pronunciations even within *on*-reading or *kun*-reading), the effective interpretation and use of *kanji* has presented a steep learning curve for many JFL learners (Van Aacken, 1999). With *kanji*'s complexity, *furigana*, a phonetic guide written in *kana* superscript, is generally displayed on top of the *kanji*.

Furigana holds an interesting position in JFL education. *Furigana* is used for Japanese native speakers when a certain *kanji* character is either not commonly used or beyond the assumed level of the target audience. This rule is applied to Japanese language textbooks for both native speakers and JFL learners. However, how each JFL textbook handles *furigana* is different. For example, Genki 1 (Banno et al., 2020) does not remove *furigana* in subsequent chapters for *kanji* characters once they are introduced in grammar sections but removes it in reading exercises. Nakama 1 (Hatasa et al., 2015) removes *furigana* in the subsequent chapters from particular *kanji* characters once they are introduced. Kirwan (2005) questioned whether *furigana* should be attached to an untaught *kanji* with its first appearance on every page, or only within its very first appearance in the entire text. In the survey, Kirwan reported that three-quarters of intermediate- and advanced-level learners preferred no *furigana* on the same *kanji* once already displayed on the same page. While there are websites that allow learners to turn *furigana* on and off on *kanji*, there is, unfortunately, no such feature for commercial games. Since *furigana* gives JFL learners efficiency in reading unknown *kanji*, it is important to pedagogically discuss how *furigana* should be used in JFL classrooms.

Regarding commercial games, the use of *furigana* is similar to how it is used for native speakers of Japanese. Capcom, a popular Japanese game company, posted *furigana*-related questions on its official Japanese website. For the PSP games *Monster Hunter Nikki* [Monster Hunter Diary] and *Airu de Puzzle* [Felyne de Puzzle], the same question was asked in Japanese “ゲーム中に表示される漢字にふりがなをつける機能はありますか?” [Do you have a function to turn on *furigana* on *kanji* used in the game?] Capcom's response was *no* (see https://www.capcom.co.jp/support/faq/platform_psp_pokapoka_airu_037912.html). This illustrates that the use of *kanji* and *furigana* is an issue even for Japanese users. Game companies may give better access to a variety of players by developing a function to turn *furigana* on and off since that may benefit native speakers and, possibly, non-native speakers.

In addition to *kanji* and *furigana* issues, honorifics use is another challenge for JFL learners. In Reinhardt and Ryu's study (2013), a social networking site was used for exercising the use of Korean honorifics, something that is challenging to learn in a classroom setting due to limited socially hierarchical interactions. Akiyama (2015) stressed the limitation of learning diverse registers and putting formality levels into practice for JFL classroom lessons. Ode (2001) cautioned that sociocultural appropriateness would be

difficult to provide in textbook learning alone. In formal JFL classes, an imperative or casual form would not be used between a teacher and students unless they are performing role-playing activities. Moreover, the use of honorifics based on social dynamics is difficult to recreate in classroom settings because honorifics are situationally dependent. For example, referent and addressee honorifics in Japanese are intricately involved in elements such as a topic of conversation and relative position of a speaker, a listener, and people around them as in-group or out-group (Tsujimura, 2014). Ode (2001) warns that the rules of honorifics are assumed to be learned and mastered all from the textbooks. However, without being in relationships and seeing applications of how honorifics and other registers are used, JFL learners have difficulty grasping the appropriate use in social dynamics. Therefore, formally acknowledging the educational capacity of outside-of-the-class L2 literacy practices, such as with digital games, could support diversity in L2 literacy practices, immerse learners in more aspects of the language, and lead to a more holistic language learning experience.

