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Teaching and learning English through digital game projects

Jonathan deHaan

Abstract

Digital games are receiving increasing attention by researchers and practitioners in education; however, most of the theory and pedagogy focus on general education or language and literacy development of native speakers. There are very few investigations of game play or game culture and second language development. Language teachers and institutions must know more about games to use the media effectively. Two completed extracurricular projects, based on constructionist learning and media literacy theories and practices, are described in this paper: game design and game magazine creation. The action research projects aimed to guide students towards a better understanding of games' formal features and technologies through their active creation of games and game-related media, and to improve their spoken and written English language skills. In general, students learned and practised a variety of language and technology skills with the design projects. The projects motivated the students, challenged the students, and provided many opportunities for authentic discussions in the foreign language. Various suggestions, based on the teacher and student experiences of these projects, are made for other language teachers interested in conducting creative game-based projects with their students.

Keywords: *Digital games, game design, game journalism, project-based learning, second language acquisition*

Digital games have been very popular for several decades; the Entertainment Software Association (2010) reported that 67 percent of all Americans play digital games. Digital games are receiving increasing attention by researchers and practitioners in education; however, most of the theory and pedagogy focus on general education (e.g. Squire, 2006) or language and literacy development of native speakers (e.g. Gee, 2007; Steinkhueler, 2007). Effective second language teaching and learning with games is more likely to occur if practical conclusions can be drawn from empirical evidence.

Second language teachers, students or media designers may not be especially helped by general posits for digital games' support of second language acquisition that focus on the benefits of playful learning (Hubbard, 1991; Prensky, 2001), motivation, (Baltra, 1990; Carrier, 1991; deHaan, 2005a; Hubbard, 1991; Li & Topolewski, 2002), rewards (Li & Topolewski, 2002), or positive affect (Garcia-Carbonell, Rising, Montero, & Watts, 2001). Understanding how language learning may happen with digital games is "more than just the fact that language is involved in the play" (Hubbard, 1991, p. 221–222). It is easy to "blindly accept something as valuable for language learning simply because it involves language and problem solving and students enjoy it [M]edia selection should be done on the basis of ... whether it really promotes language learning" (Hubbard, 1991, p. 222).

Evidence of language learning outcomes from the use of digital games is somewhat mixed. deHaan (2005b) reported one Japanese as a foreign language student's experience of playing a Japanese baseball game for one month. Although anecdotal positive learning outcomes were documented (Kanji character reading improved 57% on the post-test from the pre-test), the participant reported that his attention was divided between playing the game and listening to and reading the Japanese ("I can hear them talking, but I'm concentrating on hitting the ball ... I'm not listening to them" and

“I’m trying to listen [to what the announcers are saying] . . . I’m not paying attention to pitching” p. 284) and he could not focus on both at the same time. Fujii (2010) studied the effects of an adventure puzzle video game. An EFL (English-as-a-Foreign-Language) Japanese university student participated in this project and played the English game for one month. Fujii found that the adventure puzzle video game improved the subject's English skills only slightly, but that the game's repetition and pausing feature assisted the language learner. deHaan, Reed and Kuwada (2010) compared 40 players and 40 watchers of an English-language rhythm game. Both the players and the watchers recalled second language vocabulary; however, the players recalled significantly less vocabulary. The digital game's interactivity seemed to have prevented the players from noticing and recalling vocabulary. Investigations have also been made of second language learning in multiplayer games. Piirainen-Marsh and Tainio (2009) studied small groups of players interacting with (i.e. repeating, analyzing, and using language from) a console roleplaying game, Sykes, Oskoz, and Thorne (2008) described meaning-making and pragmatic development among players in massively multiplayer online games, and Zheng, Young, Brewer and Wagner (2009) found that language learners' attitude and self-efficacy towards their second language improved through the use of tools to communicate with native speakers to complete quests in a game-like virtual world.