Motivations and Fan Communities

Motivation has been reported as a key component in learner engagement that facilitates successful L2 learning experiences (Dörnyei & Ushioda, 2011) and as an important ingredient of learner autonomy. Thus, there are connections among motivations associated with entertainment media, learner autonomy, and self-directed learning. To accurately capture gameplay experiences and their associated digital literacies, the significance of fandoms should not be ignored. Digital literacies used in fan communities built around entertainment media have been researched as outside-of-school literacy practices (Sauro, 2017). In previous studies, fandoms have been reported as spaces for socialization where L2 learners can establish their identities and membership (Black, 2013); spaces where L2 digital literacies can be practiced due to the lack of L2 accessibility in games (Chik, 2014); and spaces conducive to L2 learners' fan translation practices (Vazquez-Calvo et al., 2019). Nonetheless, fandom studies have been limited in range. Considering the influence of game fandoms on media creation, distribution, and consumption, an examination of JFL learners' involvement with digital literacies through game fandoms is needed to understand the scope of connection.

The present research is especially meaningful for JFL learners and instructors because Japanese entertainment media have influenced JFL learners' purposes for learning Japanese (Japan Foundation, 2017; Shintaku, 2022). While prior studies with interviews (e.g., Fukunaga, 2006; Northwood & Thomson, 2012) have suggested the positive impact of Japanese popular culture on JFL learners' motivation, none have focused on the impact that digital games have on their motivation or have documented their actual outside literacy practices. Chik's (2014) study with 10 Chinese students reported on autonomous JFL or EFL learning with Japanese or English game-versions. While the study explained intentional and incidental L2 learning situations, the specifics of how and what JFL learning was done via gameplay needs further exploration. Therefore, the use of digital games in JFL education must be further examined to extend our understanding of games as learning mediators.

The present study is part of a larger research project on digital literacies through entertainment media. In this paper, the following two research questions are explored: (a) How are games involved in JFL learners' digital literacies? and (b) How do Japanese games interplay with JFL learners' motivations?

Method

Participants

The participants in this study were: (a) 191 JFL students from among 280 students enrolled in one of six Japanese language program (JLP) courses who consented to take an anonymous survey ($n = 191$), and (b) JFL students in a game focus group (GFG) ($n = 6$). All students were attending a public university in the southwest US in 2017. The gender distribution of the 191 JLP participants was male ($n = 114$), female ($n = 75$), and undisclosed ($n = 2$). In this group, 64 participants were international students, mostly from China ($n = 60$). Within those six courses, 117 participants were enrolled in introductory courses, 61 in intermediate

courses, and 13 in advanced courses.

For JLP recruitment, an online survey link was posted on respective course websites, low- and high-novice, low- and high-intermediate, and low- and high-advanced levels. All of the surveys were conducted during class time except for low-advanced level students. In the GFG recruitment process, students had to meet the following conditions: (a) enrollment in or completion of a JLP intermediate or advanced course and (b) prior experience playing digital games either in Japanese or in their L1 with the desire to play games in Japanese in the future. The researcher recruited them by (a) visiting intermediate and advanced classes and (b) posting a recruitment announcement on the Japanese language course websites. Due to the capacity of the research design and operationality, the maximum number of GFG members was set to six, and participants were selected on a first-come, first-served basis. The researcher was not teaching intermediate or advanced courses during the research period. GFG participants were all U.S. domestic students enrolled in a high-intermediate course at the time of the study, except for Calvin, who had previously completed a high-intermediate course but was not enrolled in an advanced course. [Table 1](#) presents the GFG participants' data, including their pseudonyms. GFG participants formed two groups for group sessions, except for Dale, who played both games solo.

Table 1

GFG Participant Descriptive Data

Pseudonyms	Group	Age	Year in school	L1(s)	Have been to Japan?
Aron	1	23	Junior	English	Yes
Josh	1	19	Sophomore	English, Spanish	No
Jamond	1	22	Senior	English	Yes
Calvin	2	20	Sophomore	English	Yes
Sam	2	19	Sophomore	English, Spanish	No
Dale	Solo	19	Sophomore	English	Yes

Games

To cover common gameplay styles and the applicability to future in-class game use, two single-player commercial games in different platforms were selected based on the participants' grammar and vocabulary levels: *Dragon Quest Monster Parade* (DQMP) (Square Enix, 2013) for individual gameplay and *Boku no Natsuyasumi 3* (BNY) [My Summer Vacation 3] (Millennium Kitchen, 2007) for group sessions. DQMP is browser-based and freemium. Its in-game language contains honorifics and casual registers. BNY was released only in Japan for PlayStation 3. However, since the PlayStation 3 does not have regional restrictions, the game is playable on U.S. PlayStation 3 consoles. The game depicts life in Hokkaido in 1975 and features Japanese cultural information and everyday language use, employing a casual register and a Hokkaido dialect. Only one participant had heard of this game before the study. Neither game has ever been localized in English nor features any *furigana*. None of the GFG participants had previously played these two games. While all GFG participants owned a PlayStation 3, there were two game CDs available; one was reserved for group sessions, and the other was used for Dale's solo play due to his schedule limitation.

Surveys and Procedures

For 10 consecutive weeks, GFG played DQMP and BNY, engaged in self-directed learning, collaborated on PBWorks wiki pages, and wrote private weekly journals that they sent to the researcher via email (see [Private Weekly Journals and Interviews](#) for details). Additionally, participants completed an online survey at the beginning of the study and a semi-structured interview at the end. They were expected to devote a

minimum of 20 hours to the study in total: at least one hour per week for individual DQMP gameplays and self-study and two hours every other week for BNY group sessions (five total times). Group 1 and Group 2 game sessions were held at a campus lab. Dale played BNY on his PlayStation 3 at home for at least one hour every week.

The online surveys were created using Qualtrics and administered to all participants to collect data on JFL digital literacies and practices related to digital games. Both JLP and GFG had very similar survey questions. However, GFG participants were asked further questions on their familiarity with DQMP and BNY. The anonymous online survey for JLP was conducted as part of a program activity, while GFG participants received the survey link via email as their first activity.

GFG Documentation and Analyses

BNY group interactions at the lab were video recorded while the researcher was present to observe the interactions and to assist participants only for technological issues if needed. A laptop was available for internet searches, recording participants' browsing history. A PlayStation 3 console was connected to a game capture tool to record all gameplay, which helped to match the participants' conversations with the game scenes. Later, these three types of data were chronologically synthesized when the group recordings were transcribed.

Private Weekly Journals and Interviews

Private weekly journals were used to record GFG's individual reflections and experiences given that reflecting on one's learning in journals has been correlated with enhanced learning (Benson, 2011). GFG participants were asked to write anything from questions to experiences in a Word file—in English or Japanese—each week and email it to the researcher. After the study's 10th week, GFG participants were interviewed in their assigned groups while Dale was interviewed alone. All interviews were video recorded to capture nonverbal communications and were later transcribed. The semi-structured interviews focused on the participants' overall reflections on the GFG project, their formal and informal JFL digital literacies, their successes and challenges in self-directed and group learning activities, and their use of educational resources, referencing Fukunaga's (2006) study to develop interview questions on entertainment media.

Wiki Pages

GFG participants contributed to PBWorks wiki pages as a collaborative activity. First, the researcher created pages featuring the project description and schedule, as well as common resources including links for language tools and official game and fan websites. Additionally, a page was made for each game that had tables of (a) vocabulary or phrases, (b) kanji, (c) grammar, and (d) other information. The researcher added a few initial examples in each table. In the first week, all participants introduced themselves on a wiki discussion board. Subsequently, participants contributed to the wiki pages by searching for and adding information to the tables throughout the 10 weeks. The content of the wiki pages was not analyzed since the main purpose of the activity was to produce a collaborative experience. However, questions about the activity were featured in the interview.

Analyses

This study used a mixed-method approach with quantitative and qualitative analyses. The quantitative analysis was employed with GFG and JLP participants' online survey responses. Content analysis using Rivers' (2001) multistage analyses was employed with the GFG interviews, private weekly journals, and group gameplay documentation. However, in this study, defined aspects from interviews and private weekly journals (kanji; speech style and language use; learning procedure/strategies; link/connection; cultural knowledge; media's pedagogical use; motivation; learner awareness and analysis on their own progress and learning; socialization) were coded and re-coded. Their frequency was calculated. Aspects with higher frequency were developed into themes. Participants' responses are presented in their original form.