While various projects have investigated the efficacy of students learning language directly from a digital game, there are very few descriptions or evaluations of integrations of digital games or game-related activities in the language classroom. Students' hobbies and personal interests and experiences are often foundations for classroom activities, so it seems likely that some students and teachers may be interested in discussing games, or having instruction centred around games. Indeed, some (Arnseth, 2001; Squire, 2002) have argued that the power of games for educational purposes may not reside in the games themselves (i.e., a language student trying to learn the second language from a digital game), but rather in the context and activities related to and extending from play. Jordan (1992) discussed activities that can be done with games and pairs or small groups of language learners: note taking and reporting with sports games, problem-solving and negotiating with text adventure games, decision making and negotiating with resource management programs, and interpreting clues, negotiating, discussing, and retelling with branching story simulations. Carrier (1991) similarly described the integration of games in the classroom as collaborative, communication-fostering activities. Taylor (1990) stressed the importance of choosing an appropriate game or simulation for language learners, as fantasy games can be too unrealistic, text adventures and branching story games can be too difficult, and simulations or resource management games can require a great deal of teacher planning or require a lot of student prior knowledge in business or politics. Taylor described the incorporation of Maxis' 1989 game *Sim City* (a city planning simulation) into the language classroom, not only with a student playing the standard game individually, but also by groups recreating cities at a certain historical period (this required student research, planning, map-making, negotiating, writing, and reporting skills). Taylor mentioned the usefulness of sharing identical *Sim City* files among an entire class, or between schools or pen pals, and then posting and discussing reflections on gameplay on an Internet site. Coleman (2002) described another use of a commercial digital game—*Sim Copter* (Maxis, 1997)—in a second language classroom. The author used the different perspectives in the game (from the cockpit of a helicopter and from the view of a person walking around the same city) to teach the importance of considering audience in writing (in this case, of directions). Reinders (2009) suggested seven ideas for teaching writing using computers and games: having students investigate game characters and stories, having students describe their online game characters, having

students discuss game screenshots, having students write down their in-game choices, having students text chat in online games and printing those chat logs for language analysis, having students build a website to help non-native speakers play English games, and having students create and present simple games or machinima.¹

This paper describes two educational projects that used digital games as a context for language learning: computer role-playing game design, and game magazine design. The two projects took place in a digital game library at a rural Japanese University. The library was open to all students at the University between 20 to 30 hours per week, and contained more than a hundred digital games of various genres, and multiple PlayStation 2, PlayStation 3, Wii, Nintendo DS, Nintendo Game Cube and Windows computer systems. The room had wired and wireless Internet connections, and a digital projector and a screen to show games, Internet content, PowerPoint slides, and student work.

Constructionist learning (Papert, 1991, 1993) and media literacy (Buckingham, 2003) theories and practices helped frame the projects' design and implementation. Constructionist theorists and practitioners maintain that learning is an active process (i.e. people *make*, not *get*, ideas and knowledge) and that the best learning happens when students create personally meaningful projects. Recent media literacy education aims to not only teach students about a particular media, such as digital games, but also engage students in the thoughtful and reflective practice of making that media. Game literacy involves concentrated instruction regarding games' formal elements, technologies, industries, consumers and biases. The action research projects in this paper aimed to: (1) guide students towards a better understanding of games' formal features and technologies through their active creation of games and game-related media, and (2) improve their spoken and written English language skills. The next two sections describe the projects' instructional sequences, students' experiences and learning outcomes, and teacher reflections and suggestions.

Role-playing game creation

In the first project, I worked with three students for four months (we met five times) to design and develop English language role-playing games on the library PCs. These three students were friends and were very interested in careers in game design (one had a game design scholarship). They were students in one of my classes, and I offered to meet with them extracurricularly to make games and study English. We used the English version of RPG Maker VX (four licenses were purchased with research funds). I found game design articles and tools and led discussions on story and character design, and the student with the scholarship gave mini lectures on programming and other technical details (he created a wiki page for difficult terms and language in RPG Maker VX). We used an <http://pbworks.com> wiki to plan our games. Nearly all of the activities were done in English. The activities of the meetings were as follows.²

Meeting 1. We talked about RPG genre elements (character types, levelling, themes, items, parties), discussed the stories of our favourite RPGs (we collaboratively created an English summary of the main plot of Square's 2001 PlayStation 2 game, *Final Fantasy X*), and we started writing ideas for the main plot of our own RPGs. We learned how to create maps and add objects to the map in RPG Maker.