Results

While there were a variety of data collected from the instruments, the interviews and private weekly journals were mainly used for this paper to answer research questions one and two.

Research Question 1: The Involvement of Games in Digital Literacies

The first research question was: How are games involved in JFL learners' digital literacies? The JLP and GFG survey results showed that digital games provide opportunities for JFL learners to be exposed to JFL digital literacies and unique challenges of the Japanese language. As shown in [Table 2](#), most of the JLP participants had gaming experience, and more than 60% of JLP participants had experience in playing games in Japanese. The discovery that JLP participants had exercised certain digital literacies through gaming revealed the existence of outside-of-class exposure to JFL.

Table 2

JLP Game-related Survey Results

<i>(n = 191)</i>	Yes			No
1. Do you or have you ever played digital games?	91.10% (<i>n</i> = 174)			8.90% (<i>n</i> = 17)
	59.69 % (<i>n</i> = 114) Yes, I do	23.04% (<i>n</i> = 44) Yes, I have in the past but only occasionally these days	8.38% (<i>n</i> = 16) Yes, I did in the past but do not any more	---
2. Have you played any digital games in Japanese?	62.64% (<i>n</i> = 109)			37.36% (<i>n</i> = 65)
3. Have you played any fan-translated games?	39.27% (<i>n</i> = 75)			60.73% (<i>n</i> = 116)
4. Have you visited or participated in any game fan community site?	33.51% (<i>n</i> = 64)			66.49% (<i>n</i> = 127)

Note. Q2 (*n* = 174 who answered Yes in Q1).

Additionally, the results showed the involvement of fandoms in digital literacies. Particularly, the surveys analyzed JLP participants' experiences with fan-translated games and fan community sites. A language breakdown of these fan-translated games revealed Japanese to be the predominant originating language (see [Table 3](#)).

Table 3*Breakdown of Fan-translated Games by Languages*

Q: How was the fan-translated game translated? [multiple-answer question, Total count = 105]		
	Count	%
From Japanese to English	58	77.33%
From Japanese to Chinese	29	38.67%
From English to Chinese	15	20%
From English to Spanish	0	0%
From Spanish to English	2	2.67%
Other combination	1	1.33%

Note. $n = 75$ (participants with experience in fan-translated games).

Moreover, a language breakdown of community sites was also analyzed to uncover to what degree participants' experiences with an online game community were in Japanese (see Table 4). Unsurprisingly, most students had accessed fan sites in their L1. However, it also revealed that some of the students' involvement with digital games and fandoms was done in Japanese. The breakdown of languages also shows their other L2 involvement in digital literacies, which requires further attention to better understand digital literacies.

Table 4*Languages Used in Game Fan Community Sites*

Learners' L1	L2	Count
English	---	37
English	Japanese	10
Chinese	---	17
Chinese	Japanese	9
Chinese	English	11
Spanish	---	0
Spanish	Japanese	2
Spanish	English	4

Note. Question: What language was mainly used in that game fan community site? [multiple-answer question] Total count = 94 (only major languages shown).

As for GFG participants, all GFG participants had experience in playing games regardless of the in-game language, and the gameplay frequency for all participants ($n = 6$) was "between every day and twice a week." While everyone—except for Sam—had visited or participated in fan communities, Aron was the only one

who had done so in Japanese. All GFG members had some experience in playing Japanese games in Japanese prior to this study. However, their self-directed learning activities showed the interesting aspects of *kanji* and *furigana*.

In the current research, DQMP and BNY did not have any *furigana* within the in-game text, and this fact prompted GFG participants to think about the benefits and challenges of *kanji* and *furigana* in JFL education. They considered *furigana* beneficial and helpful for unknown *kanji*. However, based on their personal experiences, GFG participants further discussed how the use of *furigana* might be a double-edged sword in learning Japanese. For example, Jamond expressed his fear of becoming dependent on the *furigana* as a trade-off for smooth reading if *furigana* were available on *kanji* characters in the DQMP and BNY (JA: Jamond, JO: Josh, R: Researcher):

JA: I feel like it's good and bad in different ways. It's good; it helps you understand a lot faster. So you can progress the game and enjoy it and you can stick with it a lot longer. And learn reading and stuff like that. But I, personally for me, when furigana is there, I use it way too much as a crutch. I read the line but automatically go to furigana instead of looking at the kanji first [Jamond's finger goes over the invisible furigana on top of kanji, like drawing a rainbow, and Josh and Aron copied the exact same hand gesture together as Jamond did].