Students' summary of Final Fantasy X's story:

BEGINNING

When Tidus is playing blitzball in Zanarkland, Sin attacks him and he is sucked into another world.

MIDDLE (TURNING POINT)

Many people try to kill Sin using ultimate summon spell (soul), but Tidus notices Sin is born from ultimate summon and summoner (Yuna) is dead. This is the bad cycle.

END (RESOLUTION)

Sin is destroyed and the world is changed by stopping bad cycle (without summoner: continental circus, an airship goes into Sin and cooperates. In fact, Sin is Tidus's father) and Tidus is banished.

Meeting 2. I used an online three-part interactive story telling tool (<http://www.ludomancy.com/games/StoryTeller.html>) to reinforce narrative sections and language; the students experimented with the tool and had to verbally explain the story they had created. We took turns presenting our own story ideas; each person said one sentence for each chapter in his game. We learned how to create events (jumping to other maps and triggering battles).

Meeting 3. We refined our stories and continued working on game events (background music).

Meeting 4. We used www.gamefaqs.com and www.google.com to find game scripts from our favourite RPGs. The *Shin Megami Tensai: Persona 3* (Altus, 2007) script led us to discuss formal and casual English language and who might use certain English registers.

Persona 3 script student notes on the wiki:

student: casual conversation

ex) Student: S'up, dude? How's it goin'?

teacher: formal conversation

ex) Shuji Ikutsuki: Okay, everybody's here. I'd like your undivided attention.

One student wrote a mafia story, and wanted the dialog to fit the characters and setting; he spent a lot of time reading (and asking questions about) the script for *Grand Theft Auto III* (DMA Design, 2001), e.g., “get outta here!” He was very excited to find an English forum discussion on the game confirming the appropriateness of GTA vocabulary for his game:

Forum Question: Can GTA teach me English?

Forum Post: Maybe, but there are lots of bad words.

Student (out loud): “Yatta!”

(English translation: “Yippee! I did it!”)

Meeting 5. We discussed our favourite RPG characters and read an article by a professional game developer on effective game character creation (http://www.gamasutra.com/view/feature/3480/building_character_an_analysis_of_.php). The students were very focused on comprehending the article meant for other game professionals. We used the content of the article (characterization, character development, names and backgrounds) to shape the main characters in our games. Additionally, for our main character, we described how he/she would act in certain events (e.g. if he were asked for money, if she were asked on a date) using conditional

sentence structures. We also discussed dialects and varieties of English to characterise game characters, and also used online baby name websites to find appropriate names for our characters (e.g. one player searched for names meaning “beautiful”). Another student found and used a Japanese website with long lists of English adjectives and translations to describe personalities. We discussed how and why character names in Harry Potter (e.g. “Voldemort” or “Hermione”) “sounded good” or “sounded bad” and students reacted to each others' created names (e.g. “Peony” and “Menth”). We spent time manipulating and creating items for our games.

The students were very motivated to create games using RPG Maker VX; they often came hours before our meetings to work on their English text on the wiki or develop their games. The students were sometimes frustrated because they had “many ideas but can’t combine them.” The students were a little surprised when I asked them to use the English version of the software, but seemed to get used to the English menus and descriptions very quickly. The students pushed themselves to explain their story ideas to me in English, and the students offered (sometimes in Japanese) very constructive and detailed critiques of ideas. Writing story summaries, character descriptions, and brief dialogs provided opportunities for mini lectures on grammar (contractions, verb tenses) and vocabulary use.

RPG Maker VX was easy for these students (computer science majors) to use; options for less computer literate students might be The Cartoon Network’s game creation tools (<http://gamecreator.cartoonnetwork.com/>), Scratch (<http://scratch.mit.edu/>), or even drawing “screenshots” and game systems on paper. Language teachers interested in doing game design with their students should realise that game design software, even software as user-friendly as RPG Maker, quickly becomes very technical and time-consuming, and game development can easily detract from time spent on language instruction or interaction between students. Teachers might consider planning the initial sessions of the project (i.e. story generation, character development, script writing) to be focused on students learning about and practicing the target language in discussing their RPG ideas, and then having students work out of class for several weeks on the programming, art or music development for their projects.

This was a short project. If language teachers can devote more time to a game design project like this, additional media literacy activities could be added. Some useful projects might be having the students create a print or video advertisement for their game (teachers might talk about common advertising strategies to preface this assignment), having students create a press release or promotional webpage describing their game (students’ finished games might be uploaded to the site for distribution, if the game design software license permits), or having the students present their final game as a game demonstration at a mock industry event in the country the target language is used (e.g., the E3 or GDC conferences in America if English is being studied).

Game magazine creation

In the second project, I worked with eight students for four months on the creation of an issue of a print and online English game magazine. We met as part of a University-wide seminar series supported by extra credit and funding for each student. All of the students were taking or had taken one of my University English classes, all had played games in the library, and some belonged to a University game creation club. Many students had been friends before the seminar. The students elected to take the seminar, and there was no limit on the number of students I would have accepted. We used

Open Office (a free open source desktop publishing suite) to layout our magazine and an <http://pbworks.com> wiki to plan our articles. Nearly all of the activities were done in English. The magazine can be read at: http://issuu.com/aizugamemagazine/docs/made_in_japan_2009_akabeko_game_issue. The activities of each meeting were as follows.

Meeting 1. We discussed goals and steps of the seminar (creating and distributing an English language game magazine) and looked at numerous examples of print and online game magazines (e.g. *1up.com*, *Edge*, *EGM*, *Famitsu*, *Game Informer*, *gamespot.com*, *Play*) and made and ranked a list of important game magazine elements (e.g. title page, advertisements, game reviews, staff information).

Meeting 2. We narrowed the focus of our magazine (we decided to create a magazine introducing unique Japan-only games), selected features we wanted in our game reviews, brainstormed games to include in the magazine, and selected a high-quality colour printer to purchase with our budget.

Meeting 3. We deconstructed various authentic (i.e. written by native speakers of English) game reviews of *Pokemon Diamond* (Nintendo, 2010) (a game all the students had played); we made notes of important topics and evaluative language to describe games.

Meeting 4. We spent time writing our reviews, and I gave a short workshop on using online translation software effectively (i.e. sparingly and critically). I also gave the students some instruction about using dictionaries and thesaurus tools to develop (i.e. vary) the vocabulary in their reviews.

Meeting 5. We discussed common scoring guidelines and the students added scores to the sections of their reviews.

Meeting 6. We downloaded and installed Open Office on each computer. We used whiteboards then Open Office table formatting to discuss various layouts for our reviews. Students used a variety of layouts to organise their review sections. Students sent their reviews to me to edit after they finished. I gave them feedback about language choices and asked them questions to guide their writing (especially if something was unclear or ignored in their review).

Meeting 7. We brainstormed titles and layouts for the cover page, the table of contents and member and staff information pages of the magazine. This was an extensive process, but finally all members seemed to agree on fonts, colours, layouts and text. Each student used an online flash tool (<http://www.blogcdn.com/www.joystiq.com/media/2006/10/mii.swf>) to create a Nintendo Mii-like caricature of themselves for the staff information page.

Meeting 8. This was a work session for all members to finish their reviews and layouts and work one-on-one with me.

Meeting 9. We printed all the pages of the magazine and did a group and peer review of language and page layouts to standardise the content.

Meeting 10. A professional graphic designer working at the University in the Graduate School Office was invited to come to our seminar and critique each page of the magazine. The students were very nervous and excited about this process. They asked many questions about the layout, font, and colours of their pages. This activity was done in Japanese because the graphic designer spoke limited English. The students seemed very appreciative of the designer's professional advice and made numerous changes based on her feedback.

Meeting 11. The pages were consolidated into one Open Office document and a PDF file of the magazine was created and once more reviewed for any omissions or formatting changes. When all the members were satisfied with the magazine, we created an issuu.com (an online magazine reading site) account and uploaded our file for public

reading. The students learned how to embed the document on their own blogs and websites, and how to monitor the reading/downloading of the magazine from issuu.com (we shared issuu.com login information). We had a small “publishing party.” The remaining seminar budget was used to pay a printing company to make three bound copies of the magazine for each member.