JO: Rainbow road!!

R: Skip the bottom...

JA: I was playing through a few years ago a game, I was reading reading reading, furigana, but wait I know this kanji, and then I look down the kanji, and I should have recognized it. Now when I read, when I play the game, I put my thumb over it. I have to force myself to read kanji, realize that I don't understand it and I look at the furigana. Instead of going straight. Because I can read hiragana perfectly. It's just I will be really better [with kanji]. (Jamond, Josh, and Aron, Interview, April 18, 2017)

As shown in the interview, Josh referred to the flow of looking up at *furigana* over the top of the *kanji* as a "rainbow road." Sam and Calvin also expressed similar opinions about *furigana*:

I had no idea some games have furigana and some games don't have furigana for kanji. Boku no Natsuyasumi was like everything was kanji, most everything was kanji, we had to search most of them. I was a little lost. (Sam, Interview, April 17, 2017)

...certain games have the furigana on top of it so it cuts off the time to look for individual kanji and stuff like that [having the hand gesture of using smartphone], and so like in the gaming sessions, I think the games with furigana on top would be helpful. But I also think the games without it [furigana] are also very good because a lot [of] people get too comfortable for playing games with furigana, and only doing that. But it should be a gradual thing. (Calvin, Interview, April 17, 2017)

Josh and Jamond both referred to *furigana* as a learning crutch. Jamond also expressed the opinion that the use of *furigana* removes the challenge from learning.

Like he [Josh] said that the best thing about the video game is that it forces you to practice what you've learned already. But I feel like furigana takes away because it hurts me when I'm trying to practice because I am not reading kanji. (Jamond, Interview, April 18, 2017)

The GFG participants suggested the ideal implementation of *furigana* in a game would allow the player to turn the *furigana* on and off based on their proficiency levels, although there is no such feature for commercial games.

Furigana gives JFL learners efficiency in reading unknown *kanji*. However, Jamond and Aron also emphasized the challenge with *hiragana*.

I think Pokémon is the worse example though. Because on newer games, there are only two modes: either all in kana [kana: hiragana and katakana] or with kanji and furigana. ... I feel like all kana is

really bad....It's hard especially for me to understand because kanji helps the meaning. (Jamond, Interview, April 18, 2017)

As Jamond recognized, having *furigana* took away his ability to practice *kanji*, and the “all in kana” mode would not allow him to practice *kanji*, either. Aron also warned against a language mode with no *kanji* from the viewpoint of using a game not specifically designed for language learning:

[It] would be helpful to people who already know how to speak but not quite how to read, however it is not as useful to second language learners who don't know how to speak and rely on kanji to be able to read and understand. (Aron, Final Reflection Journal)

For JFL learners, reading a sentence with unknown words all in *hiragana* does not necessarily connect them to correct meanings because of the nature of Japanese (e.g., *kanji* representing meanings, many homonyms) and makes it difficult to identify word-particle segments because there is no space for individual word chunks in Japanese. A game mode written entirely in *hiragana* tends to be included and is sometimes the only language mode available in games made for young Japanese audiences. There are also simple vocabulary-only games that are written entirely in *hiragana*, which might be fine for vocabulary-drill-based activities. The educational value of *furigana* use is inextricably intertwined with a learner's proficiency level. The amount of *kanji* unknown to JFL learners and the amount of available *furigana* within one media product are both heavily involved in the *furigana*'s usefulness in regards to the time it takes to search unknown *kanji* characters, which refers to continuation of enjoying the media. Therefore, in the process of selecting games for learning purposes, language mode and *kanji-furigana* availability are critical aspects to be considered.

Research Question 2: Digital Games as JFL Learners' Motivations

The second research question was: How do Japanese games interplay with JFL learners' motivations? Japanese digital games play a role in supporting JFL learners' motivations as milestones and goals.

Content Milestones in Games

In the survey, five GFG participants selected digital games (also manga, Japanese food culture, Japanese literature, and traditional culture) as *strong reasons* to learn Japanese while one participant selected that games were a *weak reason* from the list of purposes (Question: “Why are you studying Japanese?”). Moreover, the GFG participants' private weekly journals and interviews revealed how their interests in games were incorporated into their Japanese learning. As discussed in the literature review, the present research considers milestones to be significant development marks in an overall trajectory towards a goal. In this way, games can provide in-game story development that visibly demonstrates how far game players have progressed within narratives. In their weekly private journals and interviews, the GFG members reported their game and language progress:

I feel like I've finally reached a major milestone in this game by getting to the new continent! (Josh, Journal 10)

I understand the game now...Plus, the more I went around the world, more stuff popped up. So more interesting things for me to do. (Josh, Interview, April 18, 2017)

I had a lot of fun reading the story, really happy myself in understanding the plot sometimes...I'm not suck at reading Japanese... (Calvin, Interview, April 17, 2017)

These in-game story milestones seem to be not only gameplay achievements, but also visible language achievements for L2 learners.

Game Titles as Milestones and Goals

While in-game story milestones are an aspect of gameplay achievement, the GFG members also regarded the ability to access and understand Japanese games in Japanese itself as an achievement. Some game titles that JFL learners set as goals may become one of many other milestones later in their gaming life, acting

as a proof of their language development as well as gaming skill development. For example, Dale's journal features these two viewpoints—one as a JFL learner and the other as a game player:

My ultimate goal is to play a rather intense, mature Japanese game like *Dark Souls*, *Resident Evil*, or maybe *Final Fantasy* in Japanese. I would have loved to do that for this study, but I was having trouble with games that were likely targeted for younger audiences, so those games are probably way beyond my level. Once I finish [advanced course], I'll give them a shot. (Dale, Final Reflection Journal)

The games assigned in this study are set for all ages, which differs from the mature-rated games that Dale usually plays in English. Dale also expressed his hope to someday pass the highest level of the Japanese Language Proficiency Test in the interview. As Dale had taking an advanced language course integrated into the trajectory of accessing Japanese games, Dale's game-playing and language proficiency goals are closely tied. In this way, certain game titles can serve both as goals as well as milestones throughout his language proficiency level and gameplayer trajectories.

In addition to Dale, Sam, a computer science major, thought that playing Japanese games would directly relate to his future career developing games. Calvin and Jamond also expressed the goal of playing other *Dragon Quest* (DQ) games in Japanese; therefore, DQMP served as a vocabulary foundation for all future DQ gameplays. Most GFG participants reported that their past attempts at playing commercial games in Japanese were unsuccessful. Rather, they reported being unable to play all the way through or quickly giving up after getting tired of researching word meanings.

When I tried it before, I tried it only for minutes and after looking for a few words, I stopped because I didn't want to keep looking for words. (Jamond, Interview, April 18, 2017)

However, inspired by the GFG project, Calvin wrote his game plan in his journal:

I'm going slow with [Dragon Quest] Monster Parade, mostly because I actually really enjoy the Dragon Quest series, so I really want to cement the words used as I plan to play more Dragon Quest games in the future in Japanese. (Calvin, Journal 3)

Calvin started to play his old Japanese version of DQ V on PlayStation 2, which he had *modded* (modified) as a child to play Japanese-released games on his U.S. console. Thus, Calvin attempted to actualize his childhood desire of playing Japanese games in Japanese. As in Dale's case, they set those games as goals on their trajectory as JFL learners and as gamers.

Josh also started playing games in Japanese by switching in-game languages in his Steam library, as in Purushotma's (2005) study for changing the *Sims* in-game language from English to German. Jamond acquired a Japanese copy of a Nintendo game that he typically played in English.