Although some of the students lost some motivation over the course of the semester (originally there were 10 members but 2 dropped out), the final weeks of designing and reviewing the magazine pages seemed very motivating to the students and all seemed very happy with the final results. This project created opportunities for students to develop their speaking skills (discussing games, the magazine focus, and various design and layout issues), listening skills (having to listen carefully to other students' ideas in order to respond appropriately), reading skills (reading numerous game reviews carefully to learn how to write reviews in English) and writing skills (using positive and negative critical language and describing game features). The students also developed their use of word processor, dictionary, thesaurus and translation software. I worked extensively with each student to help them write what they wanted to convey, and was able to help students use new vocabulary related to games and gameplay (e.g. “learning curve”). The students were very motivated by the professional designer's critique of their work; they began to work much harder when her visit was announced a few weeks prior to the visit. The wiki was useful for planning magazine text and for me to give students individual feedback.

However, there were not enough PCs for each student so the web browsers and USB keyboards on PlayStation 3s were used by some of the students to write on the project wiki. The students did not seem comfortable using these technologies (the connection was slow and the wiki did not display well on the television screen). There were also limitations to using Open Office to layout the magazine; some students had difficulty working with tables to create their pages and also had trouble manipulating images. Working in a larger computer lab with design software such as Scribus (also open source) might be easier to manage for the instructor and students.

A game magazine publication project seems well suited for an extracurricular project for students especially interested in games or critical writing. This project could be modified for other group review projects (perhaps of movies or music). Teachers working with lower level students might consider having students work in pairs (in order to focus students more on language by negotiating content). Alternative formats of the magazine might include a blog or half-page reviews (as long as students have enough space to describe and critique their selected games). This project could be scaled down to be used in project-based writing instruction (magazines could be a framework for developing students' descriptive, summarizing, technical, and critical writing skills). If computers are not available, students could write or draw on notepaper and the pages could be copied and bound for the class.

Conclusion

Students practiced a variety of language and technology skills with these design projects. The projects motivated the students, challenged the students, provided opportunities for authentic discussions in the foreign language, and gave the students concrete language, technology, teamwork and creative experiences. Constructionist learning theories and media literacy theories seemed to have been appropriate frameworks for the two design projects described in this project. All of the students were interested in games and technology, and the students worked and learned collaboratively on projects that were important to themselves, our groups, and a larger audience (i.e. readers of our online

game magazine). Students were thoughtful and deliberate about their creation of stories, game elements, critical writing, and artistic expressions. Students seemed to have gained a deeper understanding of games, game-related media, and creative technologies alongside their acquisition of various aspects of the English language.

These projects seem to be best suited to language teachers who are comfortable varying the structure and focus of instruction. The general focus and methods of the projects were decided before formally meeting with the groups of students, but the specific teaching materials (e.g. game scripts, dictionary mini lectures, English dialects, evaluative language) needed to be quickly found or created as students needed them for their projects. The teaching in these projects was very much “just in time.” Leaders of these projects can plan much of the instructional sequence (e.g. how to tell a story in English, how to structure an English game review) before meeting the students, but in order to achieve the powerful learning afforded by constructionist practices, teachers should realise that some or all of their lessons will need to be quickly altered to meet students' needs. Projects such as these may not easily fit into traditional English language curriculums or classes with other goals. Teachers are urged to be mindful of what and how their students like, want and need to learn.

As suggested above, additional literacy activities should be added to projects such as these, if time permits. Formal instruction and student-centred projects should focus on game aspects such as audience (i.e. who plays games and why, and how games and game companies communicate with people) and representation (i.e. how games communicate ideas and what biases games support). The projects described in this paper seemed to work very well for students at a computer science university, but additional materials, projects and technologies (i.e. simpler game design software or tools) may be better suited to students in other contexts. The creation of constructionist projects for game and media literacy development needs to be continued and tested in authentic learning settings to guide the practices of second language teachers.

Notes

¹ Machinima are player-made animations made using digital game graphics.

² Additional video game library information, teaching recommendations, game-based project ideas, and examples of student projects can be found at <http://langcom.u-shizuoka-ken.ac.jp/dehaan-games-language-learning>

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