... I've been inspired to start playing other games in Japanese. I went into my Steam Library and turned every game I could into Japanese so that way I could play through them like that, it really helps with vocab and seeing how some sentences are formed. It's an eye opener for sure. Even when I was playing *Overwatch* in Japanese, I felt a like the lines said by the characters are easily memorize-able and really increased my enjoy-ability of the game. (Josh, Final Reflection Journal)

Particularly for participants who were previously unsuccessful with playing Japanese games in Japanese, playing two GFG-assigned games made them notice their language progress since their childhood or their unsuccessful tries with other games. Equipped with a better understanding of the language, they were motivated to try the Japanese games that they had always wanted to play in Japanese. In addition to digital games, all GFG participants selected study abroad and future career opportunities as *strong reasons* for learning Japanese in the survey. Thus, playing Japanese games in Japanese is part of both their immediate and future academic and life trajectories.

Better Access to Japanese Games

GFG participants reported that their motivations could sometimes be fueled by necessity as discussed in

Chik's (2014) study. Even in the current digital era, not all Japanese games and resources are available in different languages or outside of Japan. Restrictions to control market shares exist with earlier game consoles and even with current mobile games and IP addresses. Jamond explained his interest in Japan and learning Japanese in relation to game scarcity:

I grew up with Nintendo games, and that is how I got interested in Japan in the first place. Games were not translated at all or were translated but it took so long to get translated to English in old days, like 10-15 years ago, to come to [the] US although now it is more simultaneous but, to play the games that I couldn't play in English, that is an initial reason why I started to learn Japanese. (Jamond, Interview, April 18, 2017)

Aron expressed an additional point about the scarcity of resources:

... because there will be like no English guide to it if it's not a popular game. I had to, I was forced to look up the Japanese version of how to play, the guide and the walk-through stuff. (Aron, Interview, April 18, 2017)

These comments illustrate how Japanese digital games motivated GFG participants even out of necessity, and these examples reaffirm the impact of Japanese entertainment media—digital games in this case—to learning Japanese.

Links Between In-class and Outside-of-class Learning

GFG participants reported links between their in-class learning and their self-directed learning. Some of them explicitly recognized the applicability of in-class learning—such as grammar and vocabulary—to their understanding of in-game texts. *Hand*, a character in DQMP, serves its master (i.e., game player) and uses many honorifics. When Jamond wrote his Journal 9, his class was covering honorifics based on social levels:

I find that what I learn in [JLP class] is immediately applicable to the media I consume. We just learned about 尊敬語 [honorifics] in class and I am picking up a lot of it, even in DQMP. (Jamond, Journal 9)

Dale also reported that he was able to apply the *kanji* recognition he learned in class to a more concrete understanding through two non-class contexts (anime and games):

I'm able to draw my knowledge from class, anime, and these games to create a triangular pattern of reinforcement that helps learning a lot. While operating in one of the points of the triangle, the other two pools of knowledge and experience come into play to make the point I'm operating in more successful. (Dale, Journal 5)

This self-analysis indicates Dale's learner awareness of his own learning source, which can help him become an efficient learner who can evaluate and develop a learning strategy through learner autonomy (Benson, 2011). For Jamond, having honorifics used toward him as a master helped him understand a concept that is complicated for JFL learners to grasp from textbook examples alone (Akiyama, 2015). Digital games provide JFL learners with a means to draw connections between their in- and outside-of-class literacy practices, demonstrating that what they consume beyond the classroom can bolster their Japanese literacies and vice versa. This in turn motivates JFL learners to continue consuming authentic resources.

Discussion and Pedagogical Implementations

As GFG participants described *furigana* as a crutch by recognizing the dependency on *furigana* as a possible risk, how to use *furigana* in *kanji* learning has been key in JFL education. Kirwan (2005) surveyed and noted that more than half of the intermediate JFL students preferred no *furigana* on simple *kanji*, interpreting the result in relevance to the learners' self-esteem in showing their proficiency level difference from beginners. Kirwan (2005) also highlighted the importance of introducing many *kanji* and suggested

that *furigana* should appear once on each page to avoid JFL learners from repeatedly going back to its first appearance to check the *furigana*. Since *furigana*'s font size is usually half that of the *kanji*, it may be more applicable to think of audio use in the case of digital games. However, the audio function in commercial games is another challenge for JFL learning, since audio speed may not be controllable. DQMP did not come with any audio other than the background music, but in-game text audio was available for BNY. While the number of untaught *kanji* is key in selecting commercial games for JFL education, the audio setting is also important. The presence of a game's audio features differs by game typologies, and turning the audio on or off may affect the game's format, like with BNY. In this regard, making decisions on enabling audio becomes critical based on learning purposes and proficiency levels. In BNY, GFG participants turned the audio off because they could not control the speed of in-game texts and scene changes when the audio was on. Although audio would be very helpful for untaught *kanji* recognition, this brings another challenge and highlights the importance of carefully selecting commercial games in JFL education.

The present study demonstrated that digital games can be feasible resources for JFL learning. Jamond's journals illustrated that he started to see the possibility of using Japanese games as a valid learning resource by observing Aron in the group sessions:

My group members can read very well. I need to catch up to them. One of them could just read the manual like it was written in English. He's also very well versed on idiomatic phrases. (Jamond, Journal 2)

Apparently, [Aron] from our Game Group 1 is very proficient in reading Japanese because he plays a lot of video games and spent a lot of time in the beginning looking up and reading kanji like how I'm doing right now. That's really interesting; I wonder if I keep playing games like this, will I be much better at reading kanji someday? (Jamond, Journal 5)

These examples from GFG participants may also suggest that importance of showing digital games as a possible language and cultural resource for JFL learners. The only GFG participant who had been constantly playing Japanese games in Japanese prior to this study was Aron, while the other GFG participants previously had unsuccessful experiences with commercial games in Japanese. Through GFG activities, they saw that they could play some commercial games in Japanese, which illustrates the importance of selecting games that are of the appropriate level for JFL learners.

Digital game genres, game designs, and subjects are very diverse, which is a great benefit for L2 learners' ability to find games that fit their interests and needs. However, because of this diversity, it is also an easy pitfall to use commercial games for language learning that are far beyond a student's proficiency level. While the proficiency gap may encourage JFL learning, it is also possible to have an unsuccessful experience like the GFG participants' past experiences. As researchers (e.g., Dupuy & Grosbois, 2020; Jacobs & Castek, 2018) highlighted, as a hub to prepare students with 21st century skills, higher education institutes can introduce the link between in-class and outside-of-class literacy practices by teaching them how to learn (Lankshear & Knobel, 2011) and various learning strategies (Kohnen & Saul, 2018). Since digital games are noted as one of the reasons for GFG participants' enrollment in Japanese programs, it may be worthwhile for Japanese programs to be able to introduce commercial games based on students' proficiencies. Considering all GFG participants expressed that they would continue learning Japanese after graduation, the way their experience as gamers and JFL learners develops from now on may be enhanced when higher education is ready to prepare L2 learners with 21st century skills (Dupuy & Grosbois, 2020) and help link their motivator to formal education.

Limitations and Conclusion

This study has some limitations. First, the JLP survey data are not generalizable. It would be ideal if this type of survey was collected at the same or any program level every year. Second, the number of GFG participants is small and may not fully represent the diversity of JFL learners and game players. Just as

digital games are incredibly diverse, so too are game players' practices and experiences.

Despite its limitations, the findings illustrated that JFL learners were exposed to digital literacies in both their L1 and L2 through Japanese digital games and their fandoms. Additionally, the present study introduced the unique challenges concerning *kanji* and *furigana* use—as well as honorifics—in digital games, and the importance of in- and outside-of-class learning was reported. Furthermore, the GFG results illustrated that story progress and achievement milestones in digital games support motivations. A parallel can be drawn between GFG members' goals of accessing and understanding Japanese games in Japanese and JFL learners' goals of reaching a proficiency level to play specific game titles. With all the results presented, this study revealed the educational potential of digital games and various positive roles in JFL learners' literacy lifeworld.

